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EXTERNAL CONGENITAL LACRIMAL SAC FISTULA: A CASE REPORT

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Abstract. *Congenital lacrimal fistula is a developmental abnormality. This is a case of a patient with an external congenital lacrimal sac fistula. Surgical treatment was used to correct the condition. Immediate postoperative results were seen. To present a case of a patient with an external congenital lacrimal sac fistula, in which surgical treatment was applied and immediate postoperative results with a good outcome were seen. A 3-year-old boy with an external congenital lacrimal sac fistula presented to our clinic. The skin orifice was observed on the left eye in a typical place – located in the inferomedial aspect of the medial canthal angle. The patient was treated in the at the Eye clinic, at university hospital "Dr. Georgi Stranski" – Pleven, Bulgaria. He underwent a surgical procedure – simple fistula excision (closed fistula excision). The surgical technique was a successful closed fistula excision. In the immediate postoperative period there were no complications such as infection, recurrence or worsening of the epiphora, poor cosmetic results, bleeding or damage to the lid structures or nose. The prognosis for patients with congenital lacrimal fistulas is quite good. Many are asymptomatic and those who have symptomatic epiphora or mucoid discharge can be successfully treated by surgery. Several surgical options exist – closed fistula excision, dacryocystorhinostomy (DCR) with fistula excision and fistula excision with nasolacrimal intubation. Symptomatic congenital lacrimal sac fistulas can be treated successfully with excision alone.*

Key words: *Congenital lacrimal fistula, surgical treatment, postoperative results*

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INTRODUCTION

Congenital lacrimal fistula is a developmental abnormality. It is estimated to occur in one in 2000 births [1]. This anomaly was first described by Rasor in 1675 [2] and later by Von Amon [3].

During the sixth week of embryological development, neuroectodermal cells, which are in the naso-optic groove between the lateral nasal and maxillary processes, form a solid epithelial cord. After canalization, the upper part of the cord forms the canaliculi and the lower part forms the nasolacrimal canal [4]. In the middle part forming the lacrimal sac, the epithelial cords are thicker, and therefore when the sac canalizes it has a larger diameter than the canaliculus or the nasolacrimal canal.

The external fistula connects the lacrimal drainage system with the skin. The fistula is commonly located between the skin and common canaliculi and lacrimal sac. Occasionally the tract from the skin ends as a blind pouch near the lacrimal sac. Rarely there

may be more than one fistulous opening in the skin. The condition may be bilateral particularly in families with multiple members exhibiting congenital lacrimal fistulas [5, 6]. Most cases are unilateral and are located medial and inferior to the inner canthus [7]. The fistula may be asymptomatic at birth and may be overlooked for some time. Their small size and the lack of contrasting skin pigmentation make it easy for them to remain unnoticed. In some cases, mucoid secretion can be detected by pressing over the lacrimal sac. There may be epiphora from the eye, secretion from the fistula in symptomatic cases. Local dermatitis from chronic epiphora or chronic or acute dacryocystitis secondary to ascending infection may occur as a complication. The risk of these complications has encouraged the use of various methods of treatment such as cauterization, simple skin closure, closed fistula excision, dacryocystorhinostomy (DCR) with fistula excision and fistula excision with nasolacrimal intubation.

The aim of this report is to present a case of a patient with an external congenital lacrimal sac fistula, in which surgical treatment was applied and immediate postoperative results were very good.

CASE REPORT

A 3-year-old boy presented to the Eye clinic. He underwent a routine ophthalmologic examination. Congenital lacrimal fistula located on the left eye was detected in the patient. The orifice of the fistula (size 0.5/0.5 mm) was inferonasal to the medial canthus (Fig. 1).

The family had discovered it in the first month after birth. There was no family history. No systemic abnormality was found.

The major symptom was epiphora in the region of the fistula, without dacryocystitis, other kind of infection or lacrimal abnormalities.

The patient was treated in the Eye clinic, at university hospital “Dr. Georgi Stranski” – Pleven, Bulgaria. He underwent a surgical procedure – simple fistula excision (closed fistula excision) two weeks after the diagnosis was made.

Surgery was done under general anesthesia. Upon washing with fluorescein through the superior and inferior lacrimal point, the fluorescein passed through the opening of the fistula. Nasal lavage sample taken at the same time was positive – evidence of patency of the nasolacrimal duct.

The lacrimal sac was reached and subcutaneous foliate incision about 1.5 cm was made by severing the anterior part of the medial canthal tendon. A Bowman number 0 probe was inserted in the fistula and passed through the lacrimal sac to establish the origin of the lacrimal fistula. The fistula tract was dissected entirely by the incision surrounding the fistula, and stitches (5/0 Etibond) put in the proximal and distal end of the fistula (Fig. 2).

The root of the fistula in the lacrimal sac was sutured with a 6/0 Vicryl. Then the fistula was excised out (Fig. 3).

Probing and irrigation were done to ensure the nasolacrimal passage was patent. Then we stitched the subcutaneous and cutaneous tissues with 7/0 Silk (Fig. 4).

The follow-up period was one month. There were no complications after the surgery. Seven days after the operation under general anesthesia, the skin sutures were removed. We took a nasal sample with fluorescein through the superior and inferior lacrimal point which was positive. The dye passed entirely into the nose and there was no fluorescein passing through the orifice of the fistula. The patient had no complaints of epiphora or persistent oozing from the fistula opening, which seemed well adapted. The general status of the child was good. The cosmetic outcome one month after the surgery was excellent, with no rough scar (Fig. 5).

Fig. 1. Congenital lacrimal fistula before treatment

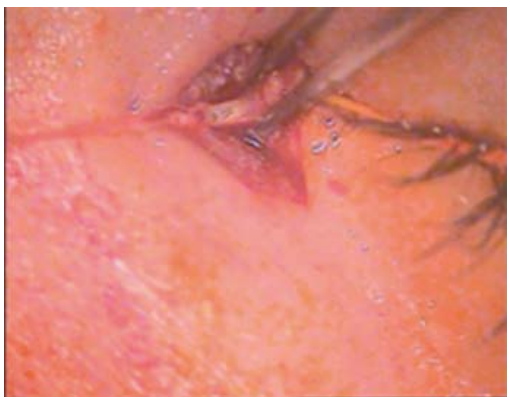

Fig. 2. Dissected fistula tract

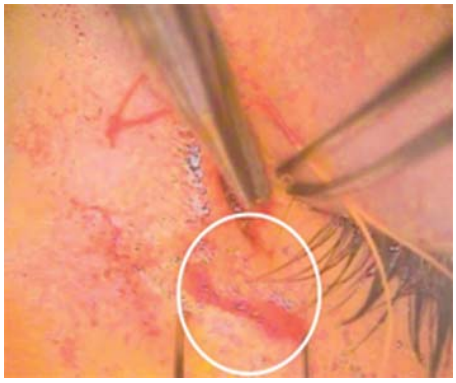

Fig. 3. Excised fistula

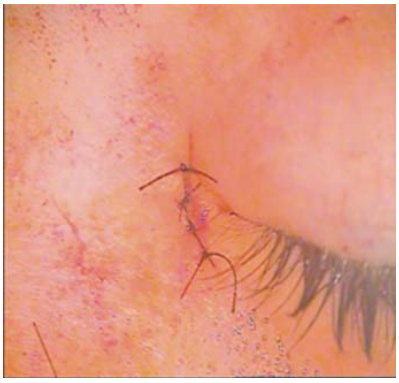

Fig. 4. Skin sutures

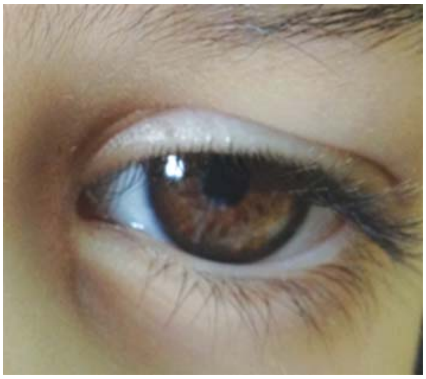

Fig. 5. The left eye of the patient one month after surgery

DISCUSSION

Many theories regarding the cause of fistula formation have been proposed. Jones and Wobig [8] suggested that the embryologic anlage fails to involute and then proliferates and canalizes to form the fistula in origin. Welham and Bergin [9] proposed that a lacrimal fistula is just an aberrant canaliculus. It most often originates from the common canaliculus and in some cases either the superior or inferior canaliculus is "missing". Histologically the fistula is similar to the canaliculus, lined by nonkeratinized stratified squamous epithelium. Sullivan et al. [10] believed that a defect interfering with the invagination, burial, and later tissue remodeling of the surface ectoderm cord was responsible.

There is no unequivocal agreement on the treatment of congenital lacrimal fistula.

Cauterization and simple skin closure are methods seen in Bulgarian literature, however, they are often unsuccessful [11].

The closed excision in which only the fistula is repaired [10, 12], dacryocystorhinostomy with fistula excision [7, 12] and fistula excision with nasolacrimal intubation [10, 11] are reported to be successful. The authors suggesting fistula excision with DCR stated that opening the lacrimal sac facilitated surgical dissection and accurate ligation and removal of the fistula from its origin, minimizing the risk of damage to the common canaliculus [7]. Intraoperative use of a polyvinyl siloxane cast to protect and identify the nasolacrimal sac during DCR, have been reported [13]. It is agreed that if there are associated nasolacrimal drainage abnormalities, intubation of the lacrimal system should also be performed [7, 10, 11]. Our collective and those who favor a closed excision sustain that a properly performed closed excision is safe and effective [10, 11]. With a generous elliptical skin incision anatomical landmarks could be identified and there would be a minimal damage to the common canaliculus [10]. Our experience with this mode of treatment (closed fistula excision) and the immediate postoperative result confirms such a statement.

CONCLUSIONS

In conclusion, our understanding is that the best approach in the management of patients with external congenital lacrimal sac fistula should be tailored and the method of treatment must be chosen in light of the patient complaints. Asymptomatic cases with congenital lacrimal fistula should be kept under observation. Symptomatic cases could be treated surgically. This case has shown that symptomatic congenital lacrimal sac fistulas can be treated successfully with excision alone.

REFERENCES

1. Francois J, Bacskulin J. External Congenital fistulae of the lacrimal sac.Ophthalmologica 1969;159:249-261.
2. Rasor C, cited by Schirmer R . Graefe-Saemisch Handbuch der Auguheikunde. Leipzig,Germany.Engelmann 1877;8:1-58.
3. Von Amon FA.Klinische Darsellungen der Krankheiten und Bildungsfehler des Menshlichen Auges. Berlin, Germany. G. Reimer 1841:24
4. Sadler TW. Langman's Medical Embryology. 6th Ed. Baltimore:Williams&Wilkins; 1990:314.
5. Zhuang L, Sylvester CL, Simons JP. Bilateral congenital lacrimal fistulae: a case report and review of the literature. Laryngoscope 2010;120(4):230.
6. Maden A, Yilmaz S, Ture M. Hereditary lacrimal fistula. Orbit 2008;27(1):69-72.
7. Welham RAN, Bates AK, Stasior GO. Congenital lacrimal fistula. Eye1992; 6: 211-214.
8. Jones LT, Wobig JL. Surgery of the Eyelids and Lacrimal System. Birmingham: AL: Aesculapius Publishing CO; 1976:167-173.
9. Welham RAN, Bergin DJ. Congenital lacrimal fistulas. Arch Ophthalmol 1985;103:545-548.
10. Sullivan TJ, Clarke MP, Morin JD, Pashby RC. The surgical management of congenital lacrimal fistulae. Aust NZ J Ophthalmol 1992;20:109-14.
11. Birchansky LD, Nerad JA, Kersten RC, Kulwin DR. Management of congenital lacrimal sac fistula. Arch Ophthalmol 1990;108:388-90.
12. Ugurbas SH, Zilelioglu G. Congenital lacrimal fistula. European Journal of Ophthalmology 2000;10(1):22-26.
13. Bhatnagar A, Eckstein LA, Douglas RS, Goldberg RA. Congenital lacrimal sac fistula: intraoperative visualization by polyvinyl siloxane cast. Ophthal Plast Reconstr Surg 2008;24(2):158-60.