Supernumerary lacrimal puncta: Case series

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Abstract:

Supernumerary lacrimal punctum is rare, and very few cases have been reported. Most patients are asymptomatic, but in some excessive tearing could be a symptom. In addition, obstruction of the canaliculi causing canaliculitis has been reported. We describe four cases in detail with their presentations and diagnosis. The first patient presented with a right eye lesion and during examination, the left eye was less than mid dilated compared to that of the right eye. Further examination of the left eye revealed two left lower lid puncta. In another patient who was evaluated for diabetic retinopathy, two left lower lid puncta that shared the same canaliculus were noted. Furthermore, two lower lid puncta were found in a patient who came for cataract follow-up. Finally, in a patient who was following up in the retinal clinic, two lower lid puncta were documented. Probing to the accessory punctum showed that the canaliculus had an immediate horizontal course, unlike the rest of the puncta which showed a vertical then a horizontal course. Furthermore, in the accessory punctum, there was a soft stop, around 4 mm of the inserting probe. In summary, supernumerary lacrimal punctum is rare, and ophthalmologists need to be aware of this abnormality.

Keywords:

Supernumerary lacrimal puncta, double punctum

Introduction

Supernumerary lacrimal punctum is rare, and the true incidence or prevalence is not known.[1] In 2010, Satchi and McNab[1] reported 23 patients who had a double lower lid punctum, which constituted <1% of the total patients who were seen at their institution over 20 years. Most patients are asymptomatic, but in some excessive tearing could be a symptom.[1] Furthermore, obstruction of the canaliculi causing canaliculitis has been reported.[2] In most reported cases, the accessory punctum had its own and separate canaliculus. We report two cases in which the two puncta (normal and accessory) shared the same canaliculus and this is rarely reported.

Case Reports

Four patients were identified. Two were male and two were female. Details about their presentation are outlined below:

Case 1

A 34-year-old male, previously healthy, presented to the clinic with a history of a right eye lesion for several months. On examination, pterygium was noted in his right eye. The visual acuity, pupil, intraocular pressure, and anterior segment examination were all normal. When the patient was sent for dilatation, the left eye was less than mid dilated compared to the right eye, which was fully dilated. He was also noticing feeling the drops in his throat shortly after applying the drops in the left eye. Further examination of the left eye revealed two left lower lid puncta, around 0.5 mm from each other [Figure 1]. The temporal punctum was around 1 mm in size and was oval in shape, while the nasal accessory punctum was around 0.5–0.75 mm. Both puncta had well-defined margins. Fluorescein dye disappearance test showed a rapid clearance of the dye in the left eye compared to that of the right eye. The break-up time was around 10 s in the right eye and 8 s in the left eye. While probing to the temporal punctum, the probe was clearly visible in the nasal punctum, and when the probe was slightly elevated, it came out from the nasal punctum, giving the impression that the two

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puncta shared the same canaliculus. Irrigation of normal saline into the punctum passed into the lacrimal sac and the nasal cavity. Schirmer test score under anesthesia was around 7 mm in the right eye (negative) and 3 mm in the left eye (positive).

Case 2

A 60-year-old diabetic female presented to the retina clinic for routine checkup for diabetic retinopathy. Ocular examination of the left eye showed two left lower lid puncta, around 0.5 mm from each other [Figure 2]. The temporal punctum was around 0.5–0.75 mm in size and was oval in shape, while the nasal one was 0.75–1.00 mm in size. Fluorescein dye disappearance test showed a rapid clearance of the dye in the left eye compared to the right eye. The break-up time was around 8 s in the right eye and 5 s in the left eye. While probing to the temporal punctum, the probe was clearly visible in the nasal punctum, and when the probe was slightly elevated, it came out from the nasal punctum, giving the impression that the two puncta shared the same canaliculus [Figure 2]. Irrigation of normal saline into the punctum passed into the lacrimal sac and the nasal cavity. Schirmer test score under anesthesia was around 8 mm in the right eye (negative) and 2–3 mm in the left eye (positive).

Case 3

A 65-year-old male who was following up in the clinic for his cataract (for which he did not require surgery) had evidence of two lower lid puncta. The temporal punctum was oval in shape and about 1 mm in size with regular, well-defined margin. The nasal punctum had a different configuration than the other puncta. It had a slit configuration and was 1 mm in size. Fluorescein dye disappearance test showed a rapid clearance of the dye in the right eye compared to the left eye. The break-up time was around 4 s in the right eye and 10 s in the left eye. By probing, the canaliculus had an immediate horizontal course, unlike the rest of the normal puncta which showed a vertical then a horizontal course [Figure 3]. On irrigation, both of these puncta communicated separately with the lacrimal sac by two separated canaliculus, and the saline passed into the lacrimal sac and the nasal cavity. Schirmer test score under anesthesia was around 3–4 mm in the right eye (positive) and 9 mm in left eye (negative).

Case 4

A 30-year-old female who is known to have Type 1 diabetes was following up in the retina clinic and upon examination, she was found to have two lower lid puncta. The temporal punctum was oval in shape and around 0.5–0.75 mm in size with regular, well-defined margin, whereas the nasal accessory one was around 1 mm in size and had a slit configuration [Figure 4]. Fluorescein dye disappearance test was 3 min and was equal in both eyes. The break-up time was >10 s and relatively equal in both eyes. Probing to the accessory punctum showed that the canaliculus had an immediate horizontal course, unlike the rest of the puncta which showed a vertical then a horizontal course. In addition, in the accessory punctum, there was a soft stop, around 4 mm of the inserting probe. On lacrimal irrigation, saline was coming immediately from the same punctum and did not pass to the nasal cavity and no saline was coming from the temporal punctum during irrigation of the accessory punctum. Irrigation of saline to the rest of the puncta revealed that the saline was reaching the lacrimal sac and the nasal cavity.

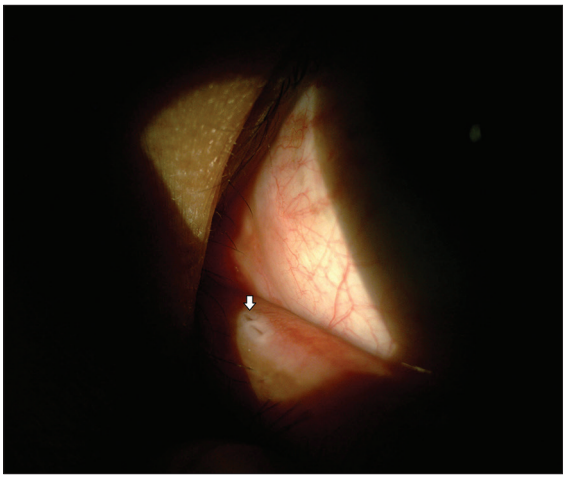

Figure 1: Slit-lamp examination showing the supernumerary punctum (arrow)

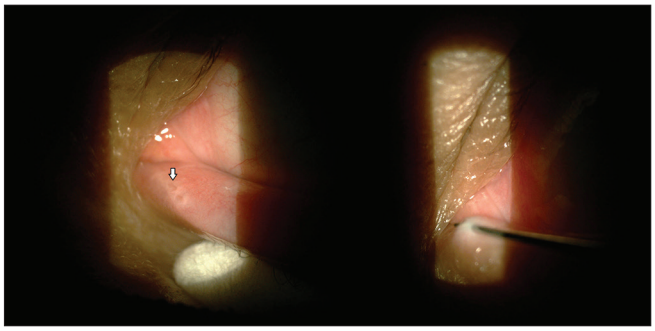

Figure 2: Slit-lamp examination showing the accessory punctum (arrow, left photograph) and a probe coming from the nasal punctum after the insertion in the temporal punctum, suggesting that they share the same canaliculus (right photograph)

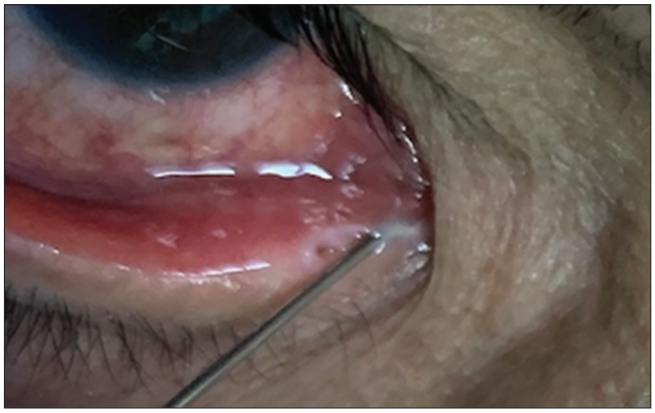

Figure 3: Curved blunt tipped lacrimal cannula inserted into the nasal punctum. Notice the horizontal course of the canaliculus

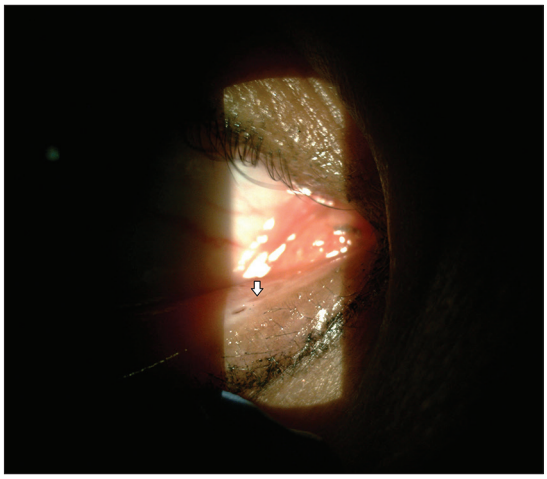

Figure 4: Slit-lamp examination showing the supernumerary punctum (arrow)

Discussion

The function of the lacrimal punctum is to help in draining the tears through the canaliculi to the lacrimal sac and then to the nasal cavity. Congenital anomalies can affect any part of the nasolacrimal system and a double punctum is thought to arise as an outbudding of the epithelial cord during embryogenic development.[2] Not achieving a complete separation of the cord from the epithelial surface can also be a reason for their development.[3] It is important to acknowledge that many terms are used to describe the accessory punctum including "supernumerary punctum" and "double punctum."

During childhood, the supernumerary lacrimal punctum can cause excessive tearing (epiphora). This is likely due to other congenital anomalies in the lacrimal system (e.g., absence of upper canaliculus, nasolacrimal obstruction).[1] Most adult patients are asymptomatic, and this can be found during physical examination of the eyes, as the case in our patients and in another report.[4] However, epiphora can happen[1,5] and the mechanism of this is not understood. The Horner's muscle could play a role in the physiology and could explain why some patients have tearing and some do not,[6] and it is believed that the location of the accessory canaliculus is important. If originating from the common canaliculus, the tears can transport back to the lacrimal lake once the Horner's muscle relaxes and this might affect the function of the lower canaliculus causing epiphora.[1] On the other hand and in theory, dry eye can result from excessive drainage if an extra punctum is found. In two reports,[7,8] a congenital punctum caused dryness of the eye. However, many adult patients with an extra punctum do not have dry eyes and the punctum is found incidentally. Finally, obstruction of the canaliculus can cause canaliculitis presenting with swelling and pain of the overlying lid.

Examination of the punctum is important in any case of dry eye to evaluate the possibility of double puncta. Specific imaging techniques using injections (dacryocystography) or using ^{99}Technetium (dacryoscintigraphy) can aid in the diagnosis.[4]

Excess punctum sharing the same canaliculus with the normal one is very rare. In one report, it was found in only 2 (9%) out of 23 cases.[1] It is not known if having a shared canaliculus can lead to increased drainage of tears. In both of our cases described above, patients had rapid clearance of the dyes and had faster break-up time, suggesting that having an extra punctum may lead to increased drainage. In addition, these patients had positive Schirmer test. The clinical significance of having a shared canaliculus is unknown.

Not all patients require treatment. In asymptomatic patients, observation is sufficient. However, symptomatic patients might need further interventions. Surgical removal of the accessory canaliculus is not recommended, as this might cause damage of the normal one.[1] In patients having canaliculitis, antibiotics would be required.

In conclusion, supernumerary lacrimal punctum is rare. Patients can present with epiphora, dry eyes, canaliculitis, or can be asymptomatic. We report two cases of supernumerary puncta sharing the same canaliculus (Case 1 and Case 2), which is very rare. Only symptomatic patients require treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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