CASE REPORT

Surgical treatment of bilateral paralytic lagophthalmos using scapha graft in a case of lepromatous leprosy

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Introduction

Leprosy is a chronic and systemic infection caused by Mycobacterium leprae. According to the World Health Organization, the prevalence of leprosy registered at the beginning of 2008 stood at 212,802 cases. Thanks to anti-leprosy multidrug therapy the number of new cases detected globally has fallen.

Lagophthalmos can appear in newly diagnosed lepromatous patients and in patients under anti-leprosy multidrug therapy. Thus, lagophthalmos continues to be sight-threatening even in cured leprosy patients.1,2 We report a new indication for using of auricular cartilage graft in a case of leprosy associated with bilateral lagophthalmos.

Case Report

We report the case of a 36 year old Mozambican man with a history of lepromatous leprosy who had completed multidrug therapy. He received symptomatic treatment for incomplete eyelid closure, dry eye and exposure keratitis for 2 years. Examination revealed bilateral facial paralysis, paralytic lagophthalmos with a scleral show of 3 mm, 4 mm of the lid gap at closure, a lateral ectropion with lateral canthal laxity, an exposure keratopathy and cataracts in both eyes. Best-corrected visual acuity was 20/30 and intraocular pressure was 13 mmHg in both eyes. The rest of the examination was unremarkable.

Systemic corticosteroids were prescribed at the time of the first presentation. Due to long-standing facial paralysis, corneal damage and lateral canthal laxity, surgical treatment was...
indicated and tarsal strip procedure was chosen. Even so, a considerable residual lagophthalmos and lower eyelid retraction remained (Figure 1).

Three months after an unsuccessful lateral tarsal strip procedure, the patient underwent, under local anaesthesia, surgical correction of paralytic lagophthalmos with a graft obtained from the scapha of the ear.

**SURGICAL TREATMENT**

Firstly, the recipient site was prepared. Through a subtarsal incision conjunctiva was dissected from the underlying lower lid retractor layer, until the inferior fornix. The lower lid retractor layer was separated from the lower border of the tarsal plate. Then, it was dissected from the underlying orbicularis muscle until retractor was released. Cartilage and perichondrium were removed from an elliptical incision of the scapha. The graft’s size required per eyelid was 18 mm long and 8 mm wide. The donor site was subsequently sutured. The large chondro-perichondral graft was cut and moulded to insert following the curvature of the ocular globe. The lateral and medial ends of the graft were sutured to the tarsal plate to support the lower lid. The lower portion of the graft was sutured to the retractor using 5/0 absorbable suture and was brought out through the skin. The cartilage was covered with the previously dissected conjunctiva. Finally, a Frost stitch was used for 7 days, (after applying antibiotic ointment on the cornea) (Figure 2).

There were no postoperative complications. The symptoms disappeared because a good protection of the eyeball was achieved. The donor defect healed satisfactorily without deforming the ear. At 3-year follow-up, the results thus far appear long lasting (Figure 3).
Facial nerve palsy occurs in up to 20% of leprosy patients, being bilateral in 5%. Damage to peripheral fibres of the zygomatic branch of the facial nerve may be responsible for orbicularis oculi muscle weakness manifesting as hypometric blink or lagophthalmos. Paralytic lagophthalmos is a common and sight-threatening problem in leprosy patients. After age-related cataract, corneal opacification is the second cause of blindness in leprosy, mainly as a result of neglected superficial exposure keratopathy and corneal anaesthesia.

Determining the most feasible surgical methods for lagophthalmos surgery remains a challenge. Several techniques have been proposed to treat lower eyelid retraction. Thus, lateral tarsorrhaphy, lateral tarsal strip, temporalis muscle transfer and several lower eyelid spacer grafts (porous polyethylene, autogenous fascia lata, dermis fat, split palmaris tendon, free sclera, nasal septal cartilage, free tarsconjunctival, hard palate mucosa, auricular cartilage) have been used. Traditionally, cut-off points of 5–6 mm lid gap in mild closure have been indicated for lid surgery. We think, however, surgery should be individually programmed.

Lagophthalmos is a progressive condition that may require multiple operations and constant monitoring, especially when static techniques are used. Facial skin suffers atrophic

Figure 2. Description of the surgical procedure. (A) Incision in the posterior side of the ear. (B) Obtaining auricular cartilage from the scapha. (C) Subtarsal incision and conjunctiva dissection. (D) Retractors release. (E) Implanting and suturing the graft. (F) Frost stitch.
changes; the force of gravity is no longer opposed by the orbicularis oculi muscle tone and the tarsus is often too shrunk, causing lower eyelid retraction.\textsuperscript{5,8} Therefore, it is functioning inadequately as the supporting structure of the free edge of the eyelid. Lateral tightening (like lateral tarsal strip procedure) may be effective for lower eyelid in the setting of severe laxity alone. However, some form of vertical eyelid elevation is often required. We would recommend the simple resection of retractors technique, for an improvement of 1 to 2 mm of scleral show. When improvements greater than 2 mm are necessary we prefer the more complete operation, posterior lamellar spacer graft and lateral eyelid tightening.

Graft from the auricle is easily harvested and provides an excellent and simple method for repairing lower eyelid retraction. It does not contract and has minimal donor site morbidity. Moreover, the presence of the perichondrium is essential to the growth of the new-formed conjunctiva, avoiding ocular discomfort. Although conchal cartilage is commonly selected as a donor site, it is too thick, has limitations of length, and its curvature does not fit the shape of the tarsal margin. We prefer to obtain the graft from the scapha which is thinner and has a more adequate shape and curvature than concha graft.

In conclusion, leprosy patients with paralytic lagophthalmos refractory to conventional repair can be treated using an auricular graft from the scapha with good aesthetic and functional results.

References


