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5 Years Audit Of Pediatric Dermoid Cyst Surgery

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Abstract-

OBJECTIVES: The objectives of this study are "To assess age and gender wise distribution of dermoid cyst in children, their location and surgical outcomes.

Study Design: A prospective study.

Duration and Place of study. Department of Ophthalmology, Bacha Khan Medical College, Mardan, from January 01, 2019 to December 31, 2023

METHODS: This prospective study was carried out Department of Ophthalmology, Bacha Khan Medical College, Mardan, from January 01, 2019 to December 31, 2023. Universal sampling technique was used for this study. Age, gender, laterality, location of dermoid in the eye, of all pediatric patients were entered into a preformed proforma while surgical outcomes were recorded at the end of the surgery.

RESULTS: During 5 years, 47 pediatric dermoids were excised. Of which, 26 (55.3%) were males and 21 (44.68%) were females. Age range was from 1 to 17 years. It was present on the right side in 27 (65.22%) than the left side 20 (34.78%) cases . Limbal Dermoid was present in 3 patients. Surgery was performed on all patients under general anesthesia. Cyst was removed completely in 34 patients while cyst puncture occurred in 11 patients. There was no recurrence in minimum 6 months of follow up. SPSS version 30 was used for the analysis of age, gender, laterality, location of dermoid and surgical outcomes. Gender vs Eye Involved was statistically significant: (p-value < 0.0001).

CONCLUSION: Dermoid cysts are very common periocular lesions found frequently in males and at the superotemporal or superonasal portion of the orbit. Limbal dermoid is most frequently found in inferotemporal quadrant of the globe. CT scan of the skull and orbit is must in all cases to rule out intracranial extension. Dermoid cysts should be removed in toto to avoid recurrence.

KEYWORDS: dermoid cyst, pediatric, limbal dermoid, orbital dermoid, excision in toto, recurrence, intra cranial extension

INTRODUCTION:

Dermoid cysts are choristmas (normal tissue at abnormal place). They arise from the surface ectoderm which is buried down during fusion of mesodermal processes during embryogenesis. Keratinized stratified squamous epithelium line these cysts. They have slow growth due to desquamation and dermal glandular elements [1]. Dermoid cysts occur in the head and neck region in about 80% cases and account for 3-9% of tumors of the orbit [2,3]. Dermoid cysts are usually well defined subcutaneous, smooth, painless, mobile or partially mobile slowly growing swellings. Usually they are present along the frontozygomatic sutures (figure-1) at the lateral orbital wall, then at the frontoethmoidalal (figure-2) or frontonasal suture (figure-3) at the medial wall of the orbit. They may cause extraocular movements abnormality, proptosis (which is non axial), decrease in visual acuity and erosion and remodeling of the underlying bones due to local mass effect on the globe, optic nerve and the underlying bones. They contain ectodermal appendages like hair, dental enamel, nails. sweat and sebaceous glands. They can be superficial to orbital septum or lie deep to it, in the orbit. They can also be found in the conjunctiva, cornea and the orbit lying deep [1.4]. Limbal dermoids are usually found in the inferotemporal quadrant of the cornea and results in astigmatism and amblyopia (figure 4) [5,6]. CT scan not only diagnoses dermoid cysts but also shows the presence or absence of bony windows and intracranial and intra orbital parts. Complete Surgical removal of the cyst along with its intact capsule is the preferred treatment. Incision is given depending on the location of the cyst and care must be exercised so that there are minimal skin wrinkles.

MATERIAL AND METHODS: This prospective study was conducted in the Eye Department of Ophthalmology, Bacha Khan Medical College, Mardan, from January 01. 2019 to December 31, 2023. Ethical Committee of our institution gave permission to conduct this study dated 31st December, 2018. This study was carried out in accordance with the Declaration of Helsinki.The aim of this study was to assess the age, gender wise distribution of dermoid cysts, laterality. location and surgicaloutcomes in pediatric patients. All pediatric patients with dermoid cysts were

selected from the eye outpatient departments. After initial examination in the eye OPD, CT scan was advised to exclude intracranial extension. Patients' names, age, gender, alterality and were entered into a pre designated proforma. Informed consent was taken from the parents. Dermoid cysts were excised through skin and muscle incision while limbal dermoids were excised from the cornea and conjunctiva taking care not to puncture the cornea. Surgical outcomes were recorded after surgery. No cyst was sent for histopathological examination. Data analysis was done through SPSS 30 for age, gender, age, laterality location and surgical outcomes.

RESULTS: in 47 pediatric patients, all under 18 years of age, dermoid cyst was removed. 26 (55.3%) were male and 21 (44.68%) were female [Table No.1]. Minimum age was 1 year and maximum age 17 years as shown in Table No. 2. Mean age was 10.3, median was 11 and modes were 10,11 and 16. Range was 16 and standard deviation was 4.6.Table No.3shows that the maximum number of patients were 25(53.1%) in the age group 11 to 17 years and less 22(46.8%) from 1-10 years. Table No.4 shows that dermoid cysts were present more on the right side in 27cases (65.22%) than the left side 20 cases (34.78%). Bilateral dermoid did not present to us during this study. Only three limbal dermoids were admitted as shown in Table No. 5, in which 2 (4.5%) cases were present in the left eye and one (2.25%) in the right eye. All limbal dermoids were present in inferotemporal quadrant see Table No. 6 which had resulted in reduced visual acuity. while 44 were superficial or periocular dermoids. Table No. 7 shows the location of the dermoid. Most dermoids 17 (38.6%)were present at the superotemporal part of the orbit followed by superonasal 16 (36%), centre of the eyebrow 7(15.9%), outside to lateral canthus 2(4.5%) and below the lower eyelid 2(4.5%) respectively. Table no.8 shows complications of the surgery. It was removed completely in 34 cases and rupture of the cyst occurred in 10 (21.2%) cases. The cavity was washed with normal saline and Triamcinolone soaked guaze application done to prevent recurrence and inflammation. No rupture of the cornea or thinning occurred that required keratoplasty during limbal dermoid surgery. All the patients were observed for recurrence from 6 months upto 5 years and there was no recurrence.

Figure-1: Superotemporal dermoid

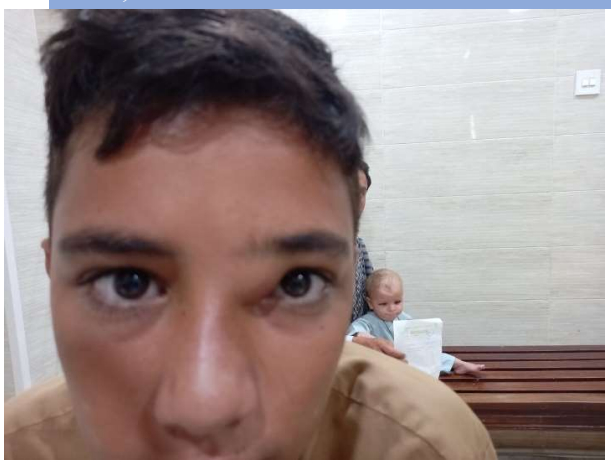


Figure-2: Superonasal dermoid

Figure-3: Frontoonasal dermoid

Figure-4: Limbal dermoid

TABLE NO. 1

n=47

Patients	Male	Female
Children	26(42.6%)	21 (34.4%)

TABLE NO. 2

n=47

Age of children

Minimum age	1 year
maximum age	17 years

TABLE NO. 3

n=47

Age	Number	Percentage
1 to 10 years	22	46.3%
11-to 17 years	25	53.1%

TABLE NO. 4

n=47

Side of involvement children

Side	No. of patients
Right	25 ()
left	22 ()

TABLE NO.5

n=47

Limbal dermoids

Children	
Male	Female
1	2

TABLE NO.6

n=47

Limbal dermoid location

Right inferotemporal	1(2.25%)
Left inferotemporal	2(4.5%)

TABLE NO. 7

n=47

Location of dermoid cysts both eyes

Location of dermoid	No.	%age
Superotemporal dermoid	17	38.6%
Superonasal dermoid	16	36%
Centre of eyebrow	7	15.9%
Limbal dermoid (inferotemporal quadrant)	3	6.4%
Lateral to outer canthus	2	4.5%
Below lower eyelid	2	4.5%

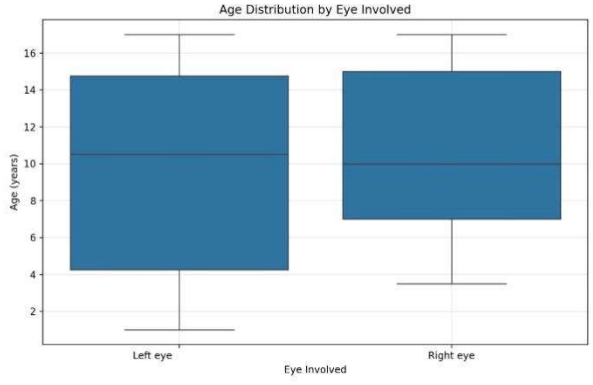
TABLE NO. 8

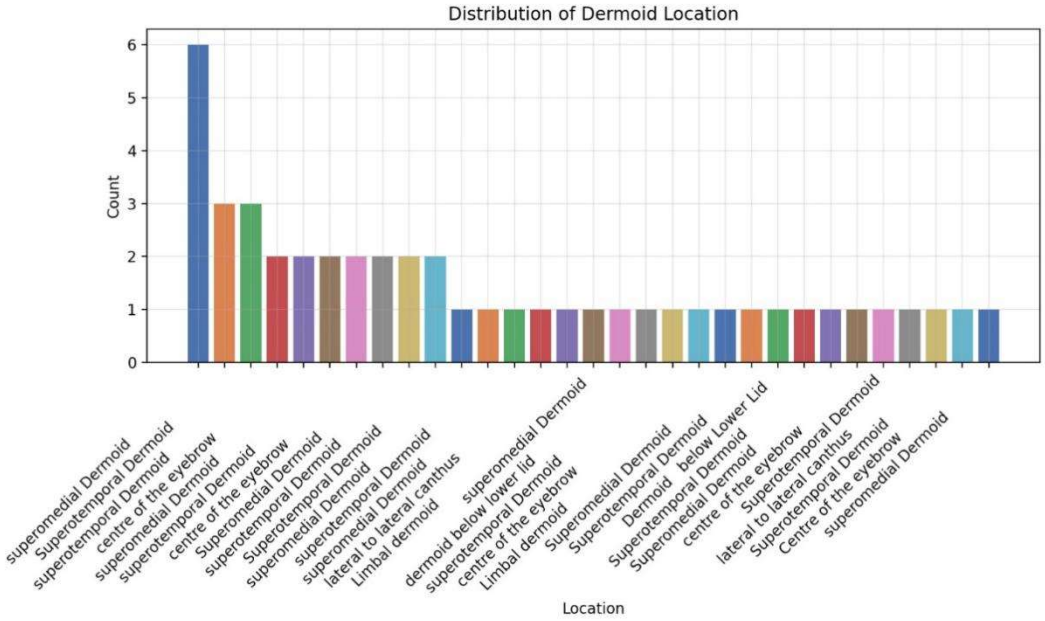
n=47

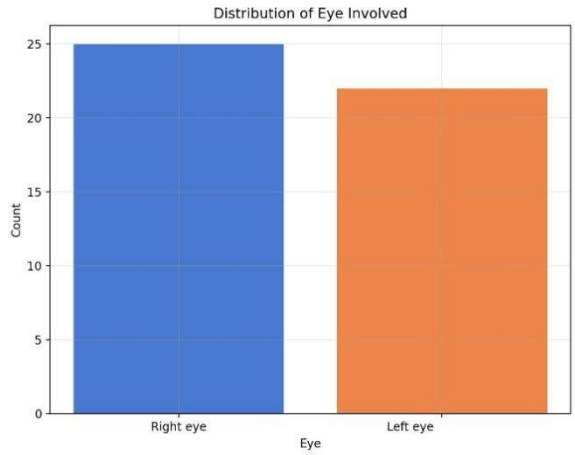
Complications of dermoid Surgery

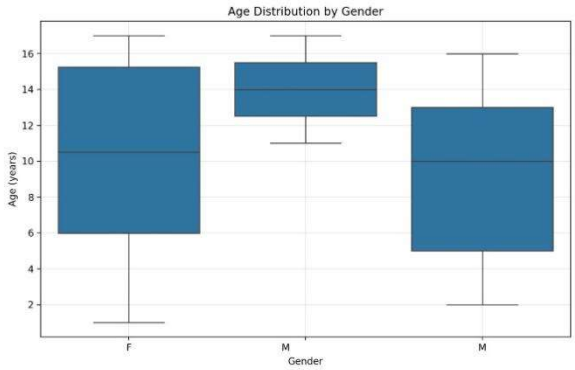
Surgical complication	No.	%age
Preoperative bleeding	07	14.8%
Cyst rupture	10	21.2%
Echymosis	19	40.4%
infection	0	--------
Corneal rupture/thinning	0	--------
Recurrence	0	--------

DATA ANALYSIS




Distribution of Dermoid Location
Count
Location
superomedial Dermoid
Superotemporal Dermoid
superotemporal Dermoid
centre of the eyebrow
superomedial Dermoid
superotemporal Dermoid
centre of the eyebrow
Superomedial Dermoid
superotemporal Dermoid
Superotemporal Dermoid
superomedial Dermoid
superotemporal Dermoid
superomedial Dermoid
lateral to lateral canthus
Limbal dermoid
superomedial Dermoid
dermoid below lower lid
superotemporal Dermoid
centre of the eyebrow
Limbal dermoid
Superomedial Dermoid
Superotemporal Dermoid
Dermoid below Lower Lid
Superotemporal Dermoid
Superomedial Dermoid
centre of the eyebrow
Superotemporal Dermoid
lateral to lateral canthus
Superotemporal Dermoid
Centre of the eyebrow
superomedial Dermoid


Distribution of Eye Involved
Count
Right eye
Left eye
Eye


Age Distribution by Gender
Age (years)
F
M
M
Gender

Statistical Analysis

Gender vs Location: p-value = 0.7532 (not significant)
Eye Involved vs Location: p-value = 0.7961 (not significant)
Gender vs Eye Involved: p-value < 0.0001 (significant)
Age vs Location (ANOVA): p-value = 0.2748 (not significant)
The only statistically significant relationship found was between gender and eye involved (laterality), suggesting a strong association between patient gender and which eye is affected by dermoid cysts.[7]

DISCUSSION:

orbital/periorbital dermoid cysts are superficial lesions which are subcutaneous, painless, non-tender, firm or fluctuating lesions. Their growth is very slow. It accounts for 90% cases of head and neck lesions. They usually do not cause any symptoms except cosmetic problem and fear of some malignant lesion. Their age of appearance varies from infancy till very late. Presentation of deep dermoid is in adolescents or adults. Small deep dermoids do not cause any symptoms but very large lesions can cause proptosis and diplopia. CT scan skull is an essential investigation which not only helps in the diagnosis but also in delineating defects in the bones and intracranial extension. Majority of the pediatric patients in our study were males as compared to females. We found that superficial dermoids were more common than limbal dermoids. Supero temporal dermoids were most frequent, followed by superonasal, then dermoids at the centre of the eye and least outside the laterall canthus and below the lower eyelid. All the three limbal dermoids were at the inferotemporal quadrant. Nadeem et al had majority of the patients (42.9%) with limbal dermoid followed by superonasal (28.6%) and then superotemporal (21.4%) and temporal 2% [8]. Cavazza et al had most dermoid cysts in the superotemporal portion (86%) and 10% in the superonasal portion of the orbit [9] There were same number of dermoid cysts temporally and nasally with let sided dominance in a study conducted by Sherman et al [10] the most appropriate treatment of dermoid is excision of the cyst along with its capsule. Bilateral Limbal dermoids are features of Goldenhar's syndrome and was seen in one patient but he was brought for other problem.
Previously limbal dermoids were treated with shave excision but now it is removed and the defect is covered with small incision lenticule extraction. No sutures or glue are used and a contact lens is placed over the graft [11]. While Liu et al used fibrin glue for lenticule fixation [12]. Tissue glue assisted monolayer amniotic membrane can be another alternative [13] Pant et al sutured the lenticule with 10/0 nylone [14] Children with limbal dermoid are usually amblyopic due to high hyperopia and astigmatism [15]. amblyopia should be aggressively treated after excision of limbal dermoid with patching and glasses [16]. Amblyopia reduces after the excision of the limbal dermod [6].

CONCLUSION: Dermoid cysts are common congenital periorbital and orbital lesions which results in disfigurement. CT scan not diagnoses it but also shows intracranial or orbital extension. Complete surgical removal completely cures it. Recurrence can avoided by not puncturing the cyst during surgery.

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