

A Clinicopathological Study of Various Conjunctival Lesions in Children

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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.

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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 tumors¹ 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).

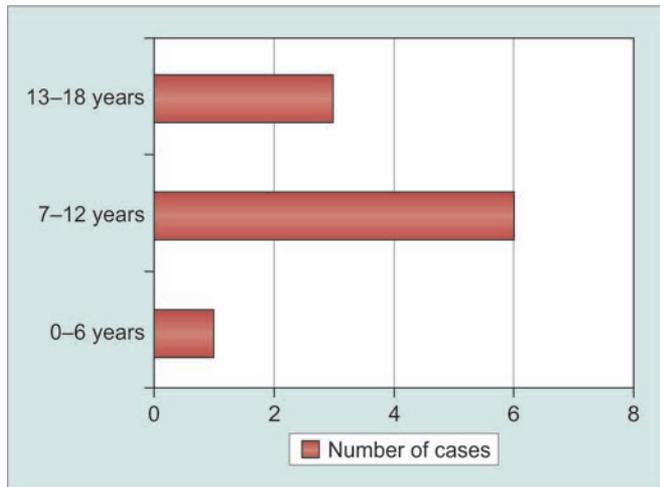
It was seen that mostly the affected children presented within a period of 0 to 6 months of onset of symptoms, of which the appearance or progressive increase in size of swelling was of utmost importance (Graph 2). Of the symptoms which were noted, foreign body sensation was found in 60% cases, followed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

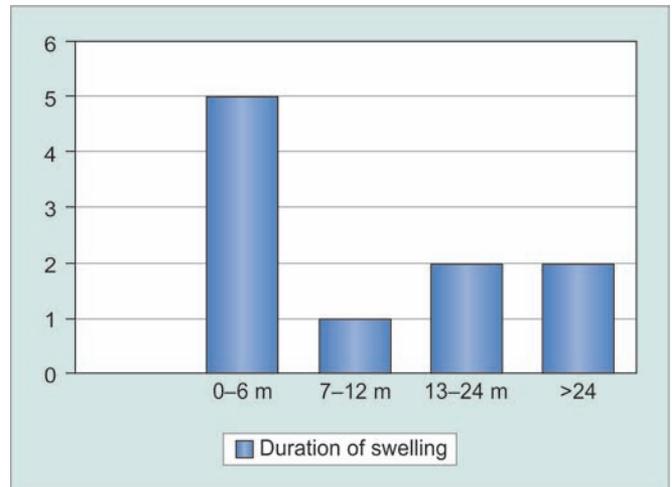
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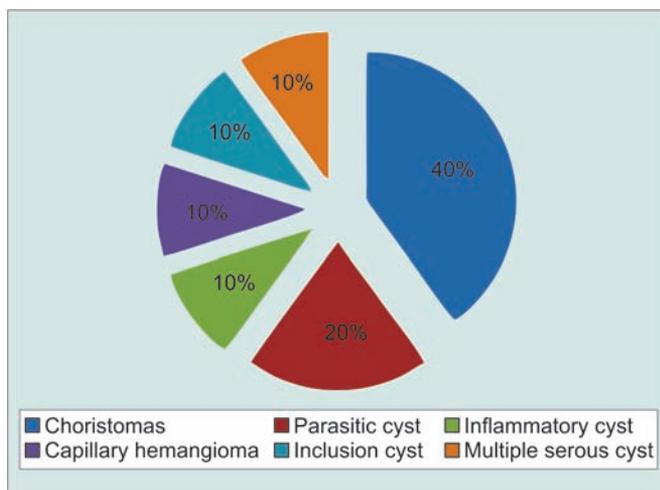
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Graph 1: Age-wise distribution of cases



Graph 2: Frequency of cases on the basis of duration



Graph 3: Percentage wise distribution of various conjunctival lesions

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%

Table 1: Frequency distribution of symptoms

| Symptoms | Number of cases |
|---------------------------|-----------------|
| Pain | 3 |
| Visual defects | 1 (Astigmatism) |
| Foreign body sensation | 6 |
| Watering | 4 |
| Difficulty in lid closure | 3 |
| Mechanical ptosis | 1 |
| Swelling progression | 5 |

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.² 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%).³⁻⁵ 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.^{6,7} However, this was not collateral with that seen in our study (Figs 1A and B).

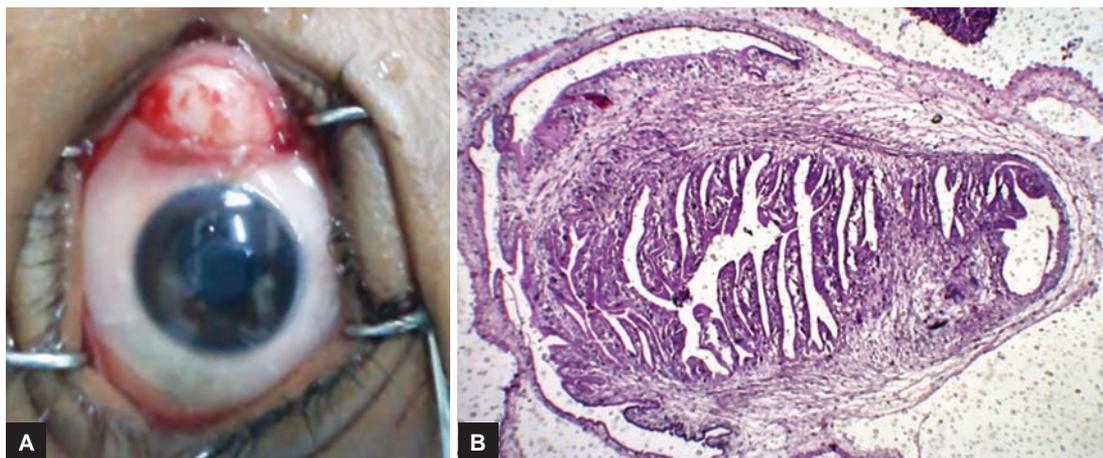
In one of the cases, a 13-year-old female presented with a conjunctival swelling for past 2 months. It was soft, mildly tender, and nonreducible. Ocular mobility was full and free in all directions. There was mild eosinophilia. Computed tomography scan showed mildly edematous and bulky medial rectus muscle. Intracranial cavity 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%).^{1,8} 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.



Figs 1A and B: (A) Subconjunctival cysticercosis; and (B) HPE: A cystic cavity with cysticercus larva having invaginated scolex and hooklets with an outer integument



Figs 2A and B: (A) Lipodermoid cyst; and (B) HPE: Variably stratified squamous epidermal lining. Dermis shows proliferating blood vessels with fibroconnective and adipose tissue (deeper)

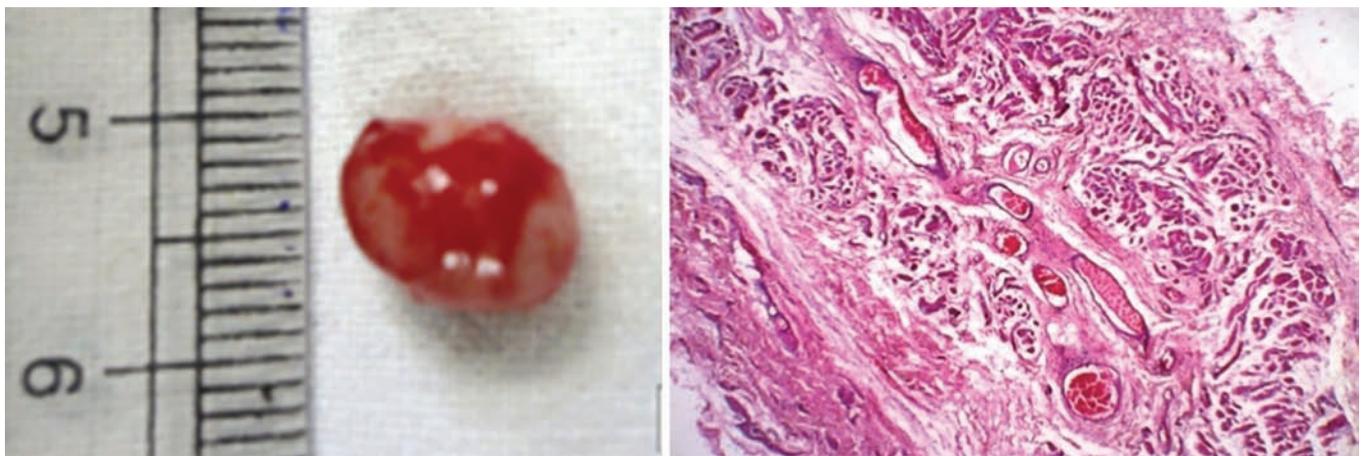


Fig. 3: Capillary hemangioma

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.

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