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Lacrimal Intrasacal Cyst

Dear Editor,

Two cases with epiphora and medial canthal mass showed a cyst within the lacrimal sac that compressed the lacrimal drainage system. We describe a new lacrimal sac anomaly of lacrimal intrasacal cyst, which has not yet been reported.

A 31-year-old woman was referred for epiphora in her left eye for 17 years. She also presented with a 10-year history of a palpable mass below the medial canthal tendon. The lacrimal system was patent on irrigation. In computed tomographic (CT) dacryocystography (DCG), a soft ovoid mass of 25 mm was found in the lacrimal sac fossa, and the lacrimal passage was compressed and deviated anteriorly (Fig. 1A and 1B). DCG revealed a patent but laterally deviated lacrimal drainage passage (Fig. 1C). After subciliary incision, an enlarged lacrimal sac was identified and dissected. After lacrimal sac incision, serous fluid gushed out from a blind sac on the periosteal side of the lacrimal sac. The internal common punctum and the lateral lacrimal sac wall were identified after excision of the lateral wall of the cyst. The cyst and the lacrimal sac shared a common wall along the entire length between them. External dacryocystorhinostomy was performed after cyst excision. Histopathologic study revealed a cyst wall lined with pseudostratified columnar and cuboidal epithelium, supporting the finding of the lacrimal sac mucosa (Fig. 1D). The patient has now been free of symptoms for five years.

A 39-year-old man was referred for epiphora of two-year duration. A soft mass was found just above the left medial canthal tendon. In the CT-DCG, a 16 mm-sized soft tissue mass was identified with pressure remodeling of the adjacent bone (Fig. 1E). The DCG revealed a deviated and

Fig. 1. (A,B) Computed tomographic dacryocystography (DCG) demonstrates an ovoid soft tissue mass (arrowhead) anterior to the lacrimal passage (arrow) in the lacrimal sac fossa (case 1). (C) DCG reveals a filling defect in the lacrimal sac without passage disturbance of the dye (arrow) (case 1). (D) The wall of the cystic mass is lined with pseudostratified columnar and cuboidal epithelium (arrowhead), which is infiltrated with inflammatory cells, sharing with the normal lacrimal sac (arrow) (H&E, $\times 100$; case 1). (E) A soft tissue mass is shown in the lacrimal sac fossa with bony remodeling. The dacryocystographic dye (arrow) is deviated anteriolaterally by the cystic mass in the lacrimal sac (case 2). (F) DCG showed a deviated lacrimal sac (arrow) by a space-occupying filling defect on the left side (case 2).

blocked lacrimal sac on the lateral side of a space occupying filling defect (Fig. 1F). The lateral wall of the cystic mass shared a common wall with the lacrimal sac. On histopathologic examination of the common wall, both sides showed the same features of pseudostratified columnar epithelium with squamous dysplasia. The patient has now been free of symptoms for five years.

A lacrimal intrasacal cyst is regarded to be a different clinical entity from a lacrimal sac cyst or a diverticulum because the latter anomalies are located outside of the lacrimal sac. Lacrimal diverticulum forms a mass attached and connected to the lacrimal sac with a narrow neck [1,2]. Lacrimal sac cyst has been described as a separated orbital cystic mass having lacrimal sac epithelium, which is near to or remote from the lacrimal sac [1,2].

Embryologically, the nasolacrimal apparatus develops from the surface epithelial core and canalization occurs at three months gestation throughout the length of the nasolacrimal apparatus [3]. Though an acquired condition from lacrimal sac inflammation cannot be excluded, lacrimal intrasacal cyst can be considered to develop from an extra core of cells budding off the original core like other congenital lacrimal drainage system anomalies. Takahashi et al. [4] first described the lacrimal sac septum. They incidentally identified it in a cross section of the lacrimal sac, which shared the same epithelial lining with the lacrimal sac. It was also regarded to result from developmental anomalies in embryogenesis. Although there was no description of proximal or distal features of the septum, the case might represent an asymptomatic lacrimal intrasacal cyst without cyst expansion.

Mansour et al. [5] reported a supernumerary blind lacrimal sac that was connected to the supernumerary puncta and canaliculi, resulting in compression of the lacrimal drainage pathway. The entity was different from our cases because there was no supernumerary puncta or canaliculi connected to the cyst.

Lacrimal intrasacal cysts can demonstrate different clinical courses such as symptom-free if it is not expansile or cystic mass formation with or without nasolacrimal duct obstruction. Presenting symptoms cannot differentiate the lesion and imaging studies of CT-DCG and DCG are mandatory for diagnosis. If a thick membrane is found between the "lacrimal sac cavity" and internal punctum during da-

cryocystorhinostomy, possibility of intrasacal cyst should be considered. Endonasal marsupialization or dacryocystorhinostomy could be one of the treatment options according to the obstructive signs.

Recognition of this abnormal configuration of the lacrimal sac might be helpful in differential diagnosis and treatment of patients with medial canthal mass with epiphora, though it is a rare entity.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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