International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Surgical Management of Pediatric Limbal Dermoid

Dr. Siddharth Sharma[1], Dr. Jyotsna Sharma[2]

[1]MBBS, MS (Ophthalmology, Government Medical College & Hospital, Chandigarh)

[2]MBBS, MD (Pediatrics), Consultant Pediatrics, Fortis Hospital, Kangra, Himachal Pradesh

Abstract: ***Limbal dermoids are choristomas known as congenital benign tumors found in abnormal locations. Despite the benign nature, enlarging limbal dermoids may cause visual abnormalities by cornea infiltration with fat component, visual axis invasion, gradually induced corneal astigmatism, and finally result in anisometropic amblyopia. Here we report a rare case of progressive pediatric corneal limbal dermoid in a 8 year old girl managed with corneo scleral graft.***

Keywords: dermoid, corneal limbal dermoid; pediatric

1. Introduction

Limbal dermoids are the most common choristomas, which are known as congenital benign tumors and are found in abnormal locations. Limbal dermoids are commonly located in the inferotemporal quadrant; however, they may occasionally present entirely within the perilimbal cornea or may be confined to the conjunctiva and sclera. Limbal dermoids may contain a variety of histologically aberrant tissues, such as epidermal appendages, connective tissues, skin, fat, sweat glands, lacrimal glands, neurological tissues, or hyperplasia content. [1, 2] Despite the benign nature, enlarging limbal dermoids may cause visual abnormalities by the gradual development of corneal astigmatism, encroachment in the visual axis, and corneal infiltration of fatty component; the abnormalities may result in anisometropic amblyopia. If a corneal dellen is formed, symptoms, such as surface irritation and discomfort, may be present because of disturbance to the ocular surface and tear film. [1, 3]

Anatomically, limbal dermoids can be classified into 3 grades. [4] Grade I limbal dermoids are superficial tumor lesions (less than 5 mm in size), and current standard medical treatment is conservative. Grade II limbal dermoids are of large size and extend into the corneal stroma and the Descemet's membrane. Grade III limbal dermoids cover the whole cornea, penetrate the anterior chamber, and affect all histological structures between the anterior surface of the eyeball and the pigmented epithelium of the iris. Possible surgical approaches for Grade II and III limbal dermoids include excision, lamellar or penetrating keratoplasty, and amniotic membrane or limbal stem cell transplantation. [5] Moreover, Mitomycin C (MMC) is reported to have a protective effect against the occurrence of pseudopterygium. [6]

Depending on the tumor size, the tumor growth rate, and the involved areas, the appropriate time and techniques of surgical interventions are still controversy in infants and children. [5, 7–9] The proper treatment is particularly challenging in young children because of several concerns, such as a tendency for a low visual acuity and astigmatism - related amblyopia. [8] In this study, we report a case of grade II pediatric corneal limbal dermoid.

2. Case Report

A 8 year old female girl presented to our clinic with a whitish mass on her left eye since birth. His parents claimed that they had no family history of eye diseases. Ocular examination revealed a Pinkish yellowish mass with hairs growing within, in inferotemporal region and the lesion covered the cornea. (*Figure 1, 2)*

No associated regional or systemic abnormalities were found. Visual acuity was 6/6 OU and intraocular pressure was 14mm Hg OU. Ocular ultrasonography revealed negative findings in the posterior pole.

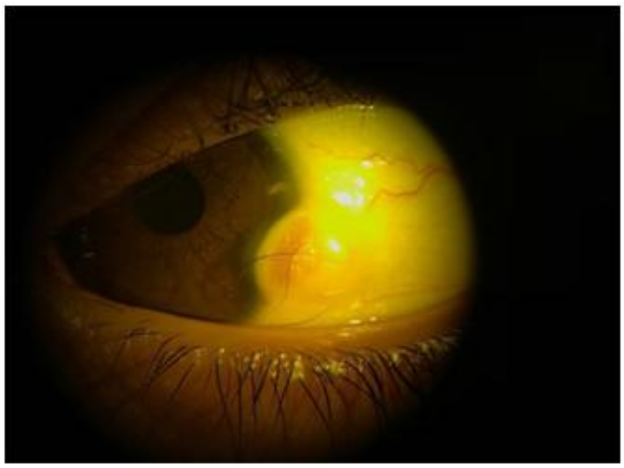

Figure 1: Unilateral Limbal dermoid in left eye with growth of hairs (inferotemporal quadrant) (5*4mm size)

Figure 2: Gross view of Unilateral left eye limbal dermoid

Surgical technique

The patient received the operation under general anesthesia. First, the border of the limbal dermoid was marked, and Westcott blunt scissors were used to make a conjunctival peritomy from the superior border of the lesion. Blunt dissection of the lesion from the sclera was carried out with cotton sticks, and lamellar dissection of the lesion from the cornea was made with crescent blade knife, initiating from the limbus towards the cornea. The residual adhesion band of the central cornea was excised by blunt scissors. Once the corneal limbal dermoid was excised (*Figure 3*), corneal surface bed was scraped with surgical scalpel blade No.15. Donor lamellar corneo scleral graft harvested with 5 No. biopsy punch and sutured with recipient bed with 10 interuppted 10 - 0 nylon sutures. After instilling tobradex ointment and cravit solution, the lesion eye was pressure - patched for 1 day.

The pathological examination revealed that the lesion is composed of keratotic lining squamous epithelium resembling epidermis, underling dermal fibrotic connective tissue, mature fat and embedded hair follicle. (*Figure 4*)

Figure 3: 5*4 mm surgically excised limbal dermoid

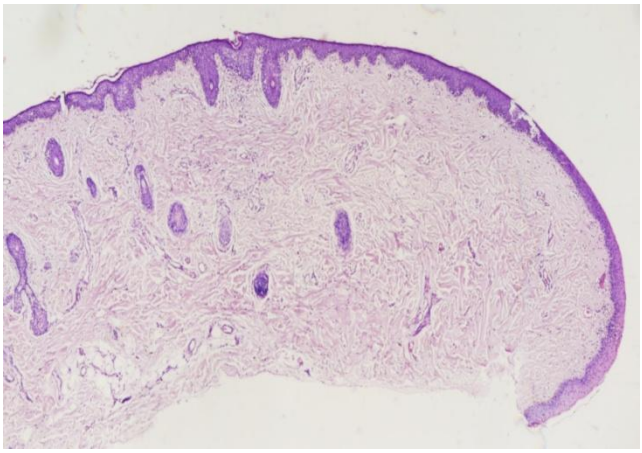

Figure 4: Histopathological Examination of limbal mass

Follow - up course

It was observed that the patient had a smooth healing process with little pain and rapid corneal re - epithelization. The anterior chamber was well formed with clearly visible pupil margin. The ocular surface was stable, and no complications were detected during the follow - up visits. Graft - Host junction remain well apposed with intact 5 corneo - scleral interuppted 10 - 0 nylon sutures (*Figure 5).* Graft clarity was optically clear.

Patient was started on steroid (FML) and antibiotic (0.5% moxifloxacin) eye drops thrice daily.

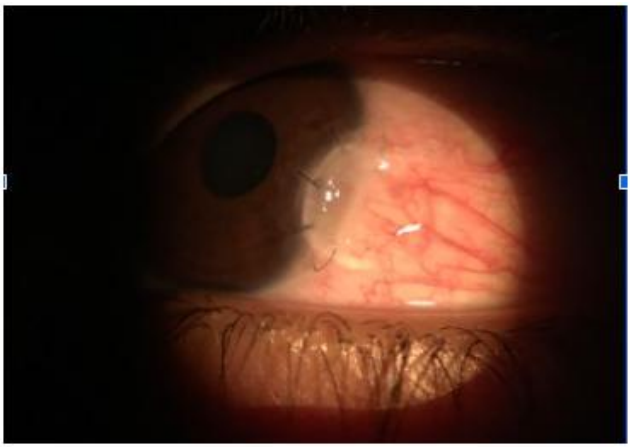

Figure 5: Post operative picture after 2 weeks

3. Discussion

According to the depth, size, and site of such lesions, surgical interventions range from simple excision to complex procedures, such as lamellar and/or penetrating keratoplasty, corneal - limbal scleral donor graft transplantation, reconstructive sutureless multilayered amniotic membrane transplantation, and limbal stem cell transplantation. [5, 7–9] Pirouzian et al, [5] thought that surgery is universally indicated for grade II and III limbal dermoids, and primary surgical intervention is indicated even in grade I limbal dermoids if progressive corneal surface decompensation, astigmatism, or encroaching into the optical zone is observed. In infants and children, the eyeball and the visual acuity are in the process of growth and development, and general anesthesia is required in pediatric eye surgeries. [10] Considering the tumor size, the tumor growth rate, and the involved areas, the appropriate time and techniques of surgical interventions are still controversy in infants and children. The proper treatment is particularly challenging in young children because of the tendency for a low visual acuity and astigmatism - related amblyopia. Therefore, prevention and prompt treatment of amblyopia play an important role in determining the timing of surgical intervention in pediatric eye diseases.

4. Conclusion

In summary, although a combination of excision, lamellar keratoplasty, and multilayer amniotic membrane and limbal stem cell transplantation is suggested in the treatment of grade II and III pediatric corneal limbal dermoids in previous studies, the surgical technique in this study offers an alternative time - saving surgical approach.

Statement of Ethics
Study adhered to the tenets of the Declaration of Helsinki. Written Informed consent was obtained from patient's parents for publication of this case report.

Conflicts of Interest
Author have no conflict of interest in this study.

Funding Sources
No financial support was provided.

References

[1] Benjamin SN, Allen HF. Classification for limbal dermoid choristomas and branchial arch anomalies. Presentation of an unusual case. Arch Ophthalmol 1972; 87: 305–14.
[2] Burillon C, Durand L. Solid dermoids of the limbus and the cornea. Ophthalmologica 1997; 211: 367–72.
[3] Robb RM. Astigmatic refractive errors associated with limbal dermoids. J Pediatr Ophthalmol Strabismus 1996; 33: 241–3.
[4] Mann I. . Developmental abnormalities of the eye.2nd ed.1957; Philadelphia: Lippincott, 357–364.
[5] Pirouzian A. Management of pediatric corneal limbal dermoids. Clin Ophthalmol 2013; 7: 607–14.
[6] Lang SJ, Böhringer D, Reinhard T. Surgical management of corneal limbal dermoids: retrospective study of different techniques and use of Mitomycin C. Eye (Lond) 2014; 28: 857–62.
[7] Zaidman GW, Johnson B, Brown SI. Corneal transplantation in an infant with corneal dermoid. Am J Ophthalmol 1982; 93: 78–83.
[8] Watts P, Michaeli - Cohen A, Abdolell M, et al. Outcome of lamellar keratoplasty for limbal dermoids in children. J AAPOS 2002; 6: 209–15.
[9] Pirouzian A, Ly H, Holz H, et al. Fibrin - glue assisted multilayered amniotic membrane transplantation in surgical management of pediatric corneal limbal dermoid: a novel approach. Graefes Arch Clin Exp Ophthalmol 2011; 249: 261–5.
[10] Matsuo T. Clinical decision upon resection or observation of ocular surface dermoid lesions with the visual axis unaffected in pediatric patients. Eye Contact Lens 2016; 4: 1–5. [Epub ahead of print] (DOI: 10.1097/ICL.0000000000000336).