

Acute suppurative bacterial dacryoadenitis with abscess formation in a child

Acute suppurative bacterial dacryoadenitis (ASBD) is an uncommon ophthalmic condition that is rare in the pediatric population. Rarely, ASBD may progress to the formation of a lacrimal gland abscess that, in the absence of timely and effective management, poses a risk of ophthalmic and neurologic complications. This typically involves systemic antibiotics, and particularly in paediatric cases, definitive management may involve surgical incision and drainage.

A 14-year-old female presented with a 3-day history of left upper lid swelling and purulent discharge from the left eye (Fig. 1). She had no past ocular or medical history. Visual acuity was 6/9 OD and 6/12 OS. There was chemosis temporally and moderate limitation of abduction OS. Pupillary responses and colour vision were normal. There was no proptosis. The lacrimal gland was not visualized on examination. The patient was afebrile with a normal white cell count.

Computed tomography (CT) of the orbits at the time of presentation showed a hyperdense mass in the region of the left lacrimal gland that enhanced following administration of intravenous contrast material (Fig. 2). There was no clear rim enhancement to suggest an organized abscess. A presumptive diagnosis of left bacterial dacryoadenitis was made, and the patient was started on intravenous ceftriaxone.

Forty-eight hours later, the patient had deteriorated clinically with worsening abduction OS, increased upper lid swelling, and worsening chemosis. The patient was transferred to the operating theatre for exploration of the superolateral orbit under anesthetic because of concern for possible abscess formation. The superolateral orbit was approached via an upper lid skin crease incision to explore the lacrimal gland. Only a small amount of purulent fluid was encountered external to the lacrimal gland, which appeared swollen and engorged. The gland itself was incised, and a copious amount of purulent fluid was identified and drained. Specimens were sent for culture and methicillin-sensitive *Staphylococcus aureus* was identified. The patient was continued on intravenous ceftriaxone for a further 48 hours and then discharged on oral cephalexin for a further 6 days.

On examination following surgical drainage, visual acuity was 6/7.5 OS, and there was complete improvement in the ocular motility. The chemosis had resolved, and the upper lid swelling was improving and almost completely resolved 1 week later.

ASBD with lacrimal gland abscess formation is a rare ophthalmic condition. This case illustrates the importance of having a high index of clinical suspicion for abscess formation within the lacrimal gland because the typical

radiologic features suggestive of abscess formation, such as rim enhancement, were not demonstrated, and surgical intervention is usually required to achieve resolution.

Dacryoadenitis is rare, with an incidence of 1 in 10 000 patients¹. Causes of dacryoadenitis can be categorized as infective or noninfective, with the former including viral, bacterial, fungal, and parasitic causes and the latter inflammatory causes being further categorized into specific and nonspecific. Specific inflammatory causes may be associated with various autoimmune conditions such as sarcoidosis, Sjögren's syndrome, IgG₄-related disease, and granulomatosis with polyangiitis, among others^{2,3}. It more commonly affects adults, with a viral etiology being more common than bacterial in this population⁴. Viral causes most commonly include Epstein–Barr virus, with others such as cytomegalovirus, mumps virus, and coxsackievirus A occurring less commonly⁵. This is contrasted in the pediatric population, where the etiology of acute suppurative dacryoadenitis is more commonly bacterial, with the most commonly identified causative bacterial organism being *Staphylococcus*, with *Streptococcus*, *Pneumococcus*, *Haemophilus*, *Pseudomonas*, and *Klebsiella* being less common¹. Further infective causes are fungal and parasitic, but these are even less common than the previously mentioned infective causes. None of the recognized risks were identified in this case.

Complications of ASBD include lacrimal gland abscess formation. This complication is exceedingly rare within the pediatric population, and to the best of our knowledge, only 12 cases of lacrimal gland abscess have been reported in children since 2002¹. Lacrimal gland abscesses can lead to serious intracranial complications if not recognized early and managed effectively⁵.

In a recent literature review of pediatric lacrimal gland abscesses, all patients presented with lid edema, the majority with limitation of extraocular movement, and all but 1 presented unilaterally¹. All patients demonstrated rim enhancement within the lacrimal gland on computed tomography of the orbits¹. However, if imaged in the early stages of lacrimal gland abscess formation, clear rim enhancement may not be seen. We hypothesize this to be true in our patient, and the typical features suggestive of abscess formation were not demonstrated as the disease evolving. This highlights the importance of having a high index of suspicion for this clinical entity when the gland appears abnormal at the time of surgery in order to ensure appropriate definitive management and prevention of further complications or ocular sequelae.

There is no consensus on medical versus surgical management or duration of antibiotic therapy. In the pediatric population, the reported duration of postoperative antibiotics ranged from 10 days to 6 weeks^{1,2,4}. In contrast to ASBD in the adult population, the majority of pediatric cases require surgical drainage as definitive management¹. Our patient was managed initially with systemic antibiotics but showed



Fig. 1—Clinical photograph demonstrating left upper eyelid swelling and erythema.



Fig. 2—Computed tomography scan of the orbits demonstrating inflammatory soft tissue in the region of the lacrimal gland.

little response. Surgical drainage provided definitive treatment. Only 4 of the previously reported 12 cases were managed successfully with antibiotic treatment alone^{1,3}. By comparison, Goold et al.⁴ reported that 82% of patients with ASBD were managed without surgical intervention, and while 27% of the patients in their series were pediatric, they did not specify whether adult or pediatric cases underwent surgical intervention. All cases resolved with no ocular

or other sequelae. It is important to consider whether surgical management is indicated when treating children with this condition.

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Footnotes and Disclosure

The authors have no proprietary or commercial interest in any materials discussed in this article.