



Congenital Supernumerary Lacrimal Puncta and Canaliculus on the Caruncle

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Abstract

Congenital lacrimal system anomalies other than nasolacrimal duct obstruction are rare. We report the case of a 19 year old female presented to our clinic with intermittent tearing from her right eye since childhood. On ocular examination revealed an orifice that was associated with supernumerary puncta and canaliculi on the caruncle. No other systemic, nasal and ocular anomalies were found. To evaluate tear drainage, a fluorescein dye disappearance test, lacrimal irrigation saline (syndringing lacrimal test) and examination nasolacrimal duct probing was performed. There were therefore two separate lower canaliculi opening into lacrimal sac, one corresponding to each punctum being present. Surgical removal of the supernumerary puncta and canaliculi on the caruncle was planned as the course of treatment. At 4 year follow-up, the patient was symptom-free, without treatment.

Keywords: Epiphora; Supernumerary Puncta and Canaliculi; Nasolacrimal Duct; Caruncle

Introduction

Supernumerary puncta were noted by Mackenzie (1854) only a handful of cases have been reported since, through incidental findings and case series [1,2]. These anomalies are infrequently reported, although they are said to be not exceptionally rare and it has been estimated that this occurs eleven in every 60,000 people [3,4]. Another report estimates the incidence of 1 in 800-1000 eye cases [5]. Several cases of supernumerary puncta on the lid margin, the skin of the eyelid, and conjunctival surface have been reported in the literature [2]. They are found more frequently in the lower lid but occasionally in the upper and up to four puncta have been observed [1,3,6]. In some cases the openings have a common canaliculus; in others, as in the present case, each has a separate one. Occasionally have been reported on the caruncle, and the following is another isolated case of this rare congenital anomaly and to remind to ophthalmologists of its importance [2].

Case Report

A 19 year old female medicine student came to our clinic with symptoms of intermittent tearing since childhood. General physical examination revealed no abnormality. There was no history of infection or trauma. Biomicroscopy showed that right eye looked wet. Close inner canthus, on the inner part of the caruncle, there was an oval slit like opening 1.5mm in diameter. There was a small amount of tears. It had well defined margins and there was no evidence of fibrosis, inflammation or swelling and with no adhesions of the surrounding tissue (Figure 1). The upper and lower punctum were situated at the normal anatomical position. No other systemic, nasal, or ocular anomalies were found. To evaluate tear drainage, a fluorescein dye disappearance test was performed revealed a more rapid clearance from the right eye compared to the left. Lacrimal irrigation of saline through all three puncta, demonstrated nasolacrimal competence. Examination with probes showed could be passed into sac lacrimal simultaneously through each punctum, without making contact on the way. There were therefore two separate lower canaliculi opening into lacrimal sac, one corresponding to each punctum being present. Hence the diagnosis was made of congenital supernumerary puncta and canaliculi, surgical removal was planned.



Figure 1: Supernumerary puncta was found in the right inner canthus on caruncle

Fine dissection under microscope is performed. A fusiform incision was made around conservatively the orifice on the caruncle; we held the tract and dissect it from the adjacent tissue with Vannas scissors. After we excised the tract partially and sutured surrounding tissue and skin with 7/0 Vicryl suture. At 6 year follow-up, the patient was symptom-free, without treatment (Figure 2).



Figure 2: Six years follow-up results

The nasal duct appears around the sixth week germinal stage [1,6], a variety of congenital anomalies may occur within the lacrimal system. The entire lacrimal drainage apparatus is of ectodermal origin [7]. During development, a solid epithelial cord forms in the region of the medial lower eyelid and sends projections to form the canaliculi and nasolacrimal duct. The presence of supernumerary puncta and canaliculi is due to extra out-budding of the solid epithelial cord. Canalization begins at 4 months of gestation with disintegration of the central ectodermal core, forming lacrimal drainage outflow system [1,7]. These anomalies are thought to arise from incomplete separation of the epithelial core or by failure of canalization between the conjunctival sac and the nasal cavity [1]. In the case of a supernumerary puncta and canaliculi has been observed as an isolated occurrence (as in our case) , as well as in association with other congenital defects [1,8]. Therefore, a supernumerary puncta and canaliculi may have a shared canaliculus or the canaliculi may be replicated for each puncta (as in our case) [1]. In the case of supernumerary puncta , associated congenital lacrimal anomalies included nasolacrimal duct obstruction, a lacrimal fistula, a lacrimal sac diverticulum, and absence of the upper canaliculus, atresia of the upper punctum, anomalies in shape and position of puncta, narrowing of the lacrimal system causing epiphora, duplication of the plica semilunaris, fistula of the lacrimal sac, diverticulum-formation in the lacrimal system, teratoma, cyst of the lacrimal gland, coloboma of the upper lid and congenital bone defects around the orbit [4,8]. Associated systemic findings included Down syndrome and preauricular sinuses [8].

Accessory puncta are typically located on the lower lid medial to the normal punctum with a slit-like appearance [1,5]. Accessory slit puncta rarely function because they usually lack papillae and surrounding musculature, while a true reduplicated punctum possess these features [1]. In our case, we observe an increase lacrimal drainage, which suggests to us of a functional supernumerary punctum. The accessory canaliculus may lead into a common canaliculus or, more commonly, may run independently to open into the lacrimal sac [5]. Rarely, there is an opening. This was confirmed by us with canalicular probing. In our case the accessory punctum opens into the accessory canaliculus and have an independent opening into the lacrimal sac.

The direct consequences of supernumerary puncta are not well known [1]. Although usually asymptomatic, supernumerary puncta have been reported to cause dry eye or epiphora [1,6-8]. In some cases the condition as discovered accidentally, in others because the patients complained with epiphora [6]. In our case, the supernumerary puncta was discovered accidentally due to tearing.

The management for supernumerary puncta without symptoms the observation is a reasonable approach. In cases of dry eye due to increased evacuation tears in the affected eye occlusion of the puncta has been effective treatment. Dacryocystorhinostomy is the choice of treatment when tearing may be due to associated congenital anomalies of the nasolacrimal system [8,9].

In this case report, the patient had only epiphora through supernumerary puncta, and there was no combined nasolacrimal duct obstruction. Surgical removal supernumerary system alone caused the patient to be of free symptom at 6 years post operatively a surgical procedure on a congenital supernumerary puncta and canaliculi, it is necessary to demonstrate adequate drainage from the nasolacrimal apparatus through a patent nasolacrimal duct.

This case report highlights an unusual presentation, in that the patient presenting with onset of tearing in childhood have patent lacrimal systems and otherwise normal adnexal examination results, suggesting that the presence of supernumerary puncta may be associated with compromised canalicular function. Reflux of tears through the supernumerary canaliculi can cause epiphora which can be treated by surgery.

Informed Consent

Written informed consent was obtained of patient for publication of this case report and accompanying images.

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