

Case Report

An arteriovenous fistula following chalazion excision

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ABSTRACT

An arteriovenous fistula secondary to a chalazion is a rare occurrence. It may follow spontaneous necrosis or surgical trauma. Digital subtraction angiography and identification of the arterial feeders combined with direct puncture of the nidus and embolization is recommended, as surgical excision becomes much easier and results in a complete excision of the lesion. Conchal cartilage graft is a useful lining material for reconstruction of the tarsal plate due to its natural curvature. It restores lid integrity and ensures a stable and functional eyelid.

KEY WORDS

Arteriovenous fistula, chalazion, glue embolization

INTRODUCTION

Arteriovenous (AV) fistulas are uncommon lesions around the eye and may be congenital or following trauma or surgery.^[1] When present, they are usually located deep in the orbit, posterior to the septum orbitalis^[2] and the tarsal plate is rarely involved.^[3] They cause a cosmetic deformity, may result in a deprivation amblyopia or astigmatism^[4] and may get worse with time necessitating prompt treatment. We report a case of AV fistula, which presented secondary to drainage of a recurrent chalazion. It was managed by percutaneous glue embolization followed by surgical excision, the tarsal plate being reconstructed with conchal cartilage graft.

CASE REPORT

A 17-year-old female presented in April 1998 with a swelling in the medial aspect of the left upper eyelid and restriction in upward gaze movement since one year [Figure 1]. It was

small to begin with and had gradually increased to the present size. Examination revealed a 1.5 x 1.0 cm pulsatile mass with tortuous engorged vessels. The overlying skin was erythematous with the presence of a previous surgical scar. There was hyperemia on the conjunctival side. Mechanical ptosis was present. The soft swelling was compressible and had a thrill. Vision was normal. The patient gave history of a swelling in the same location three years previously which was then diagnosed as a chalazion by an ophthalmologist. She underwent curettage for the same on three occasions. The post procedure period was uneventful until she noticed the present swelling one year prior.

With a clinical diagnosis of an AV fistula, a contrast enhanced computerized tomographic scan and digital subtraction angiography (DSA) were performed. The former revealed an ill-defined vascular lesion. On DSA there was evidence of a high-flow AV fistula with the main feeder coming from the ophthalmic artery. The feeder had communications with the palpebral and lacrimal branches.

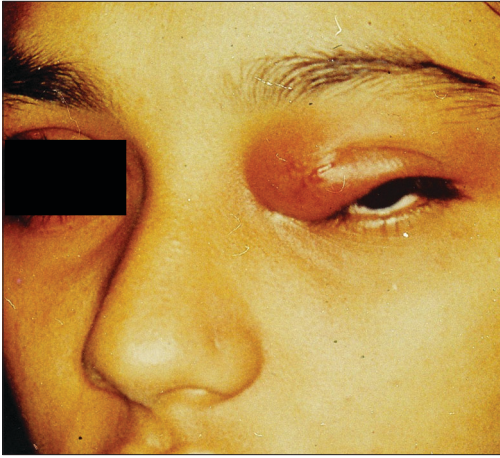


Figure 1: Preoperative photograph of the patient with vascular tumor of the (R) upper eyelid causing ptosis

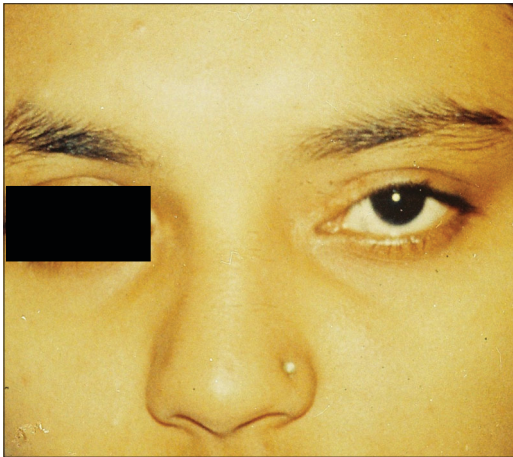


Figure 2: Postoperative photograph showing the natural appearance of the eyelid with normal function and aesthetics

The venous drainage was into superior orbital, angular and facial veins.

Surgical excision of the tumor was planned with preoperative glue injection (with the help of the interventional radiologist). The tumor was directly punctured at two sites and 28% N-butyl cyanoacrylate (Histocryl) injected into the nidus under fluoroscopic guidance. The central portion was obliterated but there was still 20% residual flow found in the periphery of the tumor.

Ten days post embolization, the inflammatory edema subsided and the patient was operated under general anesthesia. Through a bicoronal approach, the scalp was raised in the subgaleal plane and the periosteum incised at the supraorbital margin. The periorbita was elevated and then opened to identify the feeder vessel, (from the ophthalmic artery) which was underrun at two sites and

ligated with 4'0 chromic catgut. The communications to the palpebral and lacrimal branches and the venous drainage channels were also ligated. A separate anterior lid incision was taken to excise the tumor. It was found to be originating from the tarsal plate and this area of attachment to the tarsal plate was excised leaving behind a defect of approximately 10 x 8 mm in the tarsal plate. The defect in the tarsal plate was reconstructed using a conchal cartilage graft. The levator palpebrae superioris was reattached into the reconstructed superior tarsal plate. The overlying orbicularis oculi and skin was mobilized and sutured. The post-operative period was uneventful. Histopathological examination confirmed the clinical diagnosis of AV fistula. At the end of two years of follow-up, there was no recurrence of the swelling and the patient has an excellent functional and cosmetic result [Figure 2].

DISCUSSION

A chalazion is a chronic inflammatory granuloma caused by the retention of secretions of a tarsal gland whose opening is obstructed. The gland undergoes pressure necrosis and inflammation because of the inspissated lipid material.^[4] Wolter^[5] reported an AV fistula occurring in the region of a chalazion and opined that necrosis within the latter was the probable cause of the vascular malformation. He adds that pyogenous granulation tissue may result in a lesion that resembles cavernous hemangioma or AV fistula.^[5]

Preoperative embolization with N-butyl cyanoacrylate is an effective and safe technique, which causes shrinkage of the lesion and reduction in its vascularity thereby facilitating easier surgical excision.^[6] Hypertrophy and enlargement of the tarsal plate requires partial resection.^[3] An intact tarsal plate is necessary for stability of the eyelid margin and hence various tissues including conchal cartilage, chondromucosal septal grafts, preserved sclera etc. have been used for reconstruction. Tarsal reconstruction with conchal cartilage graft is a simple and well described technique.^[7] It is the preferred material because its contour ensures good contact of the lid margin with the eyeball and it is thin and soft, with a supple consistency similar to that of the tarsal plate.^[8]

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REFERENCES

1. Wolter JR. Arteriovenous fistulas involving the eye region. *J Ped Ophth* 1975;12:22-39.
2. Busin M, Graefe C, Koch J. Arteriovenous fistula presenting as a tumor of the upper eyelid. *Ophthalmic Surg* 1994;25:471-3.
3. Wang KH, Macomber WB. Tumors of the eyelids and orbit. *In: Converse JM editor. Reconstructive Plastic Surgery. Vol. 2, 2nd ed. WB Saunders Co: Philadelphia;1977. p. 874.*
4. Illif CE, Illif WJ, Illif NT. Oculoplastic surgery. WB Saunders Co: Philadelphia; 1979.
5. Wolter JR. Arteriovenous fistula of the eyelid secondary to a chalazion. *J Ped Ophth* 1977;14:225-7.
6. Han MH, Seong SO, Kim HD, Chang KH, Yeon KM, Han MH. Craniofacial arteriovenous malformation: Preoperative embolization with direct puncture and injection of n-butyl cyanoacrylate. *Radiology* 1999;211:661-6.
7. Matsuo K, Hirose T. The use of conchal cartilage graft in involitional ectropion. *Plast Reconstr Surg* 1990;86:968-70.
8. Matsuo K, Hirose T, Takahashi N, Iwasawa M, Satoh R. Lower eyelid reconstruction with a conchal cartilage graft. *Plast Reconstr Surg* 1987;80:547-52.

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Announcement

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