Endonasal Microdebrider Assisted Excision of Congenital Intranasal Nasolacrimal Duct Cyst or Inferior Mucocoele

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Abstract

Objective Congenital intranasal nasolacrimal duct (NLD) cyst is a rare clinical entity in the newborn whilst inferior mucocoeles are more common. We reviewed our case series of the management of patients presenting with congenital intranasal NLD cysts and inferior mucocoeles treated using powered instrumentation under endoscopic guidance.

Methods A retrospective review identified three patients, between 2010 and 2013, who have had microdebrider assisted endoscopic marsupialisation of congenital intranasal NLD cysts under joint ENT and Ophthalmology care.

Results Diagnosis was made based on intraoperative endoscopic nasal examination carried out during treatment of patients with epiphora. All patients were 2 years old or younger presented with persistent epiphora since birth with sticky eyes. All had normal development with no other past medical history of note. Two patients had unilateral and one patient had bilateral congenital intranasal NLD cysts/inferior mucocoeles identified. These were treated by endoscopic incision of the cyst with drainage of pus and excision of excess mucosal tissue using a powered microdebrider to effect marsupialisation and prevent re-healing of the floppy redundant flaps of the incised cyst. No silastic tubes were placed. All patients were discharged from clinic 3 months post surgery with complete resolution of symptoms and no complications.

Conclusions Microdebrider assisted endoscopic marsupialisation is a safe and effective treatment for removal of excess tissue in the treatment for congenital intranasal NLD cyst/inferior mucocoele whilst also obviating the need for silastic intubation and a further general anaesthetic for stent removal.

Keywords Nasolacrimal duct cyst/inferior mucocoele · Endoscopic · Congenital · Microdebrider assisted

Introduction

The congenital nasolacrimal duct obstruction occurs in 30–84 % in neonates [1] and only 6 % of these are symptomatic at birth [1, 2]. The most commonest site of obstruction is at the level of valve of Hasner at the distal end of the nasolacrimal duct, which resolves spontaneously in 85–95 % of patients by 1 year of age [2, 11]. The most common symptom is persistent epiphora but rarely congenital nasolacrimal duct obstruction might cause unilateral or bilateral nasal obstruction in children especially in neonates [3] if the obstruction lead to the formation of an intranasal nasolacrimal duct cyst. If the prolapse of mucosa limits within the inferior meatus is commonly known as inferior mucocoele and herniation further into the main nasal passage (with consequent feeding and breathing problems) as intra nasal cyst. Neonates are obligate nasal breathers and bilateral nasolacrimal duct cyst might need emergent evaluation and management [4, 5], as they might present with respiratory distress and feeding difficulties depending on the size of the cyst. The usual treatment modalities are nasolacrimal probing, silastic stenting and intranasal endoscopic cyst marsupialisation [12]. We present three cases of

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Fig. 1 Endonasal microdebrider assisted excision of congenital intranasal nasolacrimal duct cyst or inferior mucocoele

congenital intranasal nasolacrimal duct cyst which were effectively treated endonasally using powered microdebrider instrumentation without intubation.

Methods

Three children underwent surgery at Queen Alexandra Hospital, Portsmouth, UK on the regular joint Ophthalmology/ENT Paediatric Lacrimal list between 2010 to 2013. Nasal preparation included topical paediatric Xylometazoline (0.5 %) drops on the ward and following general anaesthesia further topical application of 1:10,000 adrenaline with paediatric Xylometazoline (0.5 %) drops on cottonoid patties inserted under the inferior turbinate under endoscopic control.

Punctal dilatation and probing was carried out by the Ophthalmology team. Prior to this the inferior turbinate was infractionured by the ENT team to create better access for endoscopic examination using a 10 cm 0-degree 2.7 mm rigid Storz endoscope. If a cyst was identified at the distal end of the nasolacrimal duct, the wall was tented using the probe. The sac wall was then incised using a sickle knife and the redundant sac mucosal wall was debried (Fig. 1) using a 2 mm Xomed XPS microdebrider with non-serated, inferior turbinate straight blade (Medtronic Inc., Minneapolis, MN).

At the end of procedure syringing was carried out to confirm the patency of the duct.

Fig. 2 Congenital nasolacrimal duct cyst left nasal cavity

Case Reports

Case 1

A 2 year old boy presented with persistent watery and sticky left eye since birth. He was treated intermittently with eye drops. He had normal development and no other past medical history of note. At the time of surgery he was found to have moderate left sided mucocoele in the inferior meatus (Fig. 2). This was managed using the technique described above. He was reviewed after 3 months of

surgery. He had complete resolution of symptoms and was discharged from the clinic.

Case 2

22 month old girl had a history of bilateral sticky eyes especially in the mornings and also had persistent epiphora. She underwent surgery and was found to have bilateral intranasal nasolacrimal duct inferior mucocoele which was excised using the microdebrider technique. Since the surgery she has been completely asymptomatic and has been discharged from the clinic.

Case 3

A young 2 year old boy had been suffering from sticky right eye since birth with associated epiphora. He was found to have a large right sided intranasal nasolacrimal duct cyst which was managed as above. He was discharged after 3 months with no further symptoms.

Discussion

The prevalence of distal congenital intranasal nasolacrimal duct cyst/inferior mucocoele has been found to be higher than previously thought. This can possibly be explained by increased use of nasal endoscopic examination and closer collaboration between ENT and Ophthalmology specialists managing these cases jointly. Clinically they may present with symptoms of epiphora/sticky eyes, nasal obstruction or rarely respiratory distress. A child with respiratory distress and feeding difficulties should have nasal examination to exclude the large intranasal NLD cyst/inferior mucocoele.

Computed tomography and magnetic resonance imaging are equally sensitive in detecting the intranasal NLD cysts [7] but radiological investigation is not usually necessary for diagnosis and often the diagnosis is made intraoperatively [6].

Treatment of distal nasolacrimal duct cysts includes lacrimal probing and puncture of cyst wall, silastic stenting and endoscopic marsupialisation [8, 9]. Microdebrider assisted endoscopic marsupialisation is a new technique which has also been found to be highly effective in the

management of this condition. The advantage of the technique is it allows effective marsupialisation of the cyst as more of the redundant cyst wall mucosa can be removed under direct vision and it removes the need for a further general anaesthetic to remove stents. This can be achieved without any undesirable injury to valve of Hasner or inferior turbinate and the technique has good long term prognosis [10].

Compliance with Ethical Standards

Conflict of interest The authors declare no conflict of interest.

Ethical approval This article does not contain any studies with human participants performed by any of the authors.

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