International Journal of Advanced & Integrated Medical Sciences

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Albert Einstein

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Bareilly, Uttar Pradesh, India
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Comparative Study of 0.1% Olopatadine vs 0.05% Cyclosporine in Patients of Recalcitrant Vernal Keratoconjunctivitis

1Etti Goyal, 2Jaya Devendra, 3Pranav Gupta

ABSTRACT

Introduction: Vernal keratoconjunctivitis (VKC) is a chronic, recurrent, bilateral inflammatory disease showing exacerbations during the spring and summer seasons, affecting young children. Present study was conducted with the aim of comparing the efficacy of cyclosporine 0.05% with olopatadine 0.1% in recalcitrant patients of VKC.

Materials and methods: A prospective randomized controlled trial was performed on 40 eyes (20 patients of recalcitrant VKC) during the period of May 2015 to September 2015. A short course of mild steroid was given for 5 days to all patients as they presented with acute exacerbation of recalcitrant VKC. Left eye of each patient received topical cyclosporine 0.05%, which is a nonsteroidal immunomodulator, twice daily, and right eye of the same patient received olopatadine 0.1%, which has a dual action, i.e., mast cell stabilizer action as well as antihistaminic activity, twice daily for a period of 3 months. Grading of signs and symptoms was done at the time of presentation and at 2 weeks, 1 month, and 3 months interval.

Results: When compared with baseline, scores for signs and symptoms at 2 weeks reduced significantly for both cyclosporine and olopatadine. However, at 3 months, scores as regards signs and symptoms were found to be lower in cyclosporine as compared with olopatadine eyes.

Conclusion: Cyclosporine 0.05% was found to be equally effective in treating signs and symptoms as olopatadine in the early phase of the treatment. But, a significant improvement was noted in cyclosporine eyes as compared with olopatadine eyes in the late period.

Keywords: Immunomodulator, Mean symptom score, Nonsteroidal, Recalcitrant.

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Source of support: Nil
Conflict of interest: None

INTRODUCTION

Vernal keratoconjunctivitis (VKC) is a chronic, recurrent, bilateral inflammatory disease of cornea and conjunctiva affecting young children, mostly in their first decade of life. Signs and symptoms of VKC show exacerbations during spring and summer seasons, but a small percentage of patients have the perennial form.

Diagnosis of this allergic condition is done by the presence of characteristic clinical features which consist of itching, tearing, mucous discharge, conjunctival hyperemia, cobblestone papillae seen over upper tarsal conjunctiva, Tranta’s spots over the limbus, and superficial keratitis. Severe corneal involvements in the form of shield ulceration and conjunctival cicatrization are sight threatening.

The pathogenesis of VKC is considered to be multifocal with the involvement of immune, nervous, and endocrine systems.

Steroids are being used as the mainstay of treatment for VKC, but a standard treatment protocol is not yet established. Steroids are very effective in controlling the acute exacerbation, but they may cause intraocular pressure elevation in steroid-responders, risk of corneal infection, and cataract. Therefore, they are used for a short period of time. Topical mast cell stabilizers and antihistamines are also used to reduce the signs and symptoms of the disease. Olopatadine 0.1% acts as a mast cell stabilizer as well as an antihistaminic in treating patients of VKC. Studies have shown that it is more effective than sodium cromoglycate, ketorolac, and levocabastine. Cyclosporine 0.05% is a nonsteroidal immunomodulator, used as an effective alternative for the control of ocular inflammation. It inhibits eosinophilic infiltration into the conjunctiva without affecting systemic immune responses.

In the present prospective study, we compared the effects of topical olopatadine 0.1% vs topical cyclosporine 0.05% on the signs and symptoms of patients of recalcitrant VKC, with an aim to earmark the superiority of either of the drugs in the management of VKC.
MATERIALS AND METHODS

This was a randomized prospective controlled trial performed on 40 eyes of 20 patients of recalcitrant VKC, who came to the outpatient department (OPD) at Rohilkhand Medical College and Hospital, Bareilly, India, during the period of May 2015 to September 2015.

Inclusion Criteria

- Age >5 years
- Patients of recalcitrant VKC
- Bilateral symmetrical presentation

Exclusion Criteria

- Patients who did not give consent
- Patients with other active ocular inflammatory disorders apart from VKC

All patients presenting in the OPD between May 1, 2015 and September 30, 2015, and fulfilling the inclusion criteria were included in the study. A total of 20 patients (40 eyes) were enrolled in the study. An informed consent was taken from them after which each patient was subjected to a detailed slit lamp examination.

Symptoms like itching, tearing, foreign body sensation, and discharge were graded on a scale of 0 to 3 on the basis of grading system adopted from Ozcan et al11 (Table 1).

Table 1: Grading of symptoms

<table>
<thead>
<tr>
<th>Grade</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Itching</td>
</tr>
<tr>
<td></td>
<td>Tearing</td>
</tr>
<tr>
<td>1</td>
<td>Foreign body sensation</td>
</tr>
<tr>
<td></td>
<td>Discharge</td>
</tr>
<tr>
<td>2</td>
<td>Occasional</td>
</tr>
<tr>
<td></td>
<td>Sensation of fullness in sac</td>
</tr>
<tr>
<td></td>
<td>Infrequent spilling of tears over lid margin</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Moderate amount of mucoid discharge</td>
</tr>
<tr>
<td>3</td>
<td>Constant</td>
</tr>
<tr>
<td></td>
<td>Constant spilling of tears over lid margins</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
</tr>
<tr>
<td></td>
<td>Eyelids matted together on awakening</td>
</tr>
</tbody>
</table>

Signs like limbal hypertrophy, bulbar conjunctival hyperemia, and tarsal conjunctival hypertrophy were noted and graded on a scale of 0 to 3. Grading system is shown in Table 2.

Table 2: Grading of signs

<table>
<thead>
<tr>
<th>Grade</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Limbal hypertrophy</td>
</tr>
<tr>
<td></td>
<td>Bulbar conjunctival hyperemia</td>
</tr>
<tr>
<td></td>
<td>Tarsal conjunctival papillary hypertrophy</td>
</tr>
<tr>
<td>1</td>
<td>One quadrant</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
</tr>
<tr>
<td>2</td>
<td>Two quadrant</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
</tr>
<tr>
<td>3</td>
<td>&gt;2 quadrants</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
</tr>
</tbody>
</table>

After grading of signs and symptoms, treatment was initiated. All patients received a short course of topical fluorometholone thrice daily, in both eyes for a period of 5 days. Along with this, right eye of each patient received topical olopatadine 0.1%, twice a day and left eye of same patient received topical cyclosporine 0.05% (Imudrops), twice daily. Patients were followed up for a period of 3 months, and scoring of signs and symptoms was done at 2 weeks, 1 month, and 3 months intervals.

Statistical Analysis

Statistical analysis of data was done using Statistical Package for the Social Sciences software version 22.0 and unpaired t-test was applied. A p-value of <0.05 was considered statistically significant.

RESULTS

The present study was done on 40 eyes of 20 patients of VKC in whom majority were male (70%) as compared with females (30%).

Mean age of the patients was 9.4 years, with minimum and maximum age being 7 and 14 years respectively.

Mean scores for signs and symptoms of both olopatadine-treated eyes and cyclosporine-treated eyes are given in Table 3. At 2 weeks posttreatment, olopatadine-treated eyes showed a significant reduction in mean symptom score (p < 0.01). Similarly, in cyclosporine-treated eyes, a highly significant reduction was seen (p < 0.001). Both drugs were individually effective in lowering the mean symptom and sign score posttreatment at 1 and 3 months intervals when compared with mean baseline symptom and sign scores.

On comparative analysis of mean symptom and sign score between olopatadine- and cyclosporine-treated eyes, the response noted was not statistically significant at 2 weeks (p > 0.05). At 1 and 3 months, a highly significant difference was noted (p < 0.001) (Table 4).

DISCUSSION

Vernal keratoconjunctivitis is a chronic allergic inflammation, which is characterized by recurrent, mostly symmetrical involvement of both eyes.12 Disease shows seasonal exacerbations, but occasional perennial forms are also encountered.
Comparative Study of 0.1% Olopatadine vs 0.05% Cyclosporine in Patients of Recalcitrant Vernal Keratoconjunctivitis

Male pediatric population is typically more affected than female,\textsuperscript{1,5,13} and similar observation was noted in the present study, with male:female ratio of 2.3:1.

Rarely seen in adults, VKC affects young children in the first decade of life.\textsuperscript{14,15} Leonardi et al\textsuperscript{16} conducted a study on 406 VKC patients and reported that 83% of the patients were less than 10 years of age at the time of presentation and same age distribution was seen in this study.

Vernal keratoconjunctivitis is a multifactorial disease with immune-mediated processes. T-helper 2 (Th2) lymphocytes, eosinophils, immunoglobulin E (IgE), mast cells, interleukins, and other cell mediators are known to play a major role.\textsuperscript{11} Few authors have reported that neural factors and sex hormones also contribute to the pathogenesis of VKC.\textsuperscript{3,12,14}

As for other allergic conditions, the main aim of treatment in VKC is blockage of release of allergic mediators and control of allergic inflammatory cascade and, in turn, protection of ocular structures. Various treatment modalities of VKC are topical mast cell stabilizers, antihistaminics, corticosteroids, and immunomodulators.

Cyclosporine is an immunomodulator, which acts as an anti-inflammatory agent by blocking histamine release from mast cells through inhibition of calcineurin essential for IgE receptor mediated exocytosis of preformed mediators from mast cells. It also acts by inhibiting Th2 lymphocyte proliferation and interleukin (IL)-2 and IL-5 production and, thus, prevents eosinophil infiltration.\textsuperscript{17}

Various studies have reported the benefit of cyclosporine in reducing the ocular signs and symptoms in patients of VKC with different grades of severity.\textsuperscript{18-21} In the present study, a comparison of efficacy of both cyclosporine and olopatadine with regard to objective symptoms like itching, tearing, foreign body sensation, discharge, and signs like limbal hypertrophy, hyperemia of bulbar conjunctiva, and papillary hypertrophy over the palpebral conjunctiva was done.

A significant improvement in symptoms and signs was noted at 2 weeks in eyes treated with cyclosporine as well as those treated with olopatadine, but the results were highly significant in the eyes treated with cyclosporine.

At 2 weeks, when we compared both, no statistically significant results were seen. Then after a period of 1 month, improvement in the cyclosporine eyes was statistically significant with a p < 0.01 for symptoms and p < 0.01 for signs. After 3-month interval, highly significant difference was noted in the cyclosporine-treated eyes for both symptoms and signs (p < 0.001).

Limitations of the study were a small sample size and a short follow-up period. Further studies are required to establish the efficacy of cyclosporine as a prophylactic measure for the acute exacerbations in patients of recalcitrant VKC.

CONCLUSION

In early phase of the treatment, both cyclosporine 0.05% and olopatadine 0.1% were found to be equally effective

<table>
<thead>
<tr>
<th>Treatment period</th>
<th>Olopatadine</th>
<th>Cyclosporine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>At presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom</td>
<td>6.9</td>
<td>1.34</td>
</tr>
<tr>
<td>Sign</td>
<td>4.5</td>
<td>1.15</td>
</tr>
<tr>
<td>2 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom</td>
<td>5.5</td>
<td>0.83</td>
</tr>
<tr>
<td>Sign</td>
<td>3.4</td>
<td>0.84</td>
</tr>
<tr>
<td>1 month</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom</td>
<td>3.5</td>
<td>1.08</td>
</tr>
<tr>
<td>Sign</td>
<td>2.4</td>
<td>0.70</td>
</tr>
<tr>
<td>3 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom</td>
<td>1.8</td>
<td>0.42</td>
</tr>
<tr>
<td>Sign</td>
<td>1.3</td>
<td>0.45</td>
</tr>
</tbody>
</table>

SD: Standard deviation
in alleviating signs and symptoms of VKC. But, in the late period, a clinical and statistical significant improvement was noted in cyclosporine-treated eyes as compared with olopatadine-treated eyes.

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A Clinicopathological Study of various Conjunctival Lesions in Children

1Juhi Goel, 2Swapnila Prasad, 3Ashutosh Dokania

ABSTRACT

 Conjunctival cysts are of a common occurrence in clinical parlance. These tend to be mostly asymptomatic. However, the underlying cause may be vision threatening. Thus, we conducted a clinicohistopathological study of conjunctival cysts in pediatric age group who presented to our outpatient department in Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India. The aim was to analyze the risk factors, clinical presentation, treatment modalities, and a certain type of cysts in order of their frequency. Significant history, detailed ocular examination, and relevant investigations that were carried out in 10 cases of conjunctival lesions were noted. The management was done and the histopathological examination (HPE) reports were charted. Despite a similar clinical presentation, HPE revealed varied diagnosis. These comprised choristomatous cysts (4), subconjunctival cysticercosis (2), inclusion cysts (2), inflammatory cyst (1), and capillary hemangioma (1). Conjunctival cysts are not just a cosmetic blemish. A detailed ocular examination, early diagnosis, and treatment can help prevent various vision-threatening complications.

Keywords: Conjunctival cysts, Cysticercosis, Lipodermoid.


Source of support: Nil
Conflict of interest: None

INTRODUCTION

While conjunctivitis is the commonest disorder, conjunctival swellings also form a sizable portion of affection in children. These swellings may be congenital or acquired, and each, in turn, may be a cystic or a solid swelling. Conjunctival lesions are usually asymptomatic but may cause foreign body sensation, dry eye, reduced ocular mobility, astigmatism, and cosmetic blemish. Malignancies in children are extremely rare, accounting for 3% of conjunctival tumors and a definitive diagnosis is based on histopathological examination (HPE). The mainstay of treatment is excision. A search of medical literature did not reveal any previous reports on the incidence of conjunctival lesions among children from India. This report presents a series of 10 cases of various conjunctival lesions seen in pediatric age group detected over a period of 1 year at Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India.

MATERIALS AND METHODS

A retrospective chart-based review was conducted on cases of conjunctival lesions over a period of 1 year. Medical records were retrieved using the international classification of diseases 10 code H 11.4. Ten charts were obtained and details of history, clinical examination, including visual acuity evaluation using the Snellen chart, anterior segment assessment by slit lamp biomicroscopy, and detailed posterior segment examination which was performed via a dilated direct and indirect ophthalmoscopy were noted. Relevant investigations which were carried out, including hematological examination, X-ray chest, orbit and paranasal sinuses, B-scan, computed tomography (CT) scan, and magnetic resonance imaging to assess the nature and extent of the lesions were also evaluated. In most of the cases, cysts were excised and surgically excised tissues were sent for HPE. The findings obtained on histopathological study were also charted.

RESULTS

In this study, 10 cases of conjunctival lesions were analyzed in children. Males (60%) were more frequently affected as compared with females (40%). Most of the swellings were cystic (70%) and rest were solid (30%) in nature. It was seen that left eye was affected in 7 cases and right eye in 3 cases. The most common site of origin was found to be bulbar conjunctival (90%). Majority of cases were found to be common in the age group of 7 to 12 years of age (60%), followed by 13 to 18 years of age (30%) and then those before 6 years of age (Graph 1).

It was seen that mostly the affected children presented within a period of 0 to 6 months of onset of symptoms, of which the appearance or progressive increase in size of swelling was of utmost importance (Graph 2). Of the symptoms which were noted, foreign body sensation was found in 60% cases, followed by progression of swelling (50%) and watering (40%) (Table 1).

On clinicohistopathological evaluation, it was seen that the 40% of cases were of choristomas that included one case
of limbal dermoid cyst, one case of epidermal cyst, and two cases of lipodermoid cysts. Twenty percent cases were those of parasitic cysts, with two cases of subconjunctival ocular cysticercosis. Others were inclusive of capillary hemangioma (10%), inclusion cyst (10%), inflammatory cyst (10%), and multiple serous cysts (10%) (Graph 3).

**DISCUSSION**

Conjunctival lesion can be acquired or congenital. In this study, majority of cases were found to be common in the age group of 7 to 12 years of age (60%). These can be cystic lesions, such as epithelial implantation cyst, epithelial cyst (epithelial down growth or pigmented cyst), parasitic cyst, degenerative cyst (pterygium), postinflammatory cyst (Vernal kerato - conjunctivitis), or they can be solid tumors that may originate from any of the several different types of tissues contained in the conjunctiva, such as tissues of choristomatous, epithelial, melanocytic, vascular, fibrous, xanthomatous, and lymphoid origin. In this study, majority of cases were found to be cystic (70% cases) and the rest 30% were solid lesions. Some of the important risk factors associated with conjunctival lesions include solar radiation, heavy outdoors work, dust, wind, unhygienic living conditions, ocular surface injury, and chemical exposure, such as trifluridine, arsenic, beryllium, and petroleum products.

In this study, it was noted that the occurrence of such lesions was more with males (six cases), although gender does not pose to be a risk factor. Also, it was seen that due to some unknown cause, the left eye was more commonly involved (seven cases). The most common site of origin was found to be bulbar conjunctival (90%) out of which majority of cases were seen affecting the temporal side (seven cases), and the medial side of bulbar conjunctiva was affected in two cases.

The clinical presentation of conjunctival lesions may range from mild ocular discomfort in the form of foreign body sensation, dry eye to serious complications, such as painless progressive proptosis, optic nerve compression, globe displacement, motility deficits, astigmatism, or diplopia as seen with dermoids. Ocular cysticercosis may lead to blindness in 3 to 5 years if left untreated. In this study, the presenting symptoms in order of their frequency were as follows: Foreign body sensation (60% cases), increase in size of the swelling (50% cases), watering (40% cases), difficulty in closure of eyelid (30% cases), mild ocular pain (30% cases), mild ptosis (10% cases), and astigmatism (10% cases).
About 80% of the entire cystic lesions of conjunctiva are inclusion cysts. They can be primary or secondary. Secondary inclusion cysts are more common. In this case series, it was seen that the commonest conjunctival cystic lesion in pediatric age group was secondary inclusion cysts, which included two cases of parasitic cysts, two cases of serous inclusion cyst, and a single case of chronic nonspecific inflammatory cyst.

Both cases of parasitic cyst were of subconjunctival cysticercosis. It is caused by *Cysticercus cellulosae*, the larval form of *Taenia solium*, which is endemic in tropical areas with an incidence of 10 to 30%. It occurs worldwide, mainly in rural regions with insufficient sanitary conditions. The ocular cysticercosis can involve any part of the eye. Most commonly affected ocular tissue is subretinal space (35%), vitreous (22%), subconjunctival tissue (22%), anterior segment (5%), eyelid, and orbit (1%).

Literatures also state the medial side to be more commonly involved than lateral on account of the anatomic course of the ophthalmic artery. This coincides with both cases in our series. Intraocular involvement has been reported to be common in the Western countries and in North India, while extraocular involvement is reported in South India. This might be due to differences in the types of platyhelminths in different regions, or perhaps due to climatic or environmental factors. However, this was not collateral with that seen in our study (Figs 1A and B).

In one of the cases, a 13-year-old female presented with a conjunctival swelling for past 2 months. It was soft, mildly tender, and nonreducible. Ocular mobility was full and free in all directions. There was mild eosinophilia. Computed tomography scan showed mildly edematous and bulky medial rectus muscle. Intracranial examination showed findings within the normal limits. Urine and stool examinations were normal. Also, the other case was a 14-year-old female, a nonvegetarian, who presented with an oval mass, 6 × 4 mm on bulbar conjunctiva. It was soft, mobile, and nontender. B-scan showed a cystic cavity with parasitic infestation. She showed mild leukocytosis with eosinophilia and raised erythrocyte sedimentation rate. On stool examination, cysticercosis was found. She was given oral albendazole for 4 weeks. In both cases, cyst was excised and sent for HPE. Moreover, the patients were managed by complete surgical excision followed by albendazole therapy in a dose of 15 mg/kg/day in two divided doses, which was tapered over 4 weeks.

Multiple serous cysts were managed conservatively with topical nonsteroidal inflammatory drugs and antibiotics. They regressed over a period of 4 to 6 weeks. Inclusion cysts were meticulously excised surgically. B-scan was helpful in most cases as it revealed a cystic lesion in these cases.

The most common conjunctival tumors in children include nevus (64%), dermolipoma (5%), lymphangioma (3%), and capillary hemangioma (3%). In this study, among the conjunctival tumors, we had four cases of dermoids and a single case of capillary hemangioma. Deeper dermoids may present in adolescence or adulthood, while anterior dermoids typically present in first decade. Even in this series, all four cases were anterior dermoids and belonged to first decade of life. The most common location for the anterior lipodermoid cyst is at the superolateral aspect of the orbit (Figs 2A and B), which may be attached to the orbital rim at the frontozygomatic suture. Syndromic associations, such as Goldenhar syndrome should be ruled out.

In our study, various radiological investigations were done to see the nature and extent of lesions. In three cases, noncontrast CT orbit revealed a lipomatous lesion. Moreover, in the fourth case, a 5-year-old female child presented with a mass in left eye since childhood. It was an oval 8 × 9 mm mass found at limbus around 5 o’clock.
Hair follicles were seen protruding out of the mass. It was firm, fixed, and yellowish brown in color. B scan and MRI showed findings suggestive of a limbal dermoid cyst. This cyst is not associated with other abnormalities, such as preauricular appendages, hemifacial microsomia, microtia, and vertebral anomalies for which an additional workup was done. Blood counts were normal. Cyst excision with sectoral superficial keratectomy was done. Histopathology revealed choristomatous tissue, including epidermal appendages, hair follicles, adipose tissue, suggestive of limbal dermoid cyst.

Subconjunctival hemangiomas are a clinical rarity, with an incidence of 1 to 2% only. They generally exhibit two phases of growth, a proliferative phase and an involutional phase. One half of all lesions will involute at an age of 5 years, and 75% will involute by 7 years of age. In this study, a single case of capillary hemangioma was considered (Fig. 3). Care needs to be taken while dissecting a conjunctival hemangioma as it may bleed profusely. But, this is not the case in our study, as it was reported to be in its involution stage.

**CONCLUSION**

 Conjunctival lesions are not just a cosmetic blemish but can cause severe ocular discomfort and can even be vision threatening. Despite similar appearances, the serology and histopathological reports may reveal varied diagnosis. Therefore, a detailed history, clinical ocular and systemic assessment, investigations including serology and imaging along with histopathology of the excised tissue are essential in all cases. The mainstay of treatment in majority of cases is surgical excision, and diagnosis should be confirmed by histopathological analyses. Early diagnosis and treatment can prevent vision-threatening complications.

**REFERENCES**

ABSTRACT

Blindness is one of the significant social problems in India with 7 million of the total 45 million blind people in the world residing in our country. Major barriers to cataract surgery are poverty, no transportation, need not felt, and sex related. The low literacy rate among females and poor accessibility of the surgical sites were identified as important barriers in rural areas. There was also association found between socioeconomic status and cataract among cataract patients. In this study, a total of 208 participants who attended the ophthalmology outpatient department were studied for the observation on perception of cataract patient regarding cataract surgery. Data were analyzed and results were compared with other global studies.

Keywords: Cataract, Perception, Tertiary care.

INTRODUCTION

Blindness is one of the significant social problems in India with 7 million of the total 45 million blind people in the world residing in our country.1 Prevalence of blindness was found to be 1.49%, with cataract contributing to 77% of it. With the increasing life expectancy and expanding population, the number of cases is expected to increase in the near future.2

The term cataract is derived from the Greek word “cataractos,” which means waterfall. Cataract is opacity or clouding of the crystalline lens that prevents light rays from reaching the retina. Cataract is the main cause of low vision and blindness in the world. Majority of cataract (85%) is regarded as senile or age related with uncertain etiology. However, it is a preventable cause for blindness rectified by the use of appropriate surgical services. The absence of effective utilization of such services leaves many of those affected by it with severely impaired vision. Significantly, a majority of those living with blindness due to cataract and poor access to services are in the developing world.3,5 Earlier studies identified the major barriers to cataract surgery as poverty, no transportation, need not felt, and sex related. The low literacy rate among females and poor accessibility of the surgical sites were identified as important barriers in rural areas.

Blindness continues to be one of the major public health problems in developing countries. Cataract and corneal diseases are major causes of blindness in countries with less-developed economies.6 According to the World Health Organization, corneal diseases are among the major causes of vision loss and blindness in the world today, after cataract and glaucoma.7

Considering the complicated epidemiology of visual impaired and wide variety of factors involved, region-specific intervention strategies are required for every community. Therefore, proving appropriate data is the first step in these communities. Various studies estimating the burden of visual impairment and blindness in the elderly have been conducted in various parts of the country in the past. However, there has been lack of appropriate community-based data on prevalence of ocular morbidities on adults. Thus, in view of the importance of the problem and lack of the appropriate community-based data, the present study was undertaken.

AIMS AND OBJECTIVES

To find out the perception regarding the cataract surgery among cataract patients attending in Tertiary Care Hospital, Bareilly, Uttar Pradesh, India.

MATERIALS AND METHODS

After taking clearance from the Ethical Committee, the indexed study was carried out at the Tertiary Health Care Hospital, Bareilly, Uttar Pradesh, India. A
semi-structured schedule was prepared, modified, and finalized as needed, which included both open- and closed-ended questions. The study was pretested by carrying out pilot study on a sample of 40 cataract study participants to check feasibility and development of the schedule. These 40 study participants were not included in the study. After taking informed written consent, study participants were explained the purpose, benefits, risks, anonymity, and confidentiality of the study than face-to-face interviews with cataract study participants was done and then data collection was started. All the cataract study participants to take part in the study were interviewed till the period of study of 1 year. Data were entered and analyzed using Statistical Package for the Social Sciences version 22.0.

RESULTS

Table 1 shows that maximum number of study participants were worried about the cost of the operation (88.9%), followed by being afraid to undergo operation, fear of losing eyesight, clearly see with other eye, and fear of leading to death, which were 76.4, 59.1, 42.8, and 30.2% respectively.

Graph 1 shows that maximum number of cataract patients were from low socioeconomic class IV (47%), followed by classes V, III, II, and I, which were 33, 12, 6, and 2% respectively.

DISCUSSION

The indexed study is carried out in Bareilly, Uttar Pradesh, India, with the objective to identify the perception related to cataract surgery. In the present study, the major barrier that comes out is the cost of operation, which is about 88.9% followed by afraid of undergoing an operation (76.4%) and the least is feared to death (30.2%), and also Rabiu and Bowman et al observed the same results in their respective studies, whereas some of the studies like Brian and Taylor, Fletcher et al, Melese et al, and Turner et al found that their results were not consistent with the observations as in our study.

In our study, the relationship between socioeconomic status and cataract patients was also observed and the results observed that low socioeconomic status had positive association with cataract, and Knight and Lindfield and Wesolosky and Rudnisky also observed the same results.

CONCLUSION

In this study, the maximum percentage of perception of barriers is the cost of the operation, whereas some of the studies observed the same result, and there was also association found with the socioeconomic status. That is, cataract is associated with low socioeconomic status.

RECOMMENDATIONS

This study concluded that the major barrier relating to the uptake of cataract surgery was the cost of the operation, which was very high in about 88.9% of the study participants. Therefore, there is a need for government sharing, finding out the new and cheaper techniques, and, most importantly, the health education and health information among the population.

ACKNOWLEDGMENT

The authors are thankful to the faculties and staff of the Department of Ophthalmology, Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India for their timely support and cooperation during the research work.

REFERENCES

ORIGINAL ARTICLE

Impact of Health Education in Perception of Patients regarding Storage of Health Records among Patients attending Tertiary Care Hospital, Bareilly

1VK Tiwari, 2Abhishek Kumar, 3Ashok Agarwal, 4HS Joshi, 5Deepak Upadhyay, 6Pooja Bansal

ABSTRACT

Objective: To know the patients’ attitude regarding preserving records: pre- and postcounseling.

Materials and methods: A questionnaire was administered to all the subjects, and data were assessed by applying statistical test. The health education awareness is regularly carried out in outpatient department (OPD) and inpatient department (IPD) by various audiovisual aids.

Setting: A cross-sectional study was conducted among the patients from OPD and IPD of the Department of Pulmonary Medicine, Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India.

Results: Out of 998 patients studied, 421 (42.2%) of them were preserving record and 577 (57.8%) did not. After counseling both groups who were preserving and not preserving the records, a remarkable change was observed, i.e., 800 (80.2%) patients from OPD and IPD started preserving their records in a positive way and were bringing at the time of consultation.

Conclusion: With the sustained and regular health education/motivation, the patients realized the importance of record keeping.

Keywords: Counseling, Health awareness, Health education, Health motivation, Health records.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

The health record is a vital and relevant document made by a health care practitioner at the time of or subsequent to a consultation and/or examination or the application of health management. A health record/reports like X-ray, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, angiography, pulmonary function test, bronchoscopy, echocardiography, microbiological culture/susceptibility reports and other records, such as admission/discharge notes, medical certificate records, referral letters, prescriptions, etc., contain information about the health of an individual.

The importance of record keeping by the patients has been observed to be the vital throughout the life of the patient. The records should be preserved well as far as possible so that these can be utilized when the need arises, especially for the evaluation and comparative assessment of the patient’s health condition. Many people, especially those who are illiterate, ignorant, and unaware of the importance of keeping health records, find it irrelevant with regard to the diagnosis, treatment, and prognosis. The follow-up assessment and outcome is not possible or difficult in these patients.

Most of the patients reporting at outpatient department (OPD) and inpatient department (IPD) do not preserve their records. It creates difficulty for consultants to make proper diagnosis and assessment for their prognosis and outcome. That is why, many times the patients do not find relief and sometimes it results in serious outcome. This is mostly observed in the cases of tuberculosis and other lung diseases, like pneumonia, chronic obstructive lung diseases, interstitial lung disease, malignancy, etc.

Hence, the present study has been planned to assess the perception of patients regarding record keeping and provide them health education regarding importance of storage of treatment-related documents. The studies related with personal keeping of the records by the patients have not been conducted till date, but few studies do have related data regarding storage of documents by hospital.1–4

With this study, we want to highlight that proper storage of documents is the most basic and crucial step in order to provide a better diagnostic treatment and prognostic aid in tuberculosis and other pulmonary diseases.
MATERIALS AND METHODS

A prospective longitudinal study was conducted among the patients attending OPD/IPD in Pulmonary Medicine Department, Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India, from July 1, 2014 to January 31, 2016. All the patients coming to OPD during the first year of study and gave consent were included in the study. Both new and old patients participated. One individual was enrolled only once in the study during his/her first visit to OPD regardless of their further course, i.e., hospital or home-based treatment.

Inclusion Criteria

- Patients aged 18 years or above
- Only clinically stable patients, and
- Patients suffering from chronic diseases like chronic obstructive lung disease, interstitial lung disease, malignancy, tuberculosis, etc.

Exclusion Criteria

- Patients not giving consent for study and
- Patients who died during the study period.

A questionnaire was administered to all the patients to assess demographic details, their perception about medical record keeping on first visit as well as follow-up regarding details of maintenance of medical records. Primary data regarding the perception and practices of the patients in storing health records and demographic details were taken while enrolling patients first time in the study and health education was imparted regarding the importance of medical record keeping. Sources of health education were: Individual/group motivation, videos/skit programs, pamphlets, leaflets, folders, instructed files, brochures, display boards, posters, and banners.

First follow-up was done after 1 month of enrollment in the study and practices of storage of health records were assessed. During the first follow-up, the patients were reeducated again regardless of their practices of record keeping. Second follow-up was done after 3 months of enrollment; the impact of health education and counselling was viewed by assessing their practices regarding record keeping. While assessing the practices, important medical documents like radiological investigations (X-rays, ultrasonography, CT scan, and MRI), pathological investigations, other investigations like echocardiogram, electrocardiogram, and previous prescriptions were included in medical records.

OBSERVATIONS AND RESULTS

The present study was carried out as a prospective study to assess the patient’s knowledge about carrying the documents at the time of hospital visits, to assess the methods of keeping important documents, their perception regarding importance of document, and to assess impact of health education in proper storage of health records.

During the study period for first inclusion of patients, a total of 1,028 patients were enrolled in the study. However, only 998 patients came for complete follow-up, i.e., two follow-up visits and were included in the final analysis of results. These patients were also evaluated based on the demographic profile.

Of 998 patients, 631 (63.2%) patients were males, 664 (66.5%) belonged to age group of 36 to 65 years, and 766 (76.8%) were from rural background. Majority patients were illiterate – 658 (65%), married – 852 (85.4%), labor by occupation – 458 (45.9%), and from nuclear family – 598 (59.9%). In addition, 502 (50.3%) patients were given IPD-based medical care and rest, 496 (49.7%) patients, were given home-based treatment and OPD-based follow-up (Table 1).

Out of a total of 998 patients, only 42.2% had their previous records preserved and good practices of maintaining health record. After providing proper counseling and health education to both groups, who were preserving and not preserving the records, in the first month of follow-up, there was an increase in record keeping by patients from 42.2 to 78.2% and on second follow-up (on third month) it reached 80.2%. While test for difference is done in proportions, change in practices among patients for keeping the records and carrying at the time of consultation was found to be significant (p<0.001). Therefore, there was significant increase in practice of record keeping after health education.

There was significant increase in record keeping practices in both sex, both rural and urban residents, in both IPD and OPD patients, and both nuclear and joint family background. But, only significant increase in record keeping was seen in married persons in comparison to unmarried persons (Table 1). It shows that proper health education increases record keeping practice in all persons regardless of their gender, age, education, occupation, family type and treatment pattern type. Therefore, health education targeting the general population will help in improving the good habit of record keeping regardless of basic demographic characteristics.

Table 2 shows questions and response of patients who did not store records. Among all, the most common reason for not storing records was that 221 (38.3%) thought that storage was not necessary as the disease was cured, course completed, or became asymptomatic, 161 (27.9%) were ignorant about record keeping, 125 (21.7%) did not care or thought that it was not necessary, and 70 (12.1%) had lost or destroyed records by someone
**Table 1:** Demographic profile of the patients enrolled in the study

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Number of patients (n = 998)</th>
<th>Patients with previous practices of maintenance of health record (n = 421)</th>
<th>Patients who preserve records after follow-up</th>
<th>p-value (Extended Mantel–Haenszel chi-square for trend)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 month (n = 780)</td>
<td>3 months (n = 800)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No. of patients</td>
<td>No. of patients</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>631 (63.2%)</td>
<td>294 (69.8%)</td>
<td>511 (65.5%)</td>
<td>521 (65.1%)</td>
</tr>
<tr>
<td>Female</td>
<td>367 (36.8%)</td>
<td>127 (30.2%)</td>
<td>269 (34.5%)</td>
<td>279 (34.9%)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14–25</td>
<td>114 (11.4%)</td>
<td>84 (20%)</td>
<td>82 (10.5%)</td>
<td>88 (11%)</td>
</tr>
<tr>
<td>26–35</td>
<td>132 (13.2%)</td>
<td>80 (19.0%)</td>
<td>108 (13.8%)</td>
<td>108 (13.5%)</td>
</tr>
<tr>
<td>36–45</td>
<td>210 (21%)</td>
<td>100 (23.8%)</td>
<td>172 (22.1%)</td>
<td>172 (21.5%)</td>
</tr>
<tr>
<td>46–55</td>
<td>251 (25.2%)</td>
<td>73 (17.3%)</td>
<td>189 (24.2%)</td>
<td>199 (24.9%)</td>
</tr>
<tr>
<td>56–65</td>
<td>203 (20.3%)</td>
<td>50 (11.9%)</td>
<td>159 (20.4%)</td>
<td>163 (21.2%)</td>
</tr>
<tr>
<td>66–75</td>
<td>50 (5%)</td>
<td>10 (2.4%)</td>
<td>36 (4.6%)</td>
<td>36 (4.5%)</td>
</tr>
<tr>
<td>&gt;75</td>
<td>38 (3.8%)</td>
<td>24 (5.7%)</td>
<td>34 (4.4%)</td>
<td>34 (4.3%)</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>766 (76.8%)</td>
<td>281 (66.7%)</td>
<td>578 (74.1%)</td>
<td>598 (74.8%)</td>
</tr>
<tr>
<td>Urban</td>
<td>232 (23.2%)</td>
<td>140 (33.3%)</td>
<td>202 (25.9%)</td>
<td>202 (25.3%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>658 (65%)</td>
<td>245 (58.2%)</td>
<td>508 (65.1%)</td>
<td>528 (66%)</td>
</tr>
<tr>
<td>≤5th standard</td>
<td>124 (12.4%)</td>
<td>28 (6.7%)</td>
<td>104 (13.3%)</td>
<td>104 (13%)</td>
</tr>
<tr>
<td>6th to 10th standard</td>
<td>140 (14%)</td>
<td>96 (22.8%)</td>
<td>104 (13.3%)</td>
<td>104 (13%)</td>
</tr>
<tr>
<td>Graduate and above</td>
<td>76 (7.6%)</td>
<td>52 (12.4%)</td>
<td>64 (8.2%)</td>
<td>64 (8%)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>852 (85.4%)</td>
<td>311 (73.9%)</td>
<td>668 (85.6%)</td>
<td>668 (83.5%)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>146 (14.6%)</td>
<td>110 (26.1%)</td>
<td>112 (14.4%)</td>
<td>112 (14%)</td>
</tr>
<tr>
<td>IPD/OPD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPD</td>
<td>502 (50.3%)</td>
<td>235 (55.8%)</td>
<td>424 (54.4%)</td>
<td>428 (53.5%)</td>
</tr>
<tr>
<td>OPD</td>
<td>496 (49.7%)</td>
<td>186 (44.2%)</td>
<td>356 (45.6%)</td>
<td>372 (46.5%)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unskilled labor</td>
<td>188 (18.8%)</td>
<td>66 (15.7%)</td>
<td>148 (19%)</td>
<td>162 (20.3%)</td>
</tr>
<tr>
<td>Skilled labor</td>
<td>270 (27.1%)</td>
<td>122 (29%)</td>
<td>208 (26.7%)</td>
<td>208 (26%)</td>
</tr>
<tr>
<td>Businessman</td>
<td>109 (10.9%)</td>
<td>34 (8.1%)</td>
<td>93 (11.9%)</td>
<td>93 (11.6%)</td>
</tr>
<tr>
<td>Employee/job</td>
<td>76 (7.6%)</td>
<td>30 (7.1%)</td>
<td>64 (8.2%)</td>
<td>64 (8%)</td>
</tr>
<tr>
<td>Medical/paramedical Staff</td>
<td>12 (1.2%)</td>
<td>6 (1.4%)</td>
<td>12 (1.5%)</td>
<td>12 (1.5%)</td>
</tr>
<tr>
<td>Student</td>
<td>44 (4.4%)</td>
<td>28 (6.7%)</td>
<td>32 (4.1%)</td>
<td>32 (4%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>46 (4.6%)</td>
<td>6 (1.4%)</td>
<td>36 (4.6%)</td>
<td>36 (4.5%)</td>
</tr>
<tr>
<td>Household work</td>
<td>243 (24.3%)</td>
<td>123 (29.2%)</td>
<td>181 (23.2%)</td>
<td>187 (23.4%)</td>
</tr>
<tr>
<td>Others</td>
<td>10 (1.0%)</td>
<td>6 (1.4%)</td>
<td>6 (0.8%)</td>
<td>6 (0.8%)</td>
</tr>
<tr>
<td>Family type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint</td>
<td>400 (40.1%)</td>
<td>157 (37.3%)</td>
<td>314 (40.3%)</td>
<td>322 (40.3%)</td>
</tr>
<tr>
<td>Nuclear</td>
<td>598 (59.9%)</td>
<td>264 (62.7%)</td>
<td>466 (59.7%)</td>
<td>478 (59.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>998 (100%)</td>
<td>421 (100%)</td>
<td>780 (100%)</td>
<td>800 (100%)</td>
</tr>
</tbody>
</table>

else. Moreover, 255 (44.2%) put their records in dustbin, destroyed, or threw them, 192 (33.3%) used them in household purposes, 95 (16.5%) gave records to children for playing, and 40 (6.9%) used in making decorative items like flower pot, window sheets, etc. Maximum 339 (58.8%) of patients disposed their records after the disease cured and rest 238 (41.2%) had some other reasons.

Table 3 shows questions administered to patients and their response regarding their way of storing documents. It was found that 214 (50.8%) of them kept them in thick carry bag, 198 (47%) in prescription file, while 9 (2.1%) patients kept them without file or bag; 388 (92.2%) patients kept them flat, 74% of them in folded manner, and 0.5% did not care; 114 (27.1%) kept records on flat surface with cover and 35 (8.3%) without cover; 154 (36.6%) kept records in cupboard/drawer/box/suitcase and some of them 86 (20.4%) hung on wall; 32 (7.6%) on window or door. In 71 (16.9%) patients records were within reach to the children; 39 (9.3%) patients kept records in different places, whereas 382 (90.7%) kept in one place; 260 (61.8%) patients brought records in unarranged manner when reporting to the doctor, while 161 (38.2%) brought them in arranged manner.
DISCUSSION

The primary objective of patient-related documents is to enable the treating health care practitioners to provide quality health care to the patients. It is thus a living document that tells the past and present story and forecasts the happenings in the future, if the records are adequately preserved and maintained and it also facilitates the health care professionals at each visit. In other words, the patient’s health record is a powerful tool that facilitates the treating physicians to view the patient’s medical history and identify their problems or pattern of sickness that may help to determine the course of health care.

This appears to be the first study on this subject ever conducted in the field of medicine. Various studies have been carried out pertaining to the storage of records by hospitals in developed countries, but in developing countries like India, where these facilities are not available in all hospitals, the patients have no alternative except to store their records in a proper manner. For this, the patients are given health education in various health education awareness programs in the Department of Pulmonary Medicine and Community Medicine of RMCH.

Health awareness programs are regularly carried out in OPD and IPD through audiovisual aids, such as (1) liquid crystal display projection, (2) motivation (group and individual). Regular group health education activities are being carried out twice a week in wards for patients, their relatives and friends by: (3) Distribution of booklets, leaflets, and through health education boards, (4) various camps, such as World TB Day, World Asthma Day, World No Tobacco Day, World chronic obstructive pulmonary disease Day, and World Health Day camps, (5) thick envelope, thick files with clips, and hard poly bags are provided to patients to store their documents safely in proper manner. The health education activities and health day camps are carried jointly by the Department of Pulmonary Medicine and Community Medicine (Figs 1 to 7).

Table 2: Questions and response of patients who do not store records

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of patients (n = 577)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do not care/not necessary</td>
<td>125</td>
<td>21.7</td>
</tr>
<tr>
<td>Do not know that they have to store records</td>
<td>161</td>
<td>27.9</td>
</tr>
<tr>
<td>Storage not necessary as disease cured/course completed</td>
<td>221</td>
<td>38.3</td>
</tr>
<tr>
<td>Lost or destroyed by someone else</td>
<td>70</td>
<td>12.1</td>
</tr>
<tr>
<td>Do you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give records to children for playing</td>
<td>95</td>
<td>16.5</td>
</tr>
<tr>
<td>Use for household purposes (in place of window, dusting or cleaning purposes, etc.)</td>
<td>192</td>
<td>33.3</td>
</tr>
<tr>
<td>Put them in dustbin/damage or throw</td>
<td>255</td>
<td>44.2</td>
</tr>
<tr>
<td>For making decorative item</td>
<td>40</td>
<td>6.9</td>
</tr>
<tr>
<td>At what time you dispose (or throw)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After death of patient</td>
<td>28</td>
<td>4.9</td>
</tr>
<tr>
<td>After disease cured</td>
<td>344</td>
<td>59.6</td>
</tr>
<tr>
<td>After present course of treatment</td>
<td>66</td>
<td>11.4</td>
</tr>
<tr>
<td>During course of treatment</td>
<td>44</td>
<td>7.6</td>
</tr>
<tr>
<td>After the next X-ray is done</td>
<td>40</td>
<td>6.9</td>
</tr>
<tr>
<td>Got old and damaged by its own</td>
<td>60</td>
<td>10.4</td>
</tr>
</tbody>
</table>

Table 3: Questions and response of patients who store records

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of patients (n = 421)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you keep them?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prescription file</td>
<td>198</td>
<td>47.0</td>
</tr>
<tr>
<td>Carry bag made of polythene, paper, or cotton</td>
<td>214</td>
<td>50.8</td>
</tr>
<tr>
<td>Without file or bag</td>
<td>9</td>
<td>2.1</td>
</tr>
<tr>
<td>Do you keep them?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat</td>
<td>388</td>
<td>92.2</td>
</tr>
<tr>
<td>Folded</td>
<td>31</td>
<td>7.4</td>
</tr>
<tr>
<td>Do not care</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>Where do you keep records?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hanging on wall</td>
<td>86</td>
<td>20.4</td>
</tr>
<tr>
<td>Hanging on window or door</td>
<td>32</td>
<td>7.6</td>
</tr>
<tr>
<td>On flat surface with cover</td>
<td>114</td>
<td>27.1</td>
</tr>
<tr>
<td>On flat surface without cover</td>
<td>35</td>
<td>8.3</td>
</tr>
<tr>
<td>In cupboard, drawer, box, or suitcase</td>
<td>154</td>
<td>36.6</td>
</tr>
<tr>
<td>Do children reach to records?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>71</td>
<td>16.9</td>
</tr>
<tr>
<td>No</td>
<td>350</td>
<td>83.1</td>
</tr>
<tr>
<td>Where do you keep them?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One place</td>
<td>382</td>
<td>90.7</td>
</tr>
<tr>
<td>Different places</td>
<td>39</td>
<td>9.3</td>
</tr>
<tr>
<td>How do you bring them to doctor?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properly arranged (with respect to date, in one place or file and complete records)</td>
<td>161</td>
<td>38.2</td>
</tr>
<tr>
<td>Unarranged (not in sequence, not in one place or file and incomplete records)</td>
<td>260</td>
<td>61.8</td>
</tr>
</tbody>
</table>

Fig. 1: Liquid crystal display TV projection in OPD
Thus, good record keeping by the patients has been observed to promote the better understanding of the health problem by the treating physicians in better way and within the short possible interaction session. The properly preserved records of the patients embrace transparency and in fact these records speak themselves in a clear way and these may further promote better communication, understanding, and a sound health care provider and beneficiary relationship.

In our study, 577 (57.8%) patients did not preserve their health records and among them 161 (27.9%) patients were ignorant about the benefit of health record keeping as they had not been told by anyone to store their health records; 221 (38.3%) thought in their mind that its storage was not necessary as the disease got cured or course had been completed and the next time doctor would not consider their old records and would advice new investigations. In these patients health education has shown remarkable change during two counseling done in first and 3 month of follow-ups, as the percentage reduced to 21.8% and further 19.8% (Table 2). This created a hope that merely on health educating on different occasion, we can change or correct the perception of an individual.

Not only educating individuals to store their health records, our aim also included to make them aware to the proper method of health records storage, so that they do not get damaged and persist with patient for longer duration. The health records should be kept in thick carry...
bag or file, unfolded (especially X-rays, CT, MRI, etc.) in proper safe place away from the reach of small children and properly arranged in one place, which reduces inconvenience to the doctor and allow him to understand the disease early. The awareness was spread among the patients who were not aware of the proper method of health records storage.

**CONCLUSION**

With the sustained and regular health education/motivation, the patients realized the importance of record keeping. It also improved the proper diagnosis, management, and prognosis of the case. On postcounseling, there was marked improvement in data storage.

This study has shown that the documentation of the patients suffering from respiratory diseases can be improved by the health education activities on this aspect. These findings can also be utilized in other medical specialties, such as orthopedics, pediatrics, medicine, surgery, etc.

**REFERENCES**


Prehospital Trauma Care

SM Sharma

ABSTRACT

The global human population is spread all over the world, but cities, towns, and large villages have dense concentrations of human inhabitation. The inhabitants of cities and towns do have easy and satisfactory access for the management of traumatized patients. However, trauma victims in remote and distant regions, generally, do not have ambulance services or treatment centers nearby to deal effectively with injuries. Even on highways, at accident sites, the injured may succumb to the injuries due to delay in rescue and nonavailability of vital basic life support compounded by delay in transportation of the patient to appropriate hospital or dedicated trauma center. Other factors which add to mortality are nonavailability of trained and experienced personnel at the accident site, inadequate and improper resuscitation during transportation, and referral to a hospital ill-equipped to treat traumatized patients. Trauma is the leading cause of death for patients in their first four decades of life. Prehospital trauma care to save life has not received the necessary attention in developing world due to diverse reasons, including lack of trained staff, inadequate funding, lack of awareness, ignorance, lack of will, and unpredictability of occurrence of accidents. Trauma management remains neglected in third world countries; however, the developed countries have made continuous efforts to save lives of traumatized patients by systematized prehospital care at the site of accident, rescue, and extrication of victims, rendering life-saving resuscitation on the spot and quick and safe evacuation of the patients to trauma centers by surface and air ambulances depending upon the terrain and distance of the site of occurrence from hospital with continuous monitoring of the patient onboard. Prehospital trauma care needs focused attention to evolve a system and institutions which would impart care to the wounded inclusive of rescue, resuscitation, stabilization of vital parameters, and safe transportation to a dedicated hospital to save life and prevent morbidity.

Keywords: Basic life support in trauma, Emergency surgical care, Prehospital trauma care, Trauma.


Source of support: Nil
Conflict of interest: None

INTRODUCTION

Trauma is the leading cause of death for patients in their first four decades of life. With rapid industrialization, urbanization, and increased volume of traffic on roads, about six million people lose their lives annually due to injuries and 90% of these injured belong to underdeveloped world. In addition, an overwhelming proportion of these deaths occurs before patients even reach the hospital. Due to nonavailability of basic care, 30% of deaths occur at the site of accident and 80% of remaining patients die in the first hour after the injury, the golden hour, the timeframe during which patients could have been saved had they reached the trauma center safely. The traumatized may die on the spot due to injury to heart, major vessels, vital organs, including brain, and crush injuries. These deaths occur due to airway obstruction, failure of breathing, massive hemorrhage, and polytrauma. Prehospital basic life support after rescue of the injured and quick and safe evacuation to a trauma center by trained paramedics within 1 hour after the occurrence of injury may save the patient in first golden hour. The “golden hour” as summarized by the 3R rule of Dr Donald Trunkey, an academic trauma surgeon, is: “Getting the right patient to the right place at the right time.” Evacuation of patients to hospital safely at the earliest definitely improves survival and outcome.

The concept of prehospital trauma care has emerged after the experiences of injuries sustained by soldiers in wars. Napoleon’s Army had in service the flying ambulances which carried surgeons and medical supplies to the battle field and transported wounded soldiers to rear. These horse-driven carriages were put to use by Napoleon’s surgeon Dominique-Jean Larrey in 1792. The battles and wars have consistently strengthened the importance of prehospital trauma care. Each and every war inclusive of Gulf War, Korean Peninsular Conflict, and Vietnam War has highlighted the importance of on-the-spot rescue, resuscitation, basic life support, and evacuation of severely wounded back to appropriate hospital by quickest possible means by helicopters and fixed wing aircrafts with trained and experienced emergency medical personnel traveling with casualties as attendants. This concept of evacuation of the casualties made stable by life-support measures and fit to travel from battle field to rear has definitely helped to save lives. No patient in an unstable condition or inadequately supported to sustain and undertake long journey be transported till declared fit to undertake journey.

Indian Armed Forces, especially the Indian Army, has evolved an exceedingly successful system of prehospital
trauma care for the traumatized patients due to gunshot wounds, shell blast injuries, accidental falls into crevices in glacier, avalanche injuries sustained in remote regions of India in high altitude battleground of Siachen glacier, and other heights of Ladakh since 1984, which includes basic life support at the front line by a trained medical officer and his team, quick stabilization, and evacuation by small or large helicopters depending on the condition of the patient and necessity of sick attendants. Patients with mild to moderate injuries travel in sitting position without an attendant, whereas severely wounded lying patients who require trained attendants travel by larger helicopters to base camps where they are resuscitated and comforted. The patients can also be evacuated to General Hospital (GH) or the Medical Aid Complex, i.e., located within an hour’s reach by helicopter flight through and above tall snow-covered mountains in rarified air. Aerial evacuation can only be carried out during daylight and in good weather conditions. It is not uncommon for pilots to spot the injured in glacier after the last light and evacuate the patients from Karakoram ranges in adverse weather conditions to hospitals beyond Ladakh ranges. The survival rate of the injured evacuated by air reaches 100% because of highly satisfactory initial life support, quick air evacuation, and early corrective intervention. The GH has comforts of controlled temperature and facilities of specialized intervention. From GH, the patients can be shifted to tertiary care hospitals in plains by fixed-wing aircrafts. The system of chain of rescue, basic life support, evacuation, resuscitation, intervention, and onward transfer for highly specialized management is institutionalized with no scarcity of human and material resources. The aerial evacuation is easy, simplified, and available on demand from not so distant multiple helipads.

AIMS AND OBJECTIVES

The injured may be left unattended and unnoticed at the site of accident and patient may be damaged further by ignorant and untrained bystanders who by improper but good- intentioned handling of the victim may cause more harm, a situation far worse than getting delayed due to want of resuscitation and transfer to hospital. Aim ofprehospital care is to save the life of acutely traumatized patient by prompt rescue and extrication of injured, provide basic life support by experienced personnel, resuscitation, and early evacuation to appropriate hospital.

Trauma occurs due to diverse reasons like road traffic accidents, falls, interpersonal violence, industrial accidents, wars, battles, fires, physical agents, cold injuries like frost bite and sports injuries. There is direct relationship between occurrence of trauma deaths and illiteracy, lack of awareness about safety precautions, poor governance, and mismanagement, lack of respect for norms, undisciplined conduct, and irresponsible behavior. Trauma deaths have trimodal distribution. Nearly 50% of victims lose their lives immediately or a few minutes after injury called the first peak. Second peak results in 30% deaths within the first 4 hours after injury and third peak with 20% deaths occurs days and weeks after resuscitation and treatment in hospital due to complications.

During major accidents involving large number of casualties, role of prehospital trauma management and hospital services are stretched to maximum. In such situations, those patients who need immediate resuscitation, evacuation to trauma centers for surgery must be sorted out or prioritized from less traumatized to focus on the most needy patients both for resuscitation, transfer, and surgery. Trauma accounts for occupation of 10% of hospital beds, and is the fourth most common cause of death and results in loss of many years of productive life.

Objectives of prehospital trauma care involve prompt communication and activation of the system, proper actions at the scene of the crash by first responders, and the prompt response of the system or simply offer fastest possible basic life support that includes airway, breathing, control of bleeding, and transportation of the right patient to the right place at right time. The main objectives and steps involved in prevention of deaths and morbidity due to trauma should involve detection of accidents and injury, the site of accident, duration and time of accident, mode of injury, the number of casualties affected, established mechanism to report the accident at the earliest to nearby hospitals, administrative authorities, nearest ambulance services, calling for help of trained paramedics and emergency medical technicians. The next step should be to resuscitate the injured by basic life-support measures like arrest of hemorrhage, maintenance of airway, protection of cervical spine, restoration of breathing, infusion of intravenous or intraosseous fluids, endotracheal intubation, splintage of fractured bones, and early evacuation to a trauma center or a hospital equipped to treat traumatized patients. Level of care, offered at the site, varies according to the facilities available in a given situation.

PREHOSPITAL TRAUMA CARE IN INDIA

India remains one of the countries having large number of deaths due to trauma, which is preventable and also manageable provided an effective prehospital trauma care system is in practice. Level of care, offered at the site, varies according to the facilities available in a given situation.

Currently, there is no uniform policy or a system to direct the management of traumatized before they reach the appropriate and designated hospital for trauma management. In India, half a million patients sustain injuries...
due to road traffic accidents alone annually and about 150,000 lose their lives in such accidents. Despite such a grave loss of precious lives and immense loss of productive years and working hands, no prehospital trauma care exists in India except in the Armed Forces which has been able to successfully utilize resources to provide an excellent world class or even the best prehospital care to wounded even in remotest regions like snow bound high mountains of Ladakh inclusive of location of casualties in desolate places, picking them up safely by small and large helicopters, bring them to resuscitation centers, and transferring them onward to designated hospitals by helicopters and even by fixed-wing aircrafts to tertiary care hospitals in North Indian plains. However, no such policy or a health service exists for traumatized on easily accessible highways. There is no system of mobile clinics replete with life-saving equipment and trained man power to locate and pick up the injured.

CREATING AWARENESS AMONG MASSES

India is a developing state with a large expanding population, migration, industrialization, and increasing network of surface transport resulting in more and more accidents. The trauma services have not been developed to keep pace with the needs for ever-increasing traumatized patients. There is urgent need to educate and enlighten the masses about the necessity to prevent accidents and injury, enforce law and discipline to check the offenders on workplace, roads, and industrial units. All-out attempts must be put in to educate people to provide first aid to injured people. Simple steps for stopping bleeding from external wounds, application of tourniquet, jaw thrust can be provided by bystanders before the arrival of trained paramedics or technicians. Media too can play a role in disseminating such useful techniques. All citizens can be advised and trained or even guided as how to pick up wounded with spinal injury. Interested citizens, police personnel, fire fighters, unemployed youth, students, shopkeepers, and petrol pump personnel can be trained to help patients by the skills they would learn from educators.

PREHOSPITAL CARE TRAUMA SERVICES AND NATIONAL CADRE

A national prehospital trauma care cadre should be developed particularly to cater for the injured on highways and roads. Mobile ambulance services must be organized which should be operationalized by trained paramedics and emergency medical technicians and the mobile ambulances should be self-sufficient in life-saving equipment like endotracheal tubes, ambu bags, drugs, infusion fluids, and defibrillators besides having tourniquet, dressing material, and devices for rescue. The reporting of occurrence of trauma should be entrusted to passersby, local self-government leaders, and local officials. In high-volume road traffic injuries, doctors and nurses too should form the dedicated team for prehospital trauma care. All large hospitals must have quick reaction teams of highly trained staff including doctors trained as intensivists who should be ready to move to accident site and manage the severely injured and escort them to hospitals for definitive management. Therefore, a state and national-level institutionalized prehospital trauma care service be evolved under a single autonomous authority both at national and state level adequately funded, resourceful, and manned by experienced trained human power. The rural and remote regions too should be similarly covered under prehospital trauma care health service. Nongovernmental organizations, volunteers, and traditionally devoted bodies too can be involved in such humane tasks. The prehospital trauma care services can be selectively outsourced to private parties to lessen the burden on state services.

Air Ambulances

Western countries started developing prehospital trauma care for civilians decades back inclusive of mobile ambulances, paramedics, and emergency medical technicians and moving further to undertake air evacuation of injured by helicopters and even by fixed-wing aircrafts. Such services have been made functional by state in a few countries, and in some countries air ambulances are being financed by charity organizations and private parties (Fig. 1).

India too must have air ambulances financed by state and private parties to evacuate the patients to definitive centers to treat trauma. Evacuation by air not only reduces the time interval between occurrence of injury
and definitive treatment at designated trauma center or a hospital but is also cost-effective comparable to on-road ambulance services. Only those patients should be airlifted who are fit to undertake journey, and the traumatized patients must be stabilized before airlift to hospitals. The paramedics or the first responders must not waste valuable time in resuscitating the traumatized at accident sites like trying to do central venous catheterization or conducting difficult intubation which may turn out to be beyond their capabilities. Air evacuation of traumatized means saving valuable time to preserve the patient within first golden hour and reducing mortality.

**Trauma Centers**

Trauma centers came into existence in the United States five decades back and we too need these. These centers are dedicated to traumatized patients and are open 24 hours and has a trauma team to manage such patients. The exclusive care for injured is directed only to trauma and, therefore, is focused on resuscitation and injured parts by a dedicated team of anesthesiologists, surgeons, orthopedic surgeon, maxillofacial surgeon, and others. Trauma centers reduce mortality and save lives five to eightfold. India must have trauma centers at high-volume injured turnout cities and towns. Personnel living near the highways too must be trained in basic life support and first aid to augment subsequent management by trauma centers (Fig. 2).

**Basic Life Support and First Responders**

First responders are the persons who reach the scene of accident first and assess the situation, call for help, try to extricate the injured without causing further damage. These bystanders help trained paramedics who are trained to give life support in maintaining the airway, protecting the cervical spine, maintain breathing, controlling bleeding by external compression, give oxygen therapy, assist in ventilation and improving circulation, and helping in early and safe evacuation to hospital.

**Advance Life Support**

Advance life support to injured is provided by highly trained and skilled paramedics, who can intubate the patient, infuse fluids by intravenous fluids, perform cricothyroidotomy, stabilize the spine, and prevent further injury. However, the question of attempted “Stay and play” vs “scoop and run” approach in the management of trauma has no clear-cut answer.6

**Stay and Play**

Stay and play means that patient may be delayed at the accident site for evacuation to a hospital and is being revived and resuscitated. Undue delay in sending the patient to a definitive hospital may result in loss of valuable time compromising the patient safety. Therefore, too much time should not be spent in undertaking procedures which may go wrong. The patient can be given life-support help and transferred to hospital if fit to undertake journey safely. Air evacuation may be called to save time and life by quick transfer.

**Scoop and Run**

Scoop and run involves immediate to early evacuation of the patient to hospital. A seriously wounded patient must be given life-saving help and resuscitation before premature transfer of the patient to hospital. The decision to hold back or immediately transfer the case to hospital must be taken by an experienced doctor. Scoop and run is a good practice for a patient unlikely to benefit by retention at the accident site or who does not require life-saving measures. Such patients may have a bony trauma, or a patient with brain injury who may need early decompression. The scoop and run decision reduces the time for definitive surgery which may save the life; however, stay and play may be required in a patient who is in urgent need of basic life support like airway restoration, breathing, and arrest of hemorrhage. In such a situation, valuable time should not be wasted in unnecessary manipulations which may be without reward and fruitless. A strong medical commander of experience must in either of the procedure take a decision in favor of scoop and run or stay and play. It is, therefore, vital that rescue team and the initial basic life support and advanced life-support system should have provision of inclusion of highly experienced doctors, nurses, and technicians.

![Fig. 2: Patients with gunshot wounds must be evacuated at the earliest to hospitals after basic life support to save their lives](image)
Airway Management

Airway management had been advocated in patients with traumatic brain injury, cervical spine, or thoracic trauma before evacuation unless the same can be performed easily en route. Despite the claimed advantages, prehospital endotracheal intubation (ETI) and rapid-sequence induction performed by less-experienced paramedical staff lead to higher mortality and poorer neurologic outcomes. Patients with brain injury do benefit by prehospital ETI but it may turn out to be inappropriate in a patient with hemorrhage. Endotracheal intubation needs skill and experience and may be of much harm in the hands of inexperienced paramedic. Laryngeal airway mask is valuable for its simplicity and safety.

Intravenous Fluid Management

Prehospital fluid resuscitation for major trauma is controversial. Traumatized patients with blood loss may need intravenous fluids in shocked state. At scene, intravenous infusion with crystalloids in optimum volume will be of immense value when the patient may be anticipated to reach the trauma center after the first golden hour. Too much infusion of fluids may provoke bleeding from open wounds resulting in loss of clotting factors. Prime importance must be placed first in arresting bleeding from open wounds. Closed cavity hemorrhage cannot be managed at accident site. At scene, intravenous cannulation may not be possible due to collapsed veins and, therefore, central venous catheterization or simpler intraosseous infusion may have to be resorted to. Infusion of drugs like tranexamic acid is useful. Central venous catheterization should be done by an experienced and confident person preferably an anesthesiologist. Too much time should not be compromised at scene for a procedure which may utilize precious time. After injury and during transportation patient must be guarded against hypothermia, acidosis, and coagulopathy.

Control of Bleeding and Pain Management

Bleeding should be controlled by direct and indirect pressure, elevation, wound packing, tourniquet, and hemostatic agents. Quick clot granules will arrest the hemorrhage by absorbing water when it comes in contact with blood and concentrates the clotting factors and platelets, thereby it stops bleeding. The patient must be kept free from pain by analgesia and sedatives. The pain can be reduced by stabilization of spine and splintage of fractured bones.

CONCLUSION

Trauma is preventable and should not occur if all precautions are taken to avoid it. High speed, indiscipline, lack of regulatory control, lax laws, drunk driving, bad roads, old vehicles, overloaded vehicles, inexperienced driving, teen driving, lack of proper training for driving, ignorance of traffic rules, lack of perseverance and haste in pushing the vehicles ahead, lack of prehospital trauma care, and virtual absence of trauma centers are principal causes of mortality due to injuries on roads.

Prehospital trauma care needs an institutionalized nationwide dedicated service under single authority at national and state levels. A mechanism has to be evolved for immediate reporting of occurrence of injury at any geographical location in India by local officials and people. Mass education of entire eligible population must be done as first aid providers, which should include training in rescue and extrication of victims, arrest of hemorrhage by pressure or packing, and airway restoration. Help of voluntary organizations and mass media should be taken in reaching out to masses for awareness. The first responders should have a dedicated team of trained paramedics and highly experienced technicians. Ideally, there should be a quick reaction team which should have on its panel dedicated doctors and nurses for initial care at scene who should provide advance life support to injured patients. All hospitals again should have Quick Reaction Medical Team manned by critical care intensivists who should reach the scene to provide necessary care before the transportation of patients to hospital.

Nation should usher in a network of mobile and air ambulances for quick on-board resuscitation and transportation of patients to hospitals. Large cities and towns should have exclusive trauma centers to render focused care to injured traumatized patients.

REFERENCES


The Study of Sociodemographic Profile of Pediatric Tuberculosis Patients in Bareilly District, Uttar Pradesh: A Cross-sectional Study

Piyush Gupta, Arun Singh, Hari S Joshi, Pankaj Kumar, Himalaya Singh

ABSTRACT

Introduction: Tuberculosis in children is mainly due to failure of tuberculosis control in adults. In India, over 100,000 children die from tuberculosis every year. The risk of developing disease after infection is determined by various factors, including age at exposure, sex, family, and socioeconomic status. There are no such studies carried out in Bareilly district till date; therefore, with this view, this study is being conducted.

Aims and objectives: To know the sociodemographic profile of pediatric tuberculosis patients in Bareilly district.

Materials and methods: A cross-sectional study was carried out on 120 children aged 0 to 14 years registered at various tuberculosis units (TUs) in Bareilly district. The selection of TUs was done by simple random sampling.

Result and conclusion: Out of total 120 cases in the study, majority of them were females (65%), followed by 35% male pediatric tuberculosis cases; 61.7% study participants belonged to 10 to 14 years of age, and 51.7% belonged to lower socioeconomic status.

Keywords: Pediatric, Socioeconomic status, Tuberculosis.

INTRODUCTION

Tuberculosis (TB) remains a worldwide public health problem caused by Mycobacterium tuberculosis. The actual burden of pediatric TB is not known due to diagnostic difficulties. It is assumed that about 10% of total TB load is found in children. Globally, about 1 million cases of pediatric TB are estimated to occur every year, with more than 100,000 deaths. Among the new TB cases, 5% of patients were in pediatric age group (0–14 years). Children rarely have sputum smear positive TB and it is unlikely that they are a powerful source of transmission of TB. Tuberculosis in children is mainly due to failure of TB control in adults. The risk of infection to a child depends on extent of exposure to infectious droplet nuclei. An infant whose mother has sputum smear positive pulmonary tuberculosis has a high chance of becoming infected. The risk of developing disease after infection is determined by various factors, including age at exposure, nutritional and immune status, genetic factors, virulence of the organism, and magnitude of initial infection.

AIMS AND OBJECTIVES

The aim of this article is to know the sociodemographic profile of pediatric TB patients in Bareilly district.

MATERIALS AND METHODS

A facility-based cross-sectional study was carried out at various tuberculosis units (TUs) of Bareilly district, Uttar Pradesh, India, from December 2014 to November 2015 on all pediatric patients in the age group of 0 to 14 years diagnosed as TB and registered under Revised National Tuberculosis Control Program (RNTCP).

Prevalence of pediatric TB in India (as stated by the World Health Organization) is 7%. Taking 5% allowable error, 10% of nonresponse rate and using the formula sample size (n) = 4 pq/d², the calculated sample size is 110. Bareilly has a total of 20 TUs, 45 designated microscopic centers (DMCs), and 711 directly observed treatment, short-course (DOTS) centers. Tuberculosis units were selected by simple random sampling, and the above-selected TUs. Designated microscopic centers were selected by simple random sampling method. All pediatric cases registered at selected DMC and fulfilling our inclusion criteria, i.e., all pediatric cases in the age group of 0 to 14 years diagnosed as TB, and registered under RNTCP put on DOTS regimen and willing to participate in the study, are selected for the study. After obtaining clearance from Institutional Ethical Committee of the college, and informed consent taken from the patients/guardians/parents of pediatric TB cases, data...
regarding sociodemographic profile were collected using predesigned and pretested schedule for the pediatric TB patients registered under RNTCP during their visit to hospital/health center. The results were displayed with the help of graph and tables according to the aim and objectives of the study. Valid inferences were drawn and discussed with the other related studies reported from various parts of the world.

RESULTS

A facility-based cross-sectional study was conducted on pediatric TB patients in Bareilly district, Uttar Pradesh, and the observed results are described by tables and graphs. Graph 1 shows that majority of the study participants were females, i.e., 65.1% as compared with males, i.e., 34.9% out of 120 study participants, and most of them belonged to age group 10 to 14 years, which is followed by 5 to 9 years and <5 years, which is 61.7, 25.8, and 12.5% respectively.

Table 1 shows that majority of study participants were Hindus and belonged to lower socioeconomic status.

DISCUSSION

Majority of the study participants belong to 10 to 14 years of age, which were 74 (61.7%) followed by 5 to 9 years and <5 years, which were 31 (25.8%) and 15 (12.5%). Similar results were found in Kamble et al.5 where majority of study subjects, 276 (59.7%), were in the age group of 11 to 14 years, followed by the age group of 6 to 10 years. Out of 120 study participants, majority of them were females, 78 (65%), followed by males 42 (35%). Similar cross-sectional study by Satyanarayana et al.6 on characteristics and program-defined treatment outcomes among childhood in Delhi also reported more females, 651 (61.0%), in their study. In the present study, out of 120 children, 62 (51.7%) were Hindus as compared with Muslims children, which were 58 (48.3%). Similarly, Kamble et al.5 observed that the present study revealed that 347 (75.1%) study subjects were Hindus, 78 (16.9%) were Muslims, 23 (5%) were Sikhs, and 14 (3%) were Christians.

Majority of the children 62 (51.7%) belonged to lower socioeconomic status out of 120 children, followed by lower middle socioeconomic status, which were 23 (19.1%). Contrary to this observation, it was found that Bai and Devi7 in Kottayam district of Kerala observed that slightly more than half (51.8%) belonged to low, 46.2% to middle, and 2% to high socioeconomic groups.

CONCLUSION

With the help of above findings, it can be concluded that majority of pediatric TB cases were female, 10 to 14 years of age, Hindus, and belonged to lower socioeconomic status. So government and local bodies need to focus on these areas and necessity of more studies to see the effect of these socioeconomic factors on treatment-seeking behavior and treatment outcomes of DOTS in the pediatric TB cases.

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A Study of Precondylar Tubercle in North Indian Crania

SHH Zaidi

ABSTRACT

Studies of nonmetric cranial variants have been a field of major interest to all the research workers, especially, because of their racial and regional importance. Twenty eight North Indian skulls of patients from Uttar Pradesh were studied for the precondylar tubercle, a cranial variant in the present study. The findings are documented, discussed, and compared with other studies from different parts of the world and are found to be of considerable regional and racial significance.

Keywords: Anthropological characters, Cranial variant, Precondylar tubercle, Races.


Source of support: Nil
Conflict of interest: None

INTRODUCTION

Occasionally, a bony tubercle lies immediately anterior and medial to occipital condyles, the precondylar tubercle. A centrally placed tubercle is regarded as two fused tubercles.

Nonmetric cranial variants have been a subject of study by many esteemed. Many such variants have been observed on a racial basis also and are of considerable ethnic interest but lesser of forensic significance. Berry made a special study of nonmetrical human cranial variants.

The present study is undertaken to know the incidence of variant of precondylar tubercle and to draw significant conclusion, if any, from this study.

MATERIALS AND METHODS

Twenty eight North Indian human crania were studied, which were obtained from Anatomy Museum of Rohilkhand Medical College, Bareilly.

Incidence of precondylar tubercle was noted in these crania (Fig. 1).

RESULTS

Out of 28 skulls studied, precondylar tubercle was not seen in two skulls. Thus 7.1% was the incidence of this cranial variant.

DISCUSSION

Cranial variants have aroused the curiosity of anatomists for many decades. It was Wood-Jones, who first proposed that the differing incidences of these minor variants which occurred in different races might be useful in anthropological studies. Laughlin and Jorgensen put this idea in practice and Berry and Berry suggested that a wide range of these variants could be used to calculate a distance statistic between population samples.

This paper is concerned with description and racial and regional incidence of precondylar tubercle as one of the important cranial variant.

Cranial variants like all other variants have been studied by many workers; most of them are recognized only in anatomical text books, being described in terms, such as rare or occasionally found; nevertheless, a few of them have been utilized as anthropological. Some variants are consequences of disease or other extrinsic influences; however, most of these variants result from normal developmental processes and are genetically determined.

In a given race, the frequency of any particular variant is more or less constant race and is somewhat similar in related races. Chambellan seems to have been first to

Fig. 1: Precondylar tubercle in crania
suggest the possibility of using such traits as anthropological characters.

Russel in 1900 gathered together data on a number of skull variants in American group and gave the first indication of their use in the comparison of populations. Woodjones used data on skull variants in a more systemic comparison number of far eastern group.

Berry made a special study of nonmetrical human cranial variations, and his findings are given in Table 1.

In our study, it was observed that precondylar tubercle was present in two crania. Hence, the current study provides valuable data from Uttar Pradesh, the largest state of India, and compares the same with data from different parts of the world.

The findings are of considerable racial and regional global significance.

REFERENCES

Assessment of Knowledge and Practice of Mothers of Children under five regarding Zinc Therapy in Childhood Diarrhea

1Dipak Kumar Dhar, 2Nilratan Majumder, 3Debasish Paul

ABSTRACT

Aim: Zinc is now considered as an important treatment intervention along with low-osmolarity oral rehydration salts in diarrhea. But awareness about the use of zinc remains low. The present study was conducted with an objective of assessing knowledge and practice of mothers of under-5 children about zinc supplementation in diarrhea.

Materials and methods: A hospital-based cross-sectional study was carried out in the Paediatric Outpatient Department Agartala Government Medical College and GB Pant Hospital, Agartala, Tripura, India, with a sample size of 700 mothers of under-5 children over 2 months. Convenience sampling technique was employed and the data were collected in a structured, interview schedule. Descriptive statistics and tests like chi-square test were used for analysis.

Results: Only 1.9% of all the respondents (13 out of 700) had heard about zinc therapy in diarrhea. Out of them, 11 mothers had actually used zinc in practice and 7 could tell the duration of zinc therapy in an episode of diarrhea. An association between knowledge levels and educational status and occupation of mothers was found to be statistically significant.

Conclusion: The study reaffirmed the abysmally low level of awareness about zinc supplementation among mothers. Therefore, health education can be used as a tool to promote knowledge and practice of zinc supplementation in diarrhea to reduce mortality and morbidity.

Keywords: Diarrhea, Knowledge, Mothers, Zinc.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

Diarrhea is a major cause of morbidity and mortality among young children, contributing to 16% of the total deaths among under-5 children globally. Among them, a staggering 47% of deaths occur in the Southeast Asian countries alone. It is estimated that there are 2.5 billion cases of diarrhea worldwide among children less than 5 years of age. Though with the advent of oral rehydration salts (ORS) and improvement in the standards of sanitation and hygiene, the global deaths from diarrhea have come down from 5 million deaths annually to 1.5 million deaths in 2004, but the incidence of diarrhea has remained relatively stable over the past few decades. This showcases that the prevention aspect still needs to be emphasized.

Since the 1970s, oral rehydration therapy has been the mainstay of diarrhea treatment programs. In recent years, zinc has also emerged as a necessary adjunct to ORS. Zinc is a micronutrient that can be found in all tissues of the body and is essential for cell growth, cell differentiation, and DNA synthesis. It is also essential for the maintenance of a healthy immune system. Zinc is believed to improve absorption of water and electrolytes by the intestine, faster regeneration of gut epithelium, increased levels of enterocyte brush border enzymes, and an enhanced immune response, leading to increased clearance of the pathogen from the gut in an episode of diarrhea. It has been reported in several studies that children receiving zinc appeared to recover quickly than others. Zinc has been associated with a 25% reduction in the duration of acute diarrhea, 30% reduction in the volume of stools, and a 40% reduction in treatment failure and death in persistent diarrhea. It also lowers the incidence of diarrhea in the following 2 to 3 months. The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) now recommend the use of low-osmolarity ORS for the correction and prevention of dehydration and 10 to 20 mg of zinc for 10 to 14 days as treatment for all episodes of diarrhea (10 mg per day for infants under 6 months). It has been said that with the use of this combination, up to 88% of the deaths due to diarrhea can be prevented. In view of all these benefits, zinc therapy was incorporated in the Integrated Management of Childhood Illness guidelines and the WHO list of essential drugs for use in diarrhea in 2005. Prompted by the joint statement made by the WHO and UNICEF and the recommendations of the
Indian Academy of Pediatrics, the Government of India in 2007 issued guidelines for zinc supplementation along with ORS in all cases of diarrhea.6

As mother is usually the prime caregiver of a sick child, it is her behavior, attitude, and practices that largely determine the outcome of an episode of diarrhea. Use of the available resources for treatment and prevention depends on the mother’s level of knowledge, which are indirectly determined by factors, such as her educational status, occupation, prior experience of managing the disease, etc. Lack of awareness is attributed as the main cause of poor use of available interventions.7 The present study is, therefore, intended to assess the knowledge and practices about zinc therapy in childhood diarrhea.

MATERIALS AND METHODS

A hospital-based cross-sectional study was carried out in the Department of Paediatrics, Agartala Government Medical College, Agartala, Tripura, India, over a period of 2 months (July–August 2013). The study population comprised mothers of under-5 children visiting the Paediatric Outpatient Department (OPD) of the college. Mothers of children who were above 5 years of age and those who were not willing to participate in the study were excluded from the study.

A total of 700 mothers fulfilling the selection criteria were interviewed with a predesigned and structured interview schedule. Convenience sampling technique was used while recording the data. As the targeted sample was 700 and it had to be covered over a 2-month (8 weeks) period, to maintain uniformity of sampling, in a single week, 88 mothers needed to be interviewed. Considering the fact that OPD remains closed on Sundays, over the remaining 6 days of the week, first 15 registered mothers who met the selection criteria were interviewed in a one-by-one, face-to-face manner.

Approval was obtained from the Institutional Ethical Committee prior to the study. Informed consent was taken from every respondent before starting the interview, and the information thus obtained was dealt with confidentiality. The data thus obtained were entered in computer using Statistical Package for the Social Sciences 13 version. Descriptive statistics and suitable statistical tests like chi-square test were applied. A p-value <0.05 was considered significant.

RESULTS

Majority of the total participants (81%) were housewives. Nursing staff comprised 1% of the respondents. With regard to education, majority were primary educated (45.4%) and only 8.7% were either graduates or higher educated. Only 1.9% of all the respondents (13) reported that they had heard about zinc therapy in diarrhea. Only 11 of them had actually used zinc in practice. The different sources from where they came to know about it are depicted in Graph 1. The knowledge of the mothers (among those who had heard) regarding the duration of zinc therapy is shown in Graph 2. Only one mother among them reported to have observed visible quicker recovery with the use of zinc as compared with a previous episode. None of them could tell what benefit zinc confers in the event of diarrhea. The knowledge and awareness of zinc therapy in childhood diarrhea was found to be significantly associated with the educational level and occupation of the mother (Table 1).

DISCUSSION

The study confirmed the low levels of awareness regarding zinc therapy in diarrhea. Only 13 mothers (1.9%) had heard of zinc therapy, which was almost similar to a study conducted by UNICEF across 10 cities in India. UNICEF reported that the knowledge about zinc among mothers
Our study also revealed that education levels and occupation of the mother were significantly associated with the knowledge about zinc supplementation. Similar findings were reported by various other studies.9,12 Therefore, the present study has displayed the low awareness about zinc supplementation in diarrhea. It stresses the need and highlights the scope of health education in familiarizing zinc therapy among mothers, because a mother is the center of family care in a home. Community-based, multicentric studies can give a better picture of the true patterns and different variations in them (like urban and rural) than a hospital-based study, which is the limitation of the study. Also, a follow-up study can showcase the actual rate of compliance to zinc therapy as compared with a cross-sectional design. It will also enable researchers to find out reasons of noncompliance and assess acceptability of prescribed zinc.

CONCLUSION

Zinc has been recognized as a critical treatment intervention in diarrhea in addition to low-osmolarity ORS for quite some time now. Despite the fact that India being one of the 46 countries of the world to have explicit national policy on zinc therapy in diarrhea,1 the knowledge and use of zinc by the mothers, who are the first caregivers of a child, remain appallingly low, which has also been revealed in our study. Therefore, there is enough room to scale up health education measures and disseminate the benefits and appropriate usage of zinc in the community. This in turn will reduce the burden of diarrheal diseases in the society and also in the country.

ACKNOWLEDGMENT

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REFERENCES

Radiological Evaluation of Thyroid Diseases using Gray Scale and Color Doppler Sonography

1Sagar Tyagi, 2Pramod Kumar, 3Atul Mehrotra, 4Pradeep Parakh, 5Lalit Kumar, 6Parveen Hans

ABSTRACT

Introduction: The thyroid gland is the largest of all endocrine glands and is the only one which is amenable to direct physical examination and high resolution real-time grayscale sonography because of its superficial location. High Resolution Ultrasonography (USG) with Color Doppler is used to assess the nature of the lesion according to its vascularity and also the hemodynamic characteristics of the gland. Thus, the combination of Gray scale Sonography and Color Flow Doppler provide huge benefits and help in increasing the sensitivity, specificity and accuracy in distinguishing benign and malignant thyroid nodules. Nearly 50% of patients with a clinically palpable solitary thyroid nodule have avoided surgery because of thyroid ultrasound.

Aims and objectives: The present study is aimed to determine the role of high resolution USG in the evaluation of lesions of the thyroid with Fine-needle aspiration cytology (FNAC) correlation and compare it with other studies.

Materials and methods: This is a prospective study carried out on 50 patients (44 female and 6 male) who attended ENT or Surgery outpatient department/inpatient department (OPD/IPD) and were referred to the Department of Radio-Diagnosis for high resolution USG of neck at Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India. This study was conducted for a period of one year from March 2015 to February 2016. The ultrasound machine used was GE LOGIQ V5.

Result and Conclusion: Our present study consisted of 50 cases which were clinically suspected suffering from thyroid dysfunction. Thyroid ultrasound was very efficient in picking up lesions in all 50 cases in our study. In comparison, to other studies our study gave a similar picture in terms of benign lesions being much more common than malignant lesions. The most common benign lesion determined in our study was colloid goiter which was the most common benign lesion in many other studies. In comparison to other studies, we were able to detect malignant nodules with a better specificity. Chronic thyroiditis was also very efficiently detected using ultrasound in our study. Nearly 50% of patients with a clinically palpable solitary thyroid nodule have avoided surgery because of thyroid ultrasound.2

The newly developed high-resolution ultrasonography (USG) with color Doppler is used to assess the nature of the lesion according to its vascularity and also the hemodynamic characteristics of the gland. Thus, the combination of grayscale sonography and color flow Doppler provides huge benefits and helps in increasing the sensitivity, specificity, and accuracy in distinguishing benign and malignant thyroid nodules.3 Although individual USG features may help, accurate prediction of thyroid malignancy can be made when multiple signs appear in USG.

Fine-needle aspiration cytology (FNAC) is now a well-established, first-line, simple, and quick screening test as well as the diagnostic tool for surgical and nonsurgical goiters. Limitation of FNAC is mainly because of inadequate sampling, inexperience of the pathologist, and overlapping of cytological features.4

The present study was aimed to determine the role of high-resolution USG in the evaluation of lesions of the thyroid with FNAC correlation and compare it with other studies.

INTRODUCTION

The thyroid gland is the largest of all endocrine glands and is the only one which is amenable to direct physical examination and high-resolution real-time grayscale sonography because of its superficial location.

Thyroid sonography was first introduced in 1966 to 1967.1 Thyroid ultrasound is now the best prevalence indicator for the assessment of thyroid disorders. It is used to differentiate cystic thyroid lesions from solid ones and solitary nodules from multinodular goiter. Also it is used to detect any extrathyroidal lesions, such as enlarged cervical lymph nodes if any. Nearly 50% of patients with a clinically palpable solitary thyroid nodule have avoided surgery because of thyroid ultrasound.2

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Fig. 1: Color Doppler machine – GE LOGIQ V5
Fig. 2: Transverse scan of thyroid gland with normal thyroid parenchyma

Fig. 3: Ultrasound evaluation of right lobe of thyroid gland to estimate thyroid volume

Fig. 4: Ultrasound scan of strap muscles and sternocleidomastoid muscle and common carotid artery in relation to right lobe of thyroid gland

Fig. 5: Ultrasound of normal vascularity of right lobe using power Doppler

MATERIALS AND METHODS

This was a prospective study carried out on 50 patients (44 females and 6 males) who attended the ear, nose, and throat or surgery outpatient department/inpatient department (OPD/IPD) and were referred to the Department of Radio-diagnosis for high-resolution USG of neck at Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India. This study was conducted for a period of 1 year from March 2015 to February 2016. The ultrasound machine used was GE LOGIQ V5 (Fig. 1).

Patients presenting with swelling in the thyroid region and those with clinical suspicion of thyroid dysfunction were included in the study. Patients with swelling in the neck other than thyroid or patients already diagnosed and treated for thyroid lesion were excluded.

Examination Method

The thyroid gland was examined with the use of high-resolution linear array transducer ranging from 7 to 12 MHz. The patient was examined in the supine position with the neck hyperextended to identify the inferior margin of the gland, which may extend up to the clavicle in some patients. A small pillow was placed under the shoulders so as to delineate structures well, particularly in patient with a short, stocky habitus.

The gland was evaluated with the help of criteria of solid, mixed, and cystic pattern. Solid nodules were divided into homogeneous and heterogeneous echo pattern. Homogeneous nodules were further subdivided into hypoechoic, isoechoic, and hyperechoic echotexture. The mixed group was divided into predominantly solid, predominantly cystic, and a complex group where no component was predominant. Various other sonographic features were also assessed. Cervical lymph nodes with any abnormal features in terms of size or echotexture were also subjected to FNAC. Color Doppler was used to study the vascularity of the thyroid gland. The inferior thyroid artery was identified and spectral waveforms were obtained (Figs 2 to 5).

After the history, physical examination, ultrasound examination, thyroidal hormonal assay, and FNAC, a diagnosis was made and statistical analysis was done by using proportion. The sensitivity, specificity, and positive
predictive value (PPV) were determined for all cases using the following formula:

\[
\text{Sensitivity} = \frac{a}{a + b} \\
\text{Specificity} = \frac{d}{c + d} \\
\text{Positive predictive value} = \frac{a}{a + c} \\
\text{Negative predictive value} = \frac{d}{b + d} \\
\text{True positive} = a \\
\text{False negative} = b \\
\text{False positive} = c \\
\text{True negative} = d
\]

**RESULTS**

In the present study, out of 50 cases, 44 (88%) patients were females and 6 (12%) were males. The male to female ratio was 1:7.3. Most of the patients, 19 (38%), were in 21 to 30 years of age group, the youngest being 8 years old and the eldest being 65 years old. The mean age was 36 years (Graphs 1 and 2).

All 50 (100%) patients presented with swelling in the neck either diffuse or nodular, out of which, 5 (10%) patients complained of associated pain; 4 (8%) patients had hoarseness of voice; 4 (8%) had difficulty in breathing; and 3 (6%) complained of palpitation (Graph 3).

With respect to consistency, out of 50 cases, 28 (56%) had solid consistency, 13 (26%) had cystic, and 9 (18%) turned out to be mixed lesions (Figs 6 to 8) (Graph 4).
With respect to echogenicity, out of 50 patients, 19 (38%) lesions were hyperechoic, 15 (30%) were hypoechoic, 13 (26%) were anechoic, and 3 (6%) were isoechoic as compared with normal thyroid parenchyma (Figs 9 to 12) (Graph 5).

With respect to margin, 47 (94%) out of 50 cases had well-defined margins, whereas 3 (6%) had ill-defined margins (Figs 13 and 14) (Graph 6).

With respect to vascularity, 10 (20%) cases showed internal vascularity along with peripheral vascularity, 26 (52%) showed peripheral pattern, and 12 (24%) cases showed no significant vascularity (Figs 15 and 16) (Graph 7).

With respect to halo, 11 (22%) out of 50 cases had thin peripheral complete halo whereas thick incomplete halo was seen in only one (2%) case (Fig. 17) (Graph 8).
In this study, microcalcification was seen in 1 (2%) case, egg shell calcification in 2 (4%), and coarse calcification in 3 (6%) out of 50 cases (Figs 18 to 20) (Graph 9).

Number of cases identified as benign in USG was 36, out of which 35 were benign and 1 turned out to be malignant in FNAC. Number of cases identified as malignant in USG was 4, and all proved out to be malignant in FNAC. The overall sensitivity, specificity, and PPV of USG in identifying a benign lesion were 97.14, 86.66, and 94.44% respectively. The overall sensitivity, specificity,
and PPV of USG in identifying a malignant lesion were 80, 100 and 100% respectively (Graph 10).

On FNAC, 5 (10%) were malignant, 35 (70%) were benign, and 10 (20%) were proved to be thyroiditis. The most common benign pathology in the present study was colloid goiter seen in 23 (46%) cases. Papillary carcinoma was seen in 4 (80%) out of 5 cases whereas anaplastic carcinoma was diagnosed in 1 (2%) (Figs 21 to 23). No case of medullary carcinoma was found in our study (Table 1) (Graph 11).

All the 4 malignant cases on USG were correctly diagnosed as malignant on cytology and 1 case which was
Radiological Evaluation of Thyroid Diseases using Gray Scale and Color Doppler Sonography

**Fig. 20:** Ultrasonography image of a lesion with coarse calcification

**Table 1:** Comparison between USG and FNAC diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>USG detected</th>
<th>Cytopathologically detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign lesions</td>
<td>36</td>
<td>35</td>
</tr>
<tr>
<td>Thyroiditis</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Malignant lesions</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Graph 10:** Comparison between USG and FNAC diagnosis

misdiagnosed as multinodular goiter on USG because of multiple well-defined nodules with high echogenicity also turned out to be a case of papillary carcinoma. Out of 36 benign cases, 1 turned out to be papillary carcinoma and 1 turned out to be Hashimoto’s thyroiditis on cytology.

**Fig. 21:** Ultrasonography image of hyperechoic nodules suggestive of multinodular goiter

**Fig. 22:** Longitudinal scan of diffusely hypoechoic gland with multiple thin echogenic septations suggestive of chronic thyroiditis

**Fig. 23:** Transverse scan of both peripheral and internal vascularity in chronic thyroiditis

**Graph 11:** Fine-needle aspiration cytology diagnosis of the present cases
Both cases on USG had multiple well-defined echogenic nodules and were diagnosed as multinodular goiter on USG (Fig. 24). Out of 10 cases of thyroiditis, 1 (2%) case proved out to be primary follicular hyperplasia on cytology (Fig. 25).

Comparison of sonographically positive and negative benign cases with FNAC revealed:

<table>
<thead>
<tr>
<th>Sonographically benign</th>
<th>Fine-needle aspiration cytology</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>15</td>
</tr>
</tbody>
</table>

Statistical values:
Sensitivity: 34/35 × 100 = 97.14%
Specificity: 13/15 × 100 = 86.66%
Positive predictive value: 34/36 × 100 = 94.44%

Comparison of sonographically positive and negative malignant cases with FNAC revealed:

<table>
<thead>
<tr>
<th>Sonographically malignant</th>
<th>Fine-needle aspiration cytology</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>45</td>
</tr>
</tbody>
</table>

Statistical values:
Sensitivity: 4/5 × 100 = 80%
Specificity: 45/45 × 100 = 100%
Positive predictive value: 4/4 × 100 = 100%

Comparison of sonographically positive and negative chronic thyroiditis cases with FNAC revealed:

<table>
<thead>
<tr>
<th>Sonographically chronic thyroiditis</th>
<th>Fine-needle aspiration cytology</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>40</td>
</tr>
</tbody>
</table>

DISCUSSION

All five malignant lesions were seen in females. Percentage of malignancy in females in our study turned out to be 11.3%. In a similar study conducted by Nam Goong et al,5 the age range was 26 to 75 years with mean age of 51 years, which was very high as compared with our study. All the cases of malignancy were above the mean age, and the mean age of malignant cases turned out to be 52.

In a study by Simeone et al6, 87.2% cases were benign and 12.7% cases were malignant which can be related to our study. Out of 17 malignant cases, 9 (52.9%) had papillary carcinoma, 2 (11.7%) had medullary carcinoma, 2 (11.7%) had follicular carcinoma, 2 (11.7%) had anaplastic carcinoma, and 2 (11.7%) had metastases.

Statistical values:
Sensitivity: 9/10 × 100 = 90%
Specificity: 39/40 × 100 = 97.5%
Positive predictive value: 9/10 × 100 = 90%
13 (52%) out of the 25 cases were colloid goiters in their study.

<table>
<thead>
<tr>
<th>Workers</th>
<th>Percentage of colloid goiters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheible et al</td>
<td>52</td>
</tr>
<tr>
<td>Present study</td>
<td>46</td>
</tr>
</tbody>
</table>

James and Charboneau stated that the most specific sign of a benign thyroid nodule is eggshell or peripheral calcification. Our study revealed only 2 (4%) cases showing such peripheral or egg shell calcification. Both turned out to be benign.

<table>
<thead>
<tr>
<th>Calcification</th>
<th>No. of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse calcification</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Eggshell calcification</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Microcalcification</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Erdogan et al had found 24 cases of Hashimoto’s thyroiditis while evaluating 55 patients with hyperthyroidism. Micronodulation was seen in all cases. Small micronodules were seen in all the cases in our study.

<table>
<thead>
<tr>
<th>Workers</th>
<th>Percentage of hashimoto’s thyroiditis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erdogan et al</td>
<td>43.6</td>
</tr>
<tr>
<td>Present study</td>
<td>18</td>
</tr>
</tbody>
</table>

Lin et al had found 11 cases of chronic thyroiditis. Ultrasound patterns of 11 cases were diffusely enlarged gland with diffuse hypoechoogenicity. In our study, we found 10 cases of chronic thyroiditis out of which 9 showed diffuse enlarged gland with diffuse hypoechoogenicity.

Papillary carcinoma accounts for 75 to 90% of primary thyroid cancers. Ultrasound appearance of benign and malignant nodules overlaps; however, certain features are helpful in differentiating between the two. These features include microcalcifications, local invasion, lymph node metastases, and a nodule, i.e., taller than wide with markedly reduced echogenicity, all of which goes in favor of malignancy. Other features, such as absence of halo, ill-defined irregular margins, solid composition, and vascularity are less specific but may be useful ancillary signs.

In our study as we found papillary carcinoma in 80% of all malignant cases.

In a study by Hoang et al, they stated that microcalcifications are one of the most specific ultrasound findings of a thyroid malignancy. Microcalcifications were found in 29 to 59% of all primary thyroid carcinomas. In our study, we detected only one case of malignancy showing microcalcification. One case of malignancy showed coarse calcification.

<table>
<thead>
<tr>
<th>Doppler</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral flow pattern</td>
<td>26</td>
</tr>
<tr>
<td>No significant vascularity</td>
<td>12</td>
</tr>
<tr>
<td>Both together (peripheral and internal flow)</td>
<td>10</td>
</tr>
<tr>
<td>Thyroid inferno (peak systolic velocity &gt;70 cm/second)</td>
<td>2</td>
</tr>
</tbody>
</table>

Most of the authors have agreed that specific USG features of thyroid carcinoma do not exist; however, some have stated that carcinomas are usually hypoechoic, but Solbiati et al found out that only 68% of the malignant lesions were hypoechoic. In our study we found five cases of malignancy out of which only three (60%) were hypoechoic. Therefore, hypoechoic echotexture should not be considered an independent factor in determining malignancy.

<table>
<thead>
<tr>
<th>Echogenicity relative to the adjacent thyroid parenchyma</th>
<th>No. of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperechoic</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Hypoechoic</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Anechoic</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Isoechoic</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

All three cases in our study with ill-defined margins proved out to be carcinoma of which two were papillary carcinoma. Thus it proved out to be a significant factor in determining malignancy of thyroid nodules.

<table>
<thead>
<tr>
<th>Margin</th>
<th>No. of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well-defined</td>
<td>47</td>
<td>94</td>
</tr>
<tr>
<td>Ill-defined</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

Internal vascularity occurs in 69 to 74% of thyroid malignancies according to a study by Hoang et al. All five proven cases of malignancy showed internal vascularity. Therefore, this factor was highly sensitive for malignancy. Hence, USG is good at ruling out a malignancy lesion, thus playing a role in management.

<table>
<thead>
<tr>
<th>Doppler</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral flow pattern</td>
<td>26</td>
</tr>
<tr>
<td>No significant vascularity</td>
<td>12</td>
</tr>
<tr>
<td>Both together (peripheral and internal flow)</td>
<td>10</td>
</tr>
<tr>
<td>Thyroid inferno (peak systolic velocity &gt;70 cm/second)</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workers</th>
<th>Specificity in detection of malignancy using absent halo sign, microcalcification, and intranodal flow pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rago et al</td>
<td>97.2</td>
</tr>
<tr>
<td>Present study</td>
<td>100</td>
</tr>
</tbody>
</table>
In the study conducted by Dhanadia et al\textsuperscript{15} for detection of malignancy by ultrasound had sensitivity of 83.3\%, specificity 72.7\%, PPV 29.4\%, and NPV 96.9\%. In our study, detection of malignancy by ultrasound had a sensitivity of 80\% and specificity of 100\%. Positive predictive value came out to be 100\%.

Our study also had limitations in the form of a small sample size. Therefore, it is recommended to conduct a similar study with a larger sample size in order to identify the malignancy markers more accurately.

CONCLUSION

Color Doppler sonography is a noninvasive procedure for investigating thyroid gland which is safe, fast, inexpensive, popular, and cost-effective and can be repeated many a times. As it is located superficially and has a good vascularity, high-resolution grayscale and color Doppler sonography is helpful in demonstrating normal thyroid anatomy and pathological conditions with remarkable clarity.

Our experience demonstrates significantly improved sensitivity for high-resolution ultrasound over other investigations for the anatomic characterization of thyroid lesions. Ultrasound is valuable in identifying malignant or potentially malignant thyroid nodules. Ultrasound appearance of benign and malignant nodules overlap, however, certain features are helpful in differentiating between the two. The newly developed high-resolution USG along with color Doppler flow studies can reveal fine details of the thyroid gland and the hemodynamic features of thyroid neoplasms.

Color flow Doppler sonography is gaining importance for the functional evaluation of the thyroid disorders. Color flow Doppler sonography could differentiate an untreated Grave’s disease from Hashimoto’s thyroiditis, which have almost similar grayscale findings. Thyroid ultrasound differentiates solid from cystic lesions, solitary nodules from multinodular and diffuse enlargement, and is also helpful in characterizing extra thyroidal lesions.

Thyroid ultrasound can also be used in calculation of thyroid volume. Finally in selected cases, direction of fine-needle aspiration biopsy can be best accomplished with sonography, eliminating the need of multiple needle punctures. Our present study consisted of 50 cases, which were clinically suspected suffering from thyroid dysfunction. Thyroid ultrasound was very efficient in picking up lesions in all 50 cases in our study. In comparison to other studies, our study gave a similar picture in terms of benign lesions being much more common than malignant lesions. The most common benign lesion determined in our study was colloid goiter, which was the most common benign lesion in many other studies. In comparison to other studies, we were able to detect malignant nodules with a better specificity. Chronic thyroiditis was also very efficiently detected using ultrasound in our study.

REFERENCES

ABSTRACT
The present article aims to provide an overview of the research and development in the field of vestibular implants for patients suffering from bilateral vestibulopathy. There is a strong justification for surgical intervention in such patients because of a negative impact and disability of disease on the life of the patients. A few animal and human studies have been undertaken, and the available data from both animal and human studies are encouraging. It is evident that there is a technical feasibility for the use of vestibular implants. Although normal vestibular function is not expected, significant physical improvement is expected in these patients.

Keywords: Oscillopsia, Vestibular implants, Vestibulopathy.

INTRODUCTION
The primary goal of cochlear implant, which was introduced about three decades ago, was to afford serviceable hearing to profoundly deaf patients. It was contemplated that they would perceive basic speech and environmental sounds, but the scenario has changed over a period of time. People with implants are doing reasonably well and they are very near normally hearing people.

Another device in its early phase of development is in the offing, viz. a vestibular implant for patients with fluctuating vestibular function. Abnormal hyperfunction can be suppressed, but those with fluctuating vestibular function cannot be helped. Oscillopsia, though uncommon, is highly debilitating. Vestibular implant is being developed to help such disabled patients.

Patients with bilateral vestibulopathies have varying degrees of disability. Treatment option for these patients is to teach them to adapt and cope with their disability. A vestibular implant that uses electrical stimulation of vestibular neurons is in the developmental stage as one treatment option for these patients. The implant is supposed to replace absent or severely reduced semicircular canal function.

REVIEW OF LITERATURE
Short-term electrical stimulation of the vestibular periphery has a long history. In the early 19th century, Purkynje (1820, quoted by Merfeld and Lewis1) used low-frequency electrical stimulation between the left and right ears to induce vertigo. Later studies by Mach2 reported nystagmus, illusory motion of visual object and illusions of self-tilt by electrical stimulation of the vestibular periphery.

Suzuki, Cohen, et al3,4 implanted electrodes for short duration electrical stimulation of the vestibular periphery. They used voltage pulses to limit current spread and observed that individual ampullary nerve branches could be stimulated, and that the eye responses to such stimuli were like natural responses.

Study of long-term stimulation of vestibular periphery was undertaken as nothing was known about the behavior of nervous system to chronic stimulation of the vestibular periphery. Vestibular periphery of animals was chronically stimulated for 24 hours/day for 7 days a week for many months.5-7 Initially, a brisk nystagmus was induced when pulsatile current pulses were turned on. It was seen that animals acclimated to this baseline stimulation, and the time required for acclimation became less and less with repeated exposures to stimulation.

Recently, the first human study by Wall et al8 has been published that utilized electrical stimulation provided by electrodes inserted into the vestibular periphery for focal vestibular stimulation using short-term current pulses intraoperatively.8 The study demonstrated an electrically evoked response in humans as was seen previously in animal models.

Guyot et al9 chronically implanted electrodes near the left posterior ampullary nerve of a deaf patient as part of a cochlear implant surgery. Electrical stimulation was provided intermittently for varying periods of time. When the baseline pulsatile current pulses were turned on, a nystagmus was evoked. This nystagmus dissipated over a period of about 30 minutes. When the stimulus was turned off after 27 minutes of constant stimulation, a nystagmus in the opposite direction was initiated, which indicates adaptation. When the stimulus was alternately turned on and off, the duration of the nystagmus response...
decreased. This is the first study of human plasticity to electrical stimulation provided by electrodes chronically implanted near vestibular neurons.\textsuperscript{10}

A study by Guinand et al\textsuperscript{11} assessed the quality of life for patients diagnosed with bilateral vestibulopathy. It was observed that bilateral vestibulopathy affects the quality of life by negatively affecting physical and social function and that there is a clear need for a therapeutic solution for patients of bilateral vestibulopathy, such as a vestibular implant.

**Surgery for Vestibular Implant**

Vestibular implant surgery is in the initial stage of development. Two surgical approaches have been described for inserting electrodes for vestibular stimulation: Extralabyrinthine and intralabyrinthine and also its combined approach.

A comparison of the two surgical approaches used to insert electrodes to stimulate canal ampullary nerve branches has been reviewed. The intralabyrinthine approach utilizing the osseous canal lumen to guide the electrode to the ampullae was originally pioneered by Suzuki and Cohen.\textsuperscript{3} The other approach is extralabyrinthine and has been utilized for human studies performed by the Geneva group.\textsuperscript{9,10} The extralabyrinthine approach has two components using transmeatal approach. The posterior ampullary nerve is reached via a transmeatal approach after drilling the floor of the round window niche. The other two ampullary nerve branches are reached transmeatally after the removal of the head of the malleus and incus.

Drawbacks to the extralabyrinthine approach are that the ampullary nerves may sometimes be difficult to reach. There is risk of both sensorineural and conductive hearing loss following reconstruction of the ossicular chain. These can be facial nerve damage. The main advantage is that the electrodes can be located near the desired neurons and stimulation might be possible even if the peripheral dendrites have been destroyed up to Scarpa's ganglion following peripheral damage.

Complications associated with the intralabyrinthine approach include perilymph leaks following canal fenestration, possible sensorineural hearing loss, and difficulty in stimulating neurons if they have died back to Scarpa's ganglion, but the facial nerve is less likely to be damaged and the middle ear is preserved in this procedure.

Combination of both approaches has been successfully used for stimulating ampullary neurons selectively. Both approaches are surgically compatible. Individual ampullary nerves can be stimulated by any of the approaches in the same patient.

Two recent vestibular implant studies by Dai et al\textsuperscript{12} and Bierer et al\textsuperscript{13} have evaluated the effects of a vestibular implant on hearing in rhesus monkeys. The studies suggest that electrode implantation in all three canals is not likely to result in considerable hearing loss. Once there is development and refinement in the vestibular implant technology, the risk to hearing will roughly be similar to the risk of a cochlear implant.

The vestibular implants have been developed to replace the function of vestibular system. The first vestibular implants were installed in three patients in Europe. These implants restore the function of the semicircular canals. Semicircular canals are thought to be the most important, and it is technically easier to restore their functions by putting electrodes into the ampullae of the canals.\textsuperscript{13}

**CONCLUSION**

The deficits associated with severe bilateral vestibulopathy suggest that this treatment option would benefit the quality of life of patients. Vestibular implants will restore partial vestibular function in patients with severe bilateral peripheral deficit. Numerous challenges and queries remain unanswered, the most important being the ethical issues related to vestibular implants, the decision in making about the surgical approach for implants, and finally the effects of implants on hearing. With the progress in the field of vestibular implants and ongoing research, all these queries will be answered over a period of time. Justifying ongoing research efforts, all available data suggest that vestibular implants would benefit patients suffering from severe bilateral vestibular loss.

**REFERENCES**


ABSTRACT

Brugada syndrome is a rare inherited arrhythmic disorder, which predisposes to ventricular arrhythmia that is responsible for sudden and unexpected nocturnal death syndrome.

Keywords: Brugada syndrome, Sudden and unexpected nocturnal death syndrome, Ventricular arrhythmia.

INTRODUCTION

Brugada syndrome is a hereditary arrhythmic disorder (autosomal dominant inheritance), caused by mutation in the SCN5A gene. It is a cardiac sodium channel abnormality that predisposes to ventricular arrhythmia and responsible for sudden cardiac death. Prevalence is approximately 0.15% in adults and 0.005% in children in Asia and less than 0.02% in the West. Its incidence in Japan is high, i.e., 14.2 per 100,000 person per year. It is identified in both genders and all races, but is most common in young male patients (75%). It remains lifelong asymptomatic in individuals, but sudden cardiac death may occur as early as the first year of life. Fever is the most common precipitating factor for arrhythmic cardiac events. In patient with structurally and functionally normal heart, electrocardiogram (ECG) appears like right bundle branch block with ST segment elevation in V1–V3.

CASE REPORT

A young 40-year-old male presented in emergency with history of palpitation and chest heaviness for 2 to 3 hours with fainting attack and mild fever without chills and shivering for 1 day. No history of perspiration, breathlessness, and cough was present.

He gave a history of several on–off fainting attacks in the past 12 years, and there was no definite interval for these symptoms. He had been treated as a case of myocardial infarction/unstable angina on clinical basis without relief of symptoms in past. No previous ECG was available. He also gave a history of his younger brother’s death in the night due to unexplained cause at the age of 30 years. However, his father is asymptomatic.

The patient was conscious, oriented with pulse 78 beats/minute, regular, normovolumic, normal in character, synchronous, arterial wall not palpable, and with no radiofemoral delay. Blood pressure was 124/84 mm Hg in the right arm supine position. Temperature was 100°F at the time of admission. Respiratory rate was 20/minute, regular, and abdominothoracic. The peripheral capillary oxygen saturation (SpO2) was 98%. All systemic examinations were clinically within limits. Hemogram, electrolytes, and chest X-ray were normal.

The ECG showed saddleback ST segment elevation in V1–V2 (Fig. 1). Cardiac biomarkers were negative 6 hours postadmission. No functional or structural abnormality was detected in two-dimensional echocardiography. Therefore, ECG changes gave us clues to make a diagnosis of Brugada syndrome and was thought to be responsible for sudden and unexpected nocturnal death syndrome of patient on the same night of admission.

DISCUSSION

Brugada syndrome constitutes a deadly threat that often remains latent for many years, only to manifest itself in a lethal arrhythmia in persons considered to be otherwise healthy. Main reason for delayed diagnosis of Brugada syndrome is the periodic normalization of electrocardiographic features of the syndrome,1 which is related to incomplete penetration of the gene responsible for the syndrome. Moreover, changes in ECG may be subject to influences of factors, such as body temperature2 or autonomic system tone.3,4 It has an autosomal dominant pattern of inheritance with incomplete penetrance. Yearly screening of ECG and genetic testing is recommended for family members. Implantable cardiac defibrillator is
the choice of treatment and should be advised for those having ECG changes.

**CONCLUSION**

All ST elevations are not due to myocardial infarction and may have different etiology with risk of sudden cardiac death.

**REFERENCES**


ABSTRACT

Introduction: Sebaceous gland carcinoma (SGC) is a rare tumor affecting the elderly, with a predisposition for females arising from the meibomian glands and occurring more commonly on the upper eyelid. Diagnosis is difficult because the tumor mimics chalazion or blepharitis. Sebaceous gland carcinoma has a mortality rate of about 5 to 10%.

Aim: To present a modified Cutler-Beard technique of lid reconstruction to manage a case of extensive SGC of upper lid.

Materials and methods: A 65-year-old male presented with a rapidly growing extensive mass of right upper eyelid (size 4.2 × 4 × 2.1 cm) causing mechanical ptosis. Histopathology confirmed the diagnosis as SGC. Wide excision of the lesion was performed sacrificing the whole upper eyelid. Lid reconstruction was done employing lower eyelid as per the bridged flap technique with the use of 4 mm silicon band to enhance lid stability. Patient achieved a satisfactory functional and cosmetic result following the second stage of the procedure.

Conclusion: Total loss of upper eyelid is often dealt with classical lid sharing technique of reconstruction first described by Cutler-Beard. For lid stability, use of tarsus from contralateral eye, ear cartilage has their attendant problems. A 4.0 silicon band was used to replace the sacrificed tarsus, achieving good results.

Keywords: Bridged flap, Meimobian gland, Pleomorphic, Silicon band, Vacuolated.


INTRODUCTION

Sebaceous gland carcinoma (SGC) is the third most common malignant arising from meibomian glands, glands of Zeis, sebaceous glands of the caruncle, and eyebrow. Worldwide incidence of SGC is 1 to 1.5%. In Indian population, it constitutes about 31.2% of eyelid malignancies. Treatment of choice is wide surgical excision with microscopic monitoring of the margins preferably with frozen section technique. Surgical excision of the tumor leaves a large lid defect that requires adequate lid reconstruction. Goal of lid reconstruction is normal anatomical and functional restoration. Choice of reconstructive procedure depends upon extent and tissue loss.

CASE REPORT

A 65-year-old male farmer presented with an indurated, erythematous painless mass involving entire right upper eyelid of about 1 year duration. There was no history of trauma or previous ocular surgery. Swelling started as a small lid marginal nodule mimicking a chalazion and gradually progressed to involve entire upper lid. Mucopurulent discharge persisted and enhanced with time, forming marginal crusting. On local examination, 4.2 × 4 × 2.1 cm sized, firm, multilobulated, indurated, erythematous swelling involving the entire upper lid causing mechanical ptosis and conjunctival congestion was pronounced at the lower fornix (Figs 1A and B). Cornea and other structures of anterior segment were normal. Fundus examination was also normal. Visual acuity was: Oculus dexter (OD) – 6/12 to 6/9, Oculus sinister (OS) – 6/9. Intraocular pressure measurements were: OD – 14.6 mm Hg, OS – 14.6 mm Hg. Ocular motility was unrestricted.

On general and systemic examination, no significant abnormality was detected. Routine blood investigations were carried out and erythrocyte sedimentation rate was raised (43 mm after first hour). Fine-needle aspiration cytology of the nodule showed characteristic malignant cells and cytoplasmic vacuolation, which was suggestive of SGC.

After 3 weeks, patient reported with continuous mild pain over lids and periorcular area with complete shutdown of eyelid. Swelling had increased in size to about 5.1 × 4.6 × 2.8 cm in its greatest dimensions with hard to firm consistency. Conservative option being ruled out, wide radical excision of the tumor sacrificing the complete upper lid was subsequently planned. As surgery involved sacrificing whole upper eyelid, a Cutler-Beard operation...
was contemplated. Total lid excision under general anes-
thesia was undertaken along with lid reconstruction with
lower lid sharing technique of Cutler-Beard procedure.
Tarsus reconstruction was employed using a 4 mm
silicon band (Figs 2A and B) sutured with conjunctiva
and the levator aponeurosis using 5-0 vicryl. Orbicularis
and skin were sutured separately, followed by pressure
bandage for 48 hours. Excised mass (Fig. 3A) was sent for
histopathological examination that revealed vacuolated
cytoplasm and hyperchromatic pleomorphic nuclei and
mitotic figures (Fig. 3B).

After a hospital stay of 1 week with conservative
treatment, the patient was discharged. During fortnightly
follow-up, uneventful recovery was noted with no infec-
tion or discharge or wound dehiscence.

Second-stage surgery was undertaken after 8 weeks
following initial surgery, incising upper lid 1 mm above
the bucket handle sling margin. Care was undertaken
to form a uniform lid edge with everted conjunctiva.
Conjunctiva and skin at the newly formed lid margin
were sutured with 5-0 vicryl and knots were buried
(Figs 4A and B).

DISCUSSION

Lid reconstruction, even though falling in the arena
of oculoplastic surgeon, often invokes a general
ophthalmologist in view of emergent requirements. It is required in various clinical conditions like lid tumors and malignancies, traumatic lid defects, colobomas, burns, postirradiation, and severe variant of herpes zoster ophthalmicus.6

The following key factors had to be noted while evaluating lid defects: Eyelid involvement – upper or lower; depth of defect – superficial or full thickness; involvement of lid margin in defect; size of defect – 25, 40, 50, 75, or 100%; shape of defect – vertical, horizontal, irregular, or pentagonal; elasticity of lids (age factor); involvement of canthal tendon; and involvement of levator muscle or lacrimal apparatus. Smaller lid defects up to 25% in young and 40% in old may be repaired by primary lid closure. A large defect above 60% has little option like cheek rotation flap (Mustarde’s) or tarsoconjunctival advancement flap (Hughe’s).7

Bridged advancement flap (Cutler-Beard procedure) has been sited to give excellent results where complete upper lid sacrifice is a compulsion. Cutler-Beard technique was proposed in year 1955 as a viable surgical option for upper lid reconstruction.8 It is based on the concept of lower lid sharing. Its major disadvantage was insufficient transfer of tarsus to upper lid causing a floppy lid formation. Tarsus reconstruction was sought using various grafts like donor sclera, ear cartilage, buccal cartilage, nasal septum, or even tarsus from contralateral eye.9 Added morbidity of the modifications in already physically challenged patient was a cause for concern.

Present work had tried a routine 4 mm silicon band used by the vitreoretinal surgeon to replace these homografts. Key advantages were easy availability, saving of surgical time, and a taut lid margin contour was achieved. Complications of the surgery were not different from routine Cutler-Beard procedures like lagophthalmos, ectropion/entropion of lids, absence of cilia, lid notching, and lid retraction. The present case noted a mild lagophthalmos insufficient to produce corneal exposure and central lid notching that required a subsequent correction by Z-plasty.

CONCLUSION

Sebaceous gland carcinoma is a matter of concern in Indian subcontinent due to its relative high incidence and late diagnosis and it may fox as recurrent chalazion initially. Cutler-Beard surgery should be regarded as the procedure of choice where complete resection of upper lid becomes necessary. Morbidity and surgical time can be reduced by use of 4 mm silicon band for upper lid reconstruction.

REFERENCES

CASE STUDIES

Rare Case of Intrahepatic Pancreatic Pseudocyst misdiagnosed as Hepatic Abscess

Parveen Hans, Sagar Tyagi, Prashant Sinha, Lalit Kumar, Deepanshu Gupta, Robin Singh

ABSTRACT

Introduction: Pseudocyst formation is a well known complication of pancreatitis. Intrahepatic pancreatic pseudocyst is very rare event and only about 30 cases have been reported in literature.

We report here a case of 32-year-old male who was previously diagnosed as a case of hepatic abscess. He was referred to our department for ultrasonography (USG) and contrast enhanced computed tomography (CECT) abdomen with complaint of recurrent pain in upper abdomen. On the basis of findings of CECT Abdomen, diagnosis of large intrahepatic pancreatic pseudocyst in left lobe of liver is made.

Conclusion: Intrahepatic pseudocyst should be considered a differential diagnosis of cystic hepatic lesions in the patients with chronic or recent episode of acute pancreatitis. Computed tomography and high level of amylase in the collection plays an important role for diagnosing this complication.

Keywords: Computed tomography, Intrahepatic pseudocyst, Pancreatic pseudocyst, Pancreatitis.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

Pseudocyst formation is a well-known complication of pancreatitis. It can occur anywhere in abdomen and even in mediastinum, depending upon where activated pancreatic enzymes are released and what path they follow.

Common sites of occurrence are body, tail, head of pancreas, lesser sac, perisplenic area, retroperitoneum, and pararenal areas.1 Intrahepatic pancreatic pseudocyst is a very rare event and only about 30 cases have been reported in the literature.

We report here the case of a 32-year-old male who was previously diagnosed as a case of hepatic abscess and underwent pigtail drainage. He was referred to our department for ultrasonography (USG) and contrast enhanced computed tomography (CECT) abdomen with complaint of pain in upper abdomen. Based on the findings of CECT abdomen, diagnosis of large intrahepatic pancreatic pseudocyst in left lobe of liver was made.

CASE REPORT

A 32-year-old male presented with pain in upper abdomen associated with vomiting and fever for past 2 months. He was admitted in some other hospital and diagnosed as a case of liver abscess and pigtail was inserted. Patient got some relief and the catheter was removed after 15 days. Patient developed wound with discharge at the site of tube insertion.

He came to our hospital with complaint of recurrent upper abdomen pain and discharging sinus in epigastric region. Patient was nonalcoholic and there was no history of diabetes mellitus, tuberculosis, and hypertension. On examination, patient was icteric, otherwise well-oriented, afebrile with satisfactory general condition. On local examination, abdomen was distended and tender, hepatomegaly was present, wound in epigastrium with discharge (0.5 × 0.5 cm).

Blood investigations show raised serum amylase (126 IU/L) and lipase (563 IU/L). Liver function test was deranged with raised serum alkaline phosphatase (514 IU/L). He was referred to our department for USG whole abdomen and CECT abdomen.

Ultrasoundography

Liver was enlarged in size (17.0 cm Cranio-caudal) with a large cystic lesion and with fine echoes in left lobe measuring 16 × 9.5 × 9 cm (Fig. 1). The lesion shows no color flow or solid areas. Fistulous connection was seen between the cystic lesion and skin in epigastric region. Pancreatic head was bulky with heterogeneous echo texture (Fig. 2). Pancreatic body and tail obscured by bowel gases.

Contrast-enhanced Computed Tomography

The CECT reveals a large, nonenhancing, cystic lesion (HU-9) with imperceptible wall involving left lobe of liver.
and showing communication with peripancreatic collection. Fistulous communication with skin over epigastric region was also noted. Pancreas shows heterogeneous enhancement and a cystic area in region of tail. Multiple areas of peripancreatic collection were seen in lesser sac and retroperitoneum (Figs 3A, B and 4).

Ultrasonography-guided aspiration was done and fluid showed high level of amylase.

**DISCUSSION**

Pseudocyst formation is a well-known complication of both acute and chronic pancreatitis. Pancreatic
Rare Case of Intrahepatic Pancreatic Pseudocyst misdiagnosed as Hepatic Abscess

Intrahepatic pancreatic pseudocyst is a very rare event and only about 30 cases have been reported in the literature. Intrahepatic pseudocysts are usually single and most commonly involve the left lobe, but multiple intrahepatic pseudocysts have also been described. The pathophysiology of intrahepatic pancreatic pseudocyst formation can be explained by two mechanisms.

The first mechanism consists of the accumulation of the pancreatic juice in the peripancreatic or prerenal space and thereafter eroding through the posterior layer of the parietal peritoneum and into the lesser sac. The lesser sac collection then tracks along the lesser omentum or gastrohepatic ligament toward the liver leading to the formation of left lobe subcapsular collections as seen in our case.

The second mechanism consists of spreading of pancreatic fluid from the head of the pancreas into the hepatoduodenal ligament and porta hepatis along the portal vein and its branches. This results in formation of intraparenchymal collections. Subcapsular pseudocysts are located just beneath the liver capsule and are biconvex in shape, while intraparenchymal pseudocysts are located away from the liver capsule and near the porta hepatis branches.

Diagnosing an intrahepatic pseudocyst is difficult as it is usually not considered in the differential diagnosis of cystic hepatic lesions. Moreover, when an intrahepatic pseudocyst develops long after an episode of pancreatitis, or when the pancreas appears normal on imaging studies, it is rarely diagnosed.

The aspiration of amylase-rich fluid and the documentation of a communication with the peripancreatic collection on CECT or disrupted pancreatic duct on endoscopic retrograde cholangiopancreatography will confirm the diagnosis of an intrahepatic pseudocyst.

There are no definite guidelines on the management of intrahepatic pseudocysts. Surgical drainage, radiologically guided percutaneous drainage/aspiration, and transpapillary stent have been successfully used in the treatment of intrahepatic pseudocysts of pancreas.

CONCLUSION

Intrahepatic pseudocyst should be considered as a differential diagnosis of cystic hepatic lesions in patients with chronic or recent episode of acute pancreatitis. The CT image and high level of amylase in the collection plays an important role for diagnosing this complication.

REFERENCES

Sublingual Epidermoid Cyst: A Rare Presentation

Ashish K Maurya, Shalini Jadia, Leena Jain, Sadat Qureshi

ABSTRACT

Infection of pilo-sebaceous gland or traumatic migration of epidermis to the deeper layers of the skin can lead to epidermoid cyst. Any site of the body which is lined by squamous epithelium can be the site of epidermoid cyst. We present a case of sublingual epidermoid cyst in a 14-year-old female, who presented with a slow-growing, soft, midline swelling in submental region. Cyst was excised under local anesthesia with sedation. Histopathological examination revealed a cystic wall lined by keratinizing squamous epithelium with lamellated keratin and fibrocollagenous tissue with congested blood vessels, along with subcutaneous fat and muscle bundles, which is suggestive of epidermoid cyst.

Keywords: Epidermoid cyst, Keratinized squamous epithelium, Submental swelling.

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Source of support: Nil
Conflict of interest: None

INTRODUCTION

Epidermoid cysts are rare lesions in the head and neck and are most often located in the submental region. They can be present all over the body where squamous epithelial lining is present. The cyst can be defined as epidermoid when the lining present only epithelium, dermoid cyst when skin adnexa are found, and teratoid cysts when other tissues as muscle, bone, and cartilage are present. Diagnosis can be confirmed by histopathological examination. Surgical excision of the cyst is often required and entire cyst wall should be removed to prevent recurrence.

CASE REPORT

A 14-year-old female patient presented to the Otorhinolaryngology Department of our Medical College, with the complaint of a midline swelling in submental region with little difficulty in tongue movements. The swelling (Fig. 1) was 3 × 3 cm in size, round in shape, firm, cystic, nontender, mobile, and no movement seen on tongue protrusion or swallowing. Temperature of overlying skin was normal. No punctum or pus point can be appreciated. An old healed scar mark was present. Ultrasonography of the swelling was suggestive of a midline cystic swelling (dermoid/epidermoid cyst). Diagnosis was confirmed by fine needle aspiration cytology. Surgery was planned for excision of the cyst under local anesthesia with sedation. A midline horizontal incision was given over submental swelling; cyst was excised out from the surrounding tissue and removed in total (Figs 2 and 3). The excised swelling measured 4.5 × 2.5 cm (Fig. 4). Wound was closed...
in layers and specimen sent for histopathological examination. Histopathological examination revealed cystic wall lined by keratinized squamous epithelium with lamellated keratin and fibrocartilaginous tissue. Patient did well postoperatively. No recurrence was seen during the follow-up at 6 months.

DISCUSSION

Epidermoid cyst can be seen anywhere in the body where squamous epithelial lining is present. Only 7% are seen in head and neck, mostly present with a midline, painless, suprahypoid slow-growing swellings, and only 0.1% of them are seen in the oral cavity.4 These cysts can be congenital or acquired. Congenital cysts of ectodermal origin are extremely rare. Acquired cysts are more common and are usually derived from traumatic or iatrogenic inclusion of epithelial cells or from occlusion of a sebaceous gland duct. Among all the theories of epidermoid cyst formation, the epithelial implant theory is the most commonly accepted theory. The small size cyst remains asymptomatic but larger sublingual cyst can cause discomfort in chewing, tongue movements, and swallowing. Large submental cysts can give a “double chin appearance”.3 Epidermoid cysts are also described as “pearly tumors” because of shiny, smooth, and waxy character of their dry keratin.6

Epidermoid cyst of the floor of the mouth derived from entrapped epithelial rests during midline closure of bilateral first and second branchial arches in third and fourth week of gestation.28

Ultrasonography is the best investigation for these types of cysts. It is economical, reliable, and without radiation exposure.9 Fine needle aspiration cytology can differentiate most of the types. Dermoid/epidermoid cysts above the mylohyoid muscle within sublingual space can be approached by an intraoral approach, and the cyst below the mylohyoid muscle is seen as an obvious submental swelling. An external submandibular approach is preferred.1 The complete excision without rupturing the cyst is very important as the contents can cause inflammation and recurrence.

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Spontaneous Cholecystocutaneous Fistula

Rajesh Abbey

ABSTRACT

Spontaneous biliary fistulae are encountered, not very rarely, in one’s surgical practice. These fistulae are of three types: Internal, external, and combined. Internal spontaneous biliary fistulae are the commonest. External fistulae could be spontaneous or because of therapeutic, iatrogenic, or traumatic reasons are extremely rare. Spontaneous cholecystocutaneous fistula (SCCF), secondary to calculous cholecystitis, is an extremely rare presentation in the present-day scenario. It used to be quite common before the year 1900, but is very rare now because of better management of cholecystitis and cholelithiasis. Usually, SCCF is a complication of neglected chronic cholelithiasis. This is seldom seen today because of the early diagnosis and better management made feasible by ultrasound as first-line investigation, broad spectrum antibiotics, and effective surgical management of biliary tract diseases. It is a very rare case of 35-year-old female patient presenting in the outpatient department, with the multiple stones carefully preserved, which she had been extruding through the fistulous opening in the umbilicus, for the last 1 year. She was investigated and was operated for the same condition. Though the entity is very rare, clinicians should keep this condition in mind while examining any case of chronic discharging sinus or fistula on the abdominal wall, particularly the wound extruding stones in which case the diagnosis is self-revealing. In the absence of positive history of expelling stones, the diagnosis can be confirmed by computerized tomogram fistulography. Though the early diagnosis and improvement in the management of gallbladder disease has improved tremendously, the possibility of this condition arising mostly from the neglected gallbladder disease should always be kept in mind as such cases are again being reported from all over the world.

Keywords: Cholecystocutaneous fistula, Cholecystoumbilical fistula, Chronic calculous cholecystitis, Computerized tomogram fistulography, Laparoscopic cholecystectomy.


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INTRODUCTION

Most of these internal fistulae communicate with duodenum (77%), colon (15%), and stomach (6%).¹ Rarely, it can communicate with the urinary system or bronchial tree.² Spontaneous external biliary fistulae are very rare and were first described in 1670 by Thilesus.³ In the world literature, only 65 cases had been described, since the year 1900.²,⁴ Less than 20 cases prior to year 2006 have been reported in the last 50 years. Now, most biliary fistulae are postoperative complications of liver and biliary tract surgery or trauma. External biliary fistulae can be further subdivided into spontaneous, therapeutic, traumatic, and iatrogenic fistulae. External spontaneous cholecystocutaneous fistula (SCCF) is a very rare surgical complication of neglected calculous biliary disease that has become even increasingly rarer because of easy and early diagnosis and expedient surgical intervention for gallstone disease. External biliary fistulae sometimes occur spontaneously as a result of intrahepatic abscess (pyogenic or parasitic), necrosis or perforation of the gallbladder, or other inflammatory processes involving the biliary tree. Though the entity had almost vanished, recently, a few cases are being reported from all over the world. In spite of early diagnosis and better management of gallbladder disease, it is feared that this may not be a revisit by this, once not so uncommon entity, and a clinician should arouse a suspicion of SCCF in the patient having chronic discharging sinus or fistula on the abdominal wall whether the history of the gallbladder disease is forthcoming or not.

A 35-year-old female patient presented to the outpatient department with a history of passing multiple stones, repeatedly, from her umbilicus for the last 1 year (Fig. 1). There was no history of episodes of fever, chills, rigors,
Spontaneous Cholecystocutaneous Fistula

and anorexia. On examination, thinly built, asthenic patient had an umbilical fistula, having serous discharge from the umbilicus. The patient presented the carefully preserved stones which she used to frequently expel from her umbilicus. The fistula was chronic and painless. Clear history of passing large, faceted, multiple stones repeatedly through the umbilicus was the mainstay of the clinical diagnosis, which was confirmed by the computerized tomogram fistulogram, as it delineated the tract and demonstrated the multiple stones present in the fistulous tract leading to the umbilicus. There was no history of abdominal trauma or previous surgery in this patient. Cholecystectomy of the chronically inflamed and shrunken gallbladder was done along with excision of the fistulous tract. The fistulous tract containing multiple stones, extending from gallbladder to umbilicus and traversing anterior abdominal wall was dissected and excised from anterior abdominal wall. The tract was identified emerging from the gallbladder, which was shrunken and fibrosed. There were no stones in the gallbladder. Postoperative period remained uneventful.

Spontaneous external biliary fistula discharging into the skin surface, as in the present case, is rare. It is defined as a rupture of the gallbladder through all layers of the abdominal wall, with the creation of a fistulous tract to the skin, not preceded by any biliary surgery or trauma. The process of fistula formation is precipitated by obstruction of the cystic duct, which raises the pressure in the gallbladder, impairing the vascular supply and resulting in focal necrosis. This inflammatory process is typically insidious and recurrent. The fistula usually forms through the fundus of the gallbladder, since this part of the gallbladder is farthest from the cystic artery and thus most likely to be affected by ischemia. Chronic inflammation of the gallbladder can cause the gallbladder fundus to adhere to the abdominal parities triggering the formation of fistulous tract. Underlying pathophysiology is the perforation of gallbladder which may be acute, sub acute, or chronic; it is the chronicity of the diseased gallbladder which is responsible for SCCF. Retained gallstones following laparoscopic cholecystectomy may cause biliary fistula or abdominal wall sinuses. This occurs because gallstones can harbor bacteria, which may form localized abscess with localized sinus, in an attempt to discharge the foreign body. *Salmonella typhi*, which has a predilection for the gallbladder, can cause chronic cholecystitis and may predispose to spontaneous SCCF. Communication to the umbilicus may be through the falciform ligament.

Sometimes the only manifestation may be the passing of the stones and discharge from the fistula, which is the case in the present patient also. The fistula itself may be painless as in the present case. Passing of the stones through the fistula with the discharge confirms the diagnosis clinically as in the present case. Various conditions which can be considered for differential diagnosis are metastatic carcinoma, tubercular sinus, pyogenic granuloma, chronic osteomyelitis of ribs with sequestrum, and infected epidermal inclusion cyst. Possibility of the SCCF should always be considered in any patient who has a chronic discharging sinus in abdominal wall or umbilicus. Moreover, the typical history of the patient is self-revealing and diagnostic.

Computerized tomogram fistulogram can demonstrate the fistulous tract and its contents, making a definitive diagnosis as was done in the present case (Figs 2, 3). The contrast will demonstrate the tract and gallbladder. Fistulography also may demonstrate the common bile duct, permitting evaluation of the biliary anatomy. It may also demonstrate multiple fistulous tracts or communications in some rare cases. Clinical presentation and radiological imaging provide valuable...
information in making the diagnosis of this rarely seen condition. Surgery is required most of the time and includes cholecystectomy with the excision of the tract, as both the gallbladder and the fistulous tract need to be excised to achieve a cure; in the present case open cholecystectomy with the excision of the tract was done and a subhepatic drain was placed which was removed on the third day.

The gallbladder was shrunken and fibrosed, whereas the fistulous tract contained multiple gall stones and the tract was adherent with the anterior abdominal wall as well with the surrounding tissue. The tract was opening into the umbilicus externally. The diagnosis of this rare entity often proves challenging if the clear history of passing the calculi per fistula is not there as a significant proportion of these patients present with nonspecific symptoms. Ideally, the treatment should include broad spectrum antibiotics, drainage of the abscess, and elective cholecystectomy with excision of the fistula.7

The possibility of external SCCF though very rare in present-day scenario should be kept in mind, in a patient having discharging sinus over abdomen or lower chest wall. In the patient passing stones through these fistulae, the diagnosis is obvious. Though with the advent of newer and efficient investigative and operative modalities, the diagnosis and management of gallbladder disease has been made easier, yet the entity may be the result of neglected gallbladder disease as quite a few of these cases have been recently observed, as the modern-day advances in the treatment of gallstone disease are still not available in some pockets of the poorer population who prefer to bear or ignore the disease for the socioeconomic reasons, or is it a revisit by this entity?

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Laennec Contributions to the Field of Medicine

INTRODUCTION

Rene Theophile Hyacinthe Laennec was a master of clinical diagnosis. Using his invention, the stethoscope, he perfected the art of physical examination of the chest, methods to examine, and also introduced many terms that are still used today. He wrote two books that were masterful descriptions of the diseases of chest and heart. He wrote the first descriptions of bronchiectasis and cirrhosis, and classified pulmonary conditions. He described murmurs and thrills, bronchial and vesicular breathing, pectoriloquy (as a sign of tubercular cavities), egophony, bronchophony, a variety of rales, and normal and abnormal breath sounds. Laennec’s distinguished career and invention of the stethoscope contributed great advances to the study and diagnosis of chest diseases.

Rene Laennec was a French physician who invented the stethoscope. He is also known as the father of clinical auscultation. Rene Theophile Hyacinthe Laennec is considered to be one of the greatest doctors of all times. Born as the son of a lawyer, he was actually discouraged from practicing medicine, but as fate would have it, under his uncle’s able guidance, the young Rene too developed an interest in medicine and began his medical studies. He soon enrolled as a medical student in Paris’ finest hospital, the Charite, and studied under prominent physicians like Dupuytren and Jean-Nicolas Corvisart-Desmarets. A brilliant physician, he became a member of the Societé's Instruction Medicale.

The present-day ornamental garland of the doctor hung around his neck had its modest beginning at the start of the 19th century. The introduction of auscultation – a new method to diagnose diseases – was his greatest contribution to medical science. This method involves listening to and identifying various sounds made by different organs. Before the invention of this method, Laennec’s diagnostic method involved placing his ear on the chest of the patient. This method made him quite uncomfortable while examining the young women and fatty patients, and hence, this led to innovation of a new device called stethoscope, which he initially termed as “chest examiner.” Though criticized initially, his works were way ahead of his time and had a great impact on medical science.1-3

Laennec was an illustrious, instructive, and popular speaker in all branches of medicine.

MAJOR RESEARCH/SCIENTIFIC STUDIES AND WORK

Father of Clinical Auscultation

Laennec introduced mediate auscultation using stethoscope for sounds of lungs and heart and revolutionized medicine. Laennec listened to the sounds of air entering and leaving the lungs, which were named breath sounds. He is considered as the father of clinical auscultation and wrote the first description of bronchiectasis and cirrhosis. He also classified the pulmonary conditions, such as pneumonia, bronchiectasis, pleurisy, emphysema, pneumothorax, phthisis, and other lung diseases. He learned to recognize these conditions from the sounds he heard with his stethoscope. His classification of pulmonary conditions is still used today.4,5

Throughout Laennec’s medical work and research, his diagnoses were supported with observations and findings from autopsies.5 Rene Laennec started publishing important scientific papers on various topics in 1802. One of his major papers was on peritonitis (inflammation of the abdominal cavity’s lining).2

During the Napoleonic wars in 1812–1813, he was in charge of the wards in the Salpêtrière Hospital in Paris reserved for wounded soldiers. A staunch Roman Catholic, his religious affiliation helped him to secure an appointment as personal physician to Joseph Caedinal Fesch, half-brother of Napoleon and French ambassador to the Vatican in Rome.1,2
Invention of Stethoscope

Lung Sounds

In 1816, Rene Laennec was appointed as physician at the Necker Hospital in Paris. During that period, the doctors used to place their ear on the chest of the patient to listen to the chest sounds. When a young overweight woman came to him complaining of chest problems, he found the traditional method of listening to heartbeats ineffective. So, he rolled a paper into a cylinder and placed one side on the woman's chest and the other to his ear. He could now hear the sounds more clearly. He improvised the new device he had just designed and called it a stethoscope, from stethos (chest) and skopos (examination). The initial model, he developed consisted of a wooden tube and was monoaural. The other advancements include the developments of binaural stethoscope. The new device helped him in classifying the terms rales, rhonchi, crepitance, pectoriloqy, bronchophony, and egophony (sound resembling bleating of goat) pertaining to the sounds captured by the stethoscope. He published “De l'auscultation mediate” (“On Mediate Auscultation”) in 1819. It was the first discourse on a variety of heart and lung sounds heard through the stethoscope.1,4-6

In 1819, Laennec published his book on auscultation, i.e., listening to the sounds made by heart and lungs, by contracting muscles, by rush of blood in aneurysms, intestinal sounds, crepitus over a fractured site of bone, by fetus in utero, or to any sound produced in the skeleton or any internal part in the body in antenatal care and during delivery; fetal heart sounds are heard through fetoscope, a type of stethoscope.1

Melanoma

While still a student, Laennec was the first to lecture on melanoma. He coined the term melanoma (Greek meaning mela, Milan or black), referring to the type of cancer that typically occurs in the skin but may rarely occur in the mouth, intestine, or eye. He was the first to recognize that melanotic lesions in the lungs were the result of metastatic melanoma. His report was published as a bulletin in 1806.7, 8

Tuberculosis

When Laennec was physician at the Necker Hospital in Paris, he focused on tuberculosis and chest diseases. He became deeply absorbed in the mysteries of chest, studying many chests and comparing his observations with post-mortem findings. During autopsies, he observed that the chests of tubercular patients were filled with fluid with pus and cavities. Tuberculosis was common in Laennec's time accounting for many deaths. He himself suffered from tuberculosis and many of his family members died from the disease, including his mother, brother, and uncle. His mentors, Bichat and Bayle, also succumbed to the disease.1,2

Laennec's Cirrhosis

His researches helped him in understanding the liver disease, cirrhosis. He coined the term cirrhosis, using the Greek word (kirrhos: tawny) that referred to the tawny, yellow nodules, separated by a fine fibrous tissue as characteristic of the disease. Laennec's cirrhosis used to describe micronodular cirrhosis (growth of small masses of tissues in the liver that cause degeneration of liver function). Laennec's cirrhosis, a disease associated with inflammatory polyarthitis, is named after him.1,2,9

Laennec Thrombus

It is an antenatal thrombus in the heart.

Laennec's Pearls

Refers to sputum produced by asthmatics.2

Heart Sounds

Laennec familiarized himself with normal sounds of heart and described the abnormal sounds secondary to diseases of heart valves, which were later verified by postmortem examination. In both of his books, the sections of heart were not nearly as significant as that of chest because the physiology of the heart was understood very little at that time. However, Laennec distinguished two heart sounds, attributing the first heart sound to ventricular systole and the second sound to atrial systole.
Hamman’s Murmur

Also known as Laennec–Hamman symptom, Laennec–Muller–von-Bergmann–Hamman symptom or Hamman’s crunch is a crunching sound heard over the precordium due to spontaneous mediastinal emphysema. Laennec also announced classification of anatomical lesion into encaphaloid and cirrhosis type.

ACHIEVEMENTS/AWARDS

- Within a year of entering Ecole Pratique, Laennec obtained first prizes in both Medicine and Surgery at medical school. The following year, in June 1802, he published his first paper and while still a student, published a number of papers on such noble topics as peritonitis, amenorrhea, prostate gland, liver diseases, and tubercular lesion.
- In 1804, his doctoral thesis on relationship of the ancient Greek Hippocratic doctrine to practical medicine was accepted and he was elected to the Societe de l’Ecole de Medicine, formerly the Royal Society of Medicine.
- He became an editor and contributor to the esteemed “Journal of Medicine, Surgery, and Pharmacy.”
- With the invention of stethoscope in 1819, he became a lecturer of international repute.
- In 1822, Laennec was appointed chair and professor of medicine at the College de France and head of the Medical Clinic at Hospital de la Charite.
- In 1823, he was elected a full member of the Academy of Medicine.
- He was made a knight of the Legion of Honor in 1824.
- Rene Laennec was honored by the government with First Prize in Medicine and Sole Prize in Surgery in 1903.
- At the Universite Claude Bernard Lyon, one of the four medical schools is named after Laennec.

Tragic End

Laennec’s teachings were widely known and had gained respect all over the Western world. Unfortunately, Laennec was unable to accomplish his widely acclaimed masterpiece in good health. The writing of the book had fully exhausted him, and a month before publication, he was forced to resign his hospital post and give up his practice.

Never having enjoyed the robust health, Rene Laennec was diagnosed with tuberculosis in April 1826. The person who could hear the abnormal sound from his own chest through his own invention, the stethoscope, died of cavitating tuberculosis on August 13, 1926, aged just 45 years. (Those whom God loves die young. Good men also die, but death cannot kill or erase their names.)

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