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Bilateral nasolabial cysts associated with recurrent dacryocystitis

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Abstract

Objective: Nasolabial cysts are rare, nonodontogenic, soft-tissue, developmental cysts occurring inferior to the nasal alar region. They are thought to arise from remnants of the nasolacrimal ducts and they are frequently asymptomatic. We report a rare case of bilateral nasolabial cysts accompanied by bilateral chronic dacryocystitis.

Case report: A 48-year-old woman suffering from bilateral chronic dacryocystitis was referred to our department for endonasal dacryocystorhinostomy. She had undergone external dacryocystorhinostomy on the left side a few years earlier. Physical examination and computed tomography scan revealed nasolabial cysts bilaterally inferior to the nasal alar region. The cysts were removed via a sublabial approach and endoscopic dacryocystorhinostomy was performed on the right side. Ten months after surgery, the patient was asymptomatic.

Conclusion: There may be a correlation, due to embryological reasons, between the presence of nasolabial cysts and the presence of chronic dacryocystitis. Both can be corrected surgically, under the same anaesthesia, without visible scar formation.

Key words: Lacrimal System; Dacryocystitis; Nasal Cavity; Cyst; Abnormality; Surgical Procedures

Introduction

Nasolabial cysts, also known as nasoalveolar cysts (or Klestadt's cysts), are rare, nonodontogenic masses that arise in the maxillofacial soft tissue. They are believed to arise from epithelial remnants of the nasolacrimal ducts and most commonly present with swelling of the nasolabial folds and nasal obstruction.[1,2]

Documented causes of nasolacrimal duct obstruction, epiphora and chronic dacryocystitis have included the following: non-specific nasal infections of the nose and paranasal sinuses, mucoceles, nasal allergy, atrophic rhinitis, surgical procedures on the nose and paranasal sinuses, maxillofacial injuries, and tumours.[3–5]

Dacryocystorhinostomy (DCR) is the 'gold standard' surgical procedure for patients suffering from chronic dacryocystitis and nasolacrimal duct obstruction. It can be performed either via an external or an endonasal approach. The advantages of endonasal DCR include absence of an external scar, preservation of the pumping mechanism of the orbicularis muscle, avoidance of injury to the medial canthus, less intra-operative bleeding, shorter recovery period, and the ability to address and repair intranasal pathology at the time of the lacrimal surgery. Potential disadvantages include the need for expensive equipment and a slightly lower success rate compared with external DCR.[6,7]

We report a rare case of bilateral nasolabial cysts with simultaneous existence of recurrent bilateral dacryocystitis. The management of nasolabial cysts and dacryocystitis in this patient is discussed.

Case report

A 48-year-old woman presented to the ophthalmology clinic with swelling, redness and discomfort in the medial aspect of the right eye. Over the previous 18 months, she had experienced two similar episodes, managed elsewhere following a diagnosis of right-sided dacryocystitis. She was treated conservatively and on both occasions the dacryocystitis settled with systemic antibiotics. Her medical history included left-sided chronic dacryocystitis, for which she had undergone external dacryocystorhinostomy three years earlier.

On examination, right-sided dacryocystitis and associated preseptal cellulitis in the medial canthal region were noted. The patient was treated with oral amoxicillin and clavulanate (625 mg three times daily). Progression led to sac rupture and fistulization through the skin before slow resolution over a two-week period with closure of the fistula. Six weeks later (and prior to planned investigation), the patient returned to our clinic unexpectedly with recurrence of right-sided dacryocystitis. Once again, rapid resolution resulted with the above systemic antibiotic regimen. Lacrimal sac irrigation showed regurgitation from the opposite canaliculus, indicating a lower system block.

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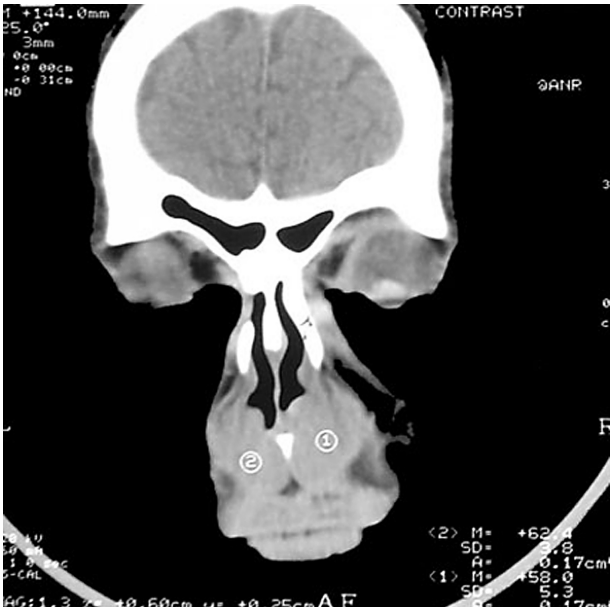

FIG. 1
A coronal CT scan showing the two nasolabial cysts.

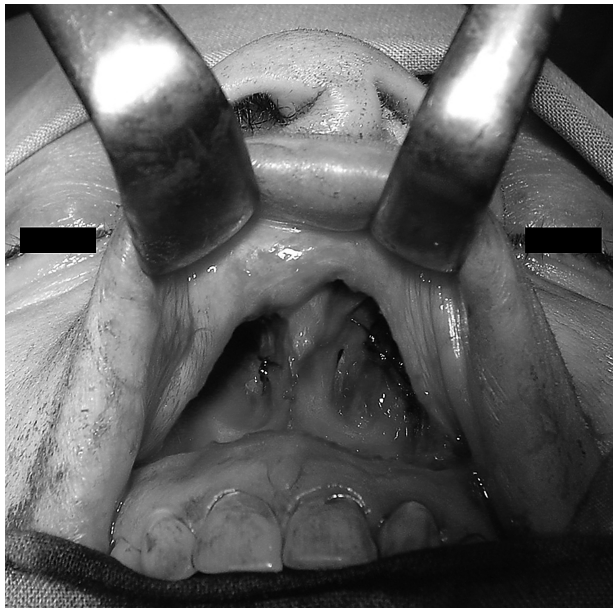

FIG. 2
The sublabial operative approach; the nasolabial cysts have already been removed.

An ENT evaluation was performed which revealed a smooth, cystic mass in each nasal vestibule. There was bulging of the nasolabial fissures bilaterally, while anterior rhinoscopy was not possible due to the size of the cysts. A rigid endoscopy with a 2.7 mm, 30º endoscope was performed. The cysts were revealed to touch the head of the inferior turbinate bilaterally without encroaching onto the opening of the nasolacrimal duct, while the rest of the examination was normal. A computed tomography (CT) scan showed two well demarcated masses, approximately 2 cm in diameter, projecting from the anterior floor of the nasal cavity in the nasal vestibules (Figure 1). The inferior meatus was open bilaterally. The masses were surgically excised under general anaesthesia through a sublabial approach (Figure 2). Endoscopic dacryocystorhinostomy was also performed on the right side. Histopathologic examination verified the diagnosis of bilateral nasolabial cysts.

Ten months after the operation the patient was free of symptoms.

- **Nasolabial cysts are rare, nonodontogenic soft-tissue developmental cysts arising from the maxillofacial soft tissues, believed to arise from epithelial remnants of the nasolacrimal ducts**
- **This case report describes bilateral nasolabial cysts in association with dacryocystitis, supporting an embryological link between these two conditions**

Discussion

Nasolabial cysts are very rare. Allard reported three cases in 65 000 patients (<0.01 per cent), while bilateral nasolabial cysts have been reported in 10 per cent of patients with nasolabial cysts.[1] Many theories regarding their origin have been proposed. Early theories suggested that they were retention cysts arising from inflamed mucous glands. Subsequent theories have included an origin analogous to fissural cysts, in which embryonic nasal epithelium is trapped between the merging maxillary process and the medial and lateral nasal processes.[8]

Nevertheless, the most accepted hypothesis is that nasolabial cysts develop from remnants of the embryonic nasolacrimal ducts. Development of nasolabial cysts from the anlage of the nasolacrimal duct was first proposed by Brüggemann in 1920.[1,8,9] The nasolacrimal duct arises from the nasolacrimal groove, a deep furrow that separates the lateral nasal swellings from the maxillary swellings. Epithelial cords arise from ectoderm in the base of the nasolacrimal groove and are initially attached to the overlying ectoderm. After detaching from the overlying ectoderm, these cords canalize to form the nasolacrimal duct, and the maxillary and lateral nasal swellings subsequently fuse. Epithelial remnants of the nasolacrimal groove might therefore persist just deep to the junction of the nasal ala with the lip. A cyst arising from these remnants would ultimately lie more anteriorly than the opening of the nasolacrimal duct into the inferior meatus.[8]

The aforementioned theory is supported by the fact that the nasolacrimal ducts are lined with pseudostratified columnar epithelium, which is the type of epithelium found in the nasolabial cyst cavity.[1,8,9] A report of a family with an unusual syndrome involving oxycephaly, nose deformity, hair growth on the skin at the base of the nose and bilateral cyst formation on the upper lip with bilateral aplasia of the nasolacrimal ducts also supports the association between nasolacrimal system development and nasolabial cyst formation.[8,10] Embryologic factors can probably explain the coexistence of bilateral nasolabial cysts and bilateral chronic dacryocystitis in our patient's case.

Nasolabial cysts appear as spherical masses embedded beneath the soft tissue of the nasal ala. They may extend anteriorly, in the pyriform aperture, inferiorly into the gingivolabial sulcus or laterally into the facial soft tissue. Pain is infrequent unless the cyst is secondarily infected. Differential diagnosis includes other midline cysts, dentigerous cysts, periapical abscess, and furuncles or neoplasms of the nasal vestibule.[1,11] A diagnosis of nasolabial cyst is established by correlating the lesion's clinical features and histopathologic findings.[1] It should be noted that in such cases anterior rhinoscopy may be impossible to perform; nasal endoscopy is required

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therefore for inspection of the nasal cavity.

Computed tomography facilitates the evaluation and differential diagnosis of a suspected nasolabial cyst.[1,8] A CT scan cannot identify or exclude nasolacrimal obstruction but can delineate anatomy and detect unrecognized disease in the paranasal sinuses and nose. Dacryocystography allows assessment of the lacrimal passage patency by radiopaque dye techniques. The combination of CT scanning and dacryocystography further defines the anatomy of the lacrimal drainage system.[6] In our case, there was evidence, from CT scan and nasal endoscopy, that there was no mechanical obstruction of the nasolacrimal ducts due to the presence of the cysts. Moreover, the CT scan was very useful pre-operatively as it demonstrated the precise dimensions and extensions of the lesions.

Surgical excision via a sublabial approach is the treatment of choice for nasolabial cysts. The incision is made in the gingivolabial fold over the convexity of the swelling. Extension of the cyst to the nasal floor increases the risk of perforation, while large nasal defects should be sutured.[1] Endoscopic marsupialization of nasolabial cysts has been also reported, with satisfactory results.[12] In cases of nasolabial cysts associated with chronic dacryocystitis, we recommend the endonasal endoscopic or microscopic approach for the DCR procedure, since intranasal pathology can be addressed and repaired in the same procedure. In such a case, the cysts must be excised first so that the DCR can be performed immediately afterwards.

In conclusion, we would like to emphasize that the presence of nasolabial cysts can be related to chronic dacryocystitis due to embryological reasons. Both pathological conditions can be corrected surgically, under the same anaesthesia, without any visible scar formation.

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