Four Cases of Dacryocystocele

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Dacryocystocele is a rare complication of chronic dacryocystitis. We report four such cases in which epiphora and painless cystic mass located inferior to the medial canthus were manifested. Computed tomographic scanning of the orbit showed a well-demarcated low density mass in the lacrimal sac area, and extending to the nasolacrimal duct. We completely or partially excised the mass and depending on the condition of the canaliculi and puncta, performed dacrystocystorhinostomy, canaliculorhinostomy, or conjunctivodacrystocystorhinostomy using Jones’ tube. Operative findings revealed that the lacrimal sac and nasolacrimal duct were dilated with obliterated proximal and distal portions of the cyst. When cysts in the lacrimal sac area develop subsequent to chronic epiphora or are accompanied by punctal agenesis, differential diagnosis should consider the possibility of dacryocystocele.

Key words: dacryocystocele, epiphora, lacrimal sac mass

INTRODUCTION

When a patient presents with a medial canthal mass, differential diagnosis should consider several diseases; these should include dacrystocystocele which can develop in the presence of proximal and distal obstructions in the lacrimal drainage system. In order to assist in the diagnosis and management of cystic canthal mass, we describe four cases of dacryocystocele involving chronic dacryocystitis and punctal agenesis.

CASE REPORTS

Case 1

For four years, a 42-year-old woman had had a painless mass in the region of the right canthus; for more than 20 years, she had also experienced lacrimation from the right eye. Her visual acuity was found to be 20/50 OD, 20/20 OS and in the right eye, this was corrected to 20/25 with +1.25D sph -2.5D cyl × 45° in right eye. Extraocular movements were full, and on examination, the anterior and posterior segment were found to be normal. The mass displaced the medial canthus upwardly and was firm, nontender, and noncompressible (Fig. 1). Canalicular probing demonstrated a soft stop and irrigation resulted in total reflux from the punctum. A computed tomographic scan of the orbit showed a low density mass measuring 1.6 × 1.8 cm in the lacrimal sac fossa, and enlargement of the nasolacrimal bony canal (Fig. 2A, B).

Dacrystocystocele was suspected and the patient underwent a dacrystocystorhinostomy. The mass was easily dissected from adjacent tissues and, as expected, thick mucus and dacryolith were encountered in the dilated lacrimal sac. The dacrystocystocele showed obstructions at the internal punctum and distal portion of the nasolacrimal duct. In performing the dacrystocystorhinostomy, internal punctoplasty was therefore needed. Pathologic

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Fig. 1. (Case 1) A bluish mass below the medial canthus is seen in a 42-year-old woman.

Fig. 2A: (Case 1) An axial computed tomographic scan of the orbit shows a 1.6X1.8cm-sized mass in the anterior orbit.

Fig. 2B: (Case 1) A coronal scan shows a low density mass on the inferomedial side of the anterior orbit; it extends into the nasolacrimal duct.

Fig. 3. (Case 1) The wall of the dacyrocystocele is lined by stratified columnar epithelium showing partial necrotic change and inflammatory cell infiltration (H&E, × 40).

findings of dacyrocystocele revealed that the lining epithelium was stratified, columnar, and was focally denuded, and the wall was infiltrated with inflammatory cells (Fig. 3).

Postoperatively, lacrimation disappeared and uncorrected visual acuity of the right eye improved to 20/20. Follow-up lasted three years, and during this time, recurrence of the mass, or of lacrimation, was not evident.

Case 2

A 25-year-old woman visited our clinic complaining of a right canthal mass and accompanying lacrimation, which she had first noticed one month earlier. On ocular examination, her visual acuity was found to be 20/40 OD, 20/20 OS, and in the right eye, this was corrected to 20/20 with -0.5D sph -1.25D cyl × 60°. A firm, immobile, nontender mass was palpated just inferior to the right medial canthal tendon (Fig. 4). The lesion was not compressible, and showed no passage to the nasal cavity after irrigation. A computed tomographic scan showed a well-demarcated non-enhanced low density oval mass in the lacrimal sac fossa.

A bluish round cystic mass was removed and the diagnosis was confirmed when on opening the lacrimal sac, mucus was encountered. Biopsy of the sac was unremarkable; obstructions were seen at the internal punctum and nasolacrimal duct. The sac was partially excised and a dacyrocytosthrinostomy combined with internal punctoplasty was
performed. Four months after surgery, the patient complained of persistent lacrimation and showed no passage on irrigation. There was fibrous obstruction of the internal nasal ostium, and this was confirmed by nasal endoscopic examination, there was, however, no evidence that the mass had recurred. She declined further treatment.

Case 3

One year prior to visiting our clinic, a 38-year-old man first noticed a left medial canthal mass and accompanying lacrimation. His medical history showed that 15 years previously, he had undergone sinus surgery at another hospital, and no noticeable problem had ensued. On examination, his visual acuity was found to be 20/20 bilaterally, and the results of anterior and posterior segment examinations were normal. Inferior to the left medial canthal tendon, nontender, firm, fixed mass, 0.8 × 0.5cm in size, was located. Irrigation showed no passage and canalicular probing revealed upper and lower canalicular obstruction. CT scanning revealed a low density oval shaped mass in the lacrimal fossa, with no evidence of sinusitis.

During surgery, the lacrimal sac was found to be dilated and was filled with yellowish mucoid material. The nasolacrimal duct was dilated and its distal portion was obstructed. After removal of the lacrimal sac with nasolacrimal duct mucosa, a canaliculorhinostomy was performed. The patient was asymptomatic and during follow-up of one year’s duration, the mass did not recur.

Case 4

A 33-year-old woman had suffered bilateral epiphora since infancy and one year before visiting our clinic, a right medial canthal mass had developed. A similar mass had first been noticed 20 years ago, and 14 years later, she had undergone surgery at another hospital; at that time, the pathologic diagnosis was ‘retention cyst’. Eleven years before that operation a left medial canthal mass had also been present, and she underwent surgery at that time. Ocular examination revealed a complete absence of the four puncta and previous operation scars at the medial side of the lower lids. A nontender, noncompressible mass measuring 1.5 × 2.5cm was palpated inferior to the right medial canthal ligament but there was no palpable mass on the left. A CT scan showed bilateral low-density, well-demarcated masses were found in the fossae of the lacrimal sacs.

These cystic masses were surgically excised; on the right, the cyst was connected to the mucosa of the nasolacrimal duct, the inferior portion of which was closed by a bony structure. The cyst on the left showed the same findings. After removing the cyst and nasolacrimal duct mucosa by curettage, conjunctivodacryocystorhinostomy was performed. Pathologic examination revealed that the wall was infiltrated with inflammatory cells and the epithelium was pseudostratified and columnar. (This case has been reported in J. Korean Ophthomol. Soc.1)

DISCUSSION

A dacryocystocele is a painless swelling at the site of the lacrimal sac, found in particular inferior to the medial canthal ligament.2 A knowledge of the pathogenic mechanism of a congenital dacryocystocele may help to understand that of one occurring in an adult. In a congenital dacryocystocele, distention of the lacrimal sac results from distal nasolacrimal duct obstruction and functional proximal obstruction at the junction of the common canaliculus and the sac. This proximal obstruction is functional in the majority of patients with congenital dacryocystocele; this is substantiated by the absence of an anatomic barrier on probing and by mucus reflux on
lacrical sac massage. The components of this content are amniotic fluid, and mucus secreted by goblet cells.

In dacryocystocele occurring in adults, a similar mechanism may be involved. In the presence of chronic distal obstruction, reflux inhibition is established by several mechanisms. The mucosal swelling resulting from chronic inflammation in the area of the valve of Rosenmüller may prevent reflux drainage from the sac, and lateral swelling of the sac displaces the canaliculi and may cause further compression or closure of the internal common punctum. With time or in the presence of infection, the proximal exit becomes sealed and an encysted dacryocystocele is formed.

In congenital punctal agenesis, a dacryocystocele can be formed in the presence of distal obstruction. Lyons et al reported four cases of dacryocystocele among 53 eyes with punctal agenesis. Agenesis of the punctum is frequently associated with other abnormalities of the lacrimal drainage system, and so when this and nasolacrimal duct obstruction co-occur, a dacryocystocele may be formed. In case four, there was bony obstruction in the distal portion of the nasolacrimal duct and dacryocystoceles developed and recurred because of previous incomplete resection. It has also been reported that dacryocystocele is caused by trachoma.

It may be necessary to differentiate a dacryocystocele from several other conditions, and a lacrimal sac tumor should first be differentiated. This usually shows intermittent epiphora, dacryocystitis, and spontaneous bleeding from the punctum, and should be diagnosed by dacryocystography and radiological examination. A dermoid and sebaceous cyst are more superficial and leave the lacrimal passage patent. A mucocele of the paranasal sinuses is usually more difficult to differentiate, especially if located in the anterior ethmoid and frontal sinus. This cyst usually presents above the medial canthal ligament and the lacrimal passage remains patent, though it may obstruct outflow from the lacrimal sac, giving rise to a dacryocystocele; in such a case, radiological and rhinological examination should be undertaken. Lacrimal sac cyst and lacrimal sac diverticulum should be differentiated by dacryocystography and surgical findings.

The management of congenital dacryocystocele is conservative, and involves the use of eye drops and lacrimal sac massage, lacrimal probing, and surgical management. In congenital dacryocystocele, a dilated lacrimal sac returns its original size after non-surgical treatment, but in dacryocystocele which develops in an adult, the dilated lacrimal sac does not decrease its size and a nasal drainage operation is the treatment of choice. Sultanov et al reported 35 cases of dacro-cystocele; in 25 cases in which the orifices of the lacrimal canaliculi were blocked, they performed dacryocystorhinostomy, and in ten cases of canalicular orifice obliteration, canaliculo-dacryocystorhinostomy was required. Depending on the location of the proximal obstruction, the relief of epiphora can be achieved by the use of one of these procedures or by conjunctivodacryocystorhinostomy.

If a painless cystic mass in the lacrimal sac area develops subsequently to chronic epiphora or is accompanied by punctal agenesis, dacryocystocele should be considered. After confirming the diagnosis by lacrimal excretion test and radiological examination, the outcome of appropriate surgical treatment should be successful.

REFERENCES


