

Answer to Ophthalmproblem *continued from page 55*

4. Dacryocystitis

Dacryocystitis is an inflammation and infection of the lacrimal sac, usually caused by nasolacrimal duct obstruction.¹⁻³ It can be classified as acute, subacute, or chronic, and can be localized to the sac, extend to the pericystitis, or progress further to cause orbital cellulitis.³ Congenital lacrimal duct obstruction can carry a higher chance of secondary infection, leading to dacryocystocele formation. Most congenital dacryocystoceles will require surgical intervention.⁴

In dacryocystitis, patients often present with pain, tearing, redness, and swelling over the lacrimal sac (ie, the nasal aspect of the lower eyelid) as well as mucoid or purulent discharge when digital pressure is applied to the area.¹⁻³ This most commonly occurs in infants and in adults older than 40 years of age.¹ The etiology of dacryocystitis is well documented; the most common cause is nasolacrimal duct obstruction.¹⁻³ The duct functions to drain tears from the eye to the nasal cavity. When it is blocked, material builds up within the sac, which can lead to inflammation and infection.² The most common causative organisms are staphylococci, streptococci, and diptheroids.^{1,5} One study suggested a higher occurrence of methicillin-resistant *Staphylococcus aureus* in acute cases of dacryocystitis.⁵ Higher incidence of dacryocystitis has been reported in children born with craniofacial abnormalities and Down syndrome.⁶ It must be stressed that infantile dacryocystitis is a medical emergency. If the infection proceeds, it can cause serious complications such as orbital cellulitis, cutaneous fistula formation, septic shock, mass effects, optic neuropathy, and even blindness.^{1,7}

Dacryoadenitis is a similar sounding condition; however, it involves inflammation and infection of the lacrimal gland, located at the outer upper eyelid.¹ In dacryoadenitis, there is pain, redness, swelling, tearing, and discharge over the lacrimal gland (ie, the lateral one-third of the upper eyelid).¹ Other common signs are ipsilateral preauricular lymphadenopathy, fever, and an elevated white blood cell count. Dacryoadenitis most commonly occurs in the pediatric population, as well as in young adults.¹ Dacryoadenitis is most commonly due to inflammation, and occurs in conditions such as lymphoid proliferation, sarcoidosis, and orbital pseudotumour. Other causes are viral infections (eg, mumps, influenza, and herpes zoster) and, rarely, bacterial infections (eg, *S aureus*, *Neisseria gonorrhoeae*, or streptococci).¹

Management

It is important to know the cause of dacryocystitis in order for it to be properly treated. A thorough history followed by external and ocular examination should be

conducted. It is essential to note any decrease in extraocular movement and any signs of proptosis, as these are suggestive of orbital cellulitis, a serious ocular complication. If discharge is released upon digital palpation of the punctum, it should be swabbed and sent for Gram stain and blood agar culture (as well as chocolate agar in the pediatric population).¹ There is agreement in the literature that patients should immediately be started on systemic antibiotics, with further adjustments based on clinical response and culture or sensitivity results.^{1,2} The severity of the patient's symptoms, as well as patient age, dictates the choice of treatment.

The following describes the possible therapies for a bacterial or infectious (but currently unidentified) cause of dacryocystitis: In an afebrile child with a mild case, 20 to 40 mg/kg of oral amoxicillin-clavulanate taken daily in 3 divided doses will suffice. If the child is febrile and acutely ill, he or she should be hospitalized and treated with 50 to 100 mg/kg of intravenous cefuroxime taken daily in 3 divided doses.¹ In the adult population, an afebrile patient with a mild case should be given 500 mg of oral cephalexin every 6 hours, and a febrile, acutely ill patient should be hospitalized and given 1 mg of intravenous cefazolin every 8 hours. All antibiotics should be continued for a full 10- to 14-day course.¹ In addition to systemic therapy, patients can also use topical antibiotic eye drops, take over-the-counter analgesics to control pain, and apply warm compresses over the affected area. Patients should be clinically reassessed on a daily basis until their condition improves. Needle drainage of the abscess can be beneficial if the infection has come to a head.¹ Once the initial infection has subsided, nasolacrimal duct probing is recommended to ensure that the condition does not recur. In this scenario, the patient is placed under general anesthesia or in restraints, and a probe is advanced into the nasolacrimal duct through the nose, which can be irrigated to test for patency. Care must be taken to advance the probe slowly to avoid complications, such as creating a "false passage."⁷

In cases of dacryocystocele formation due to congenital nasolacrimal duct obstruction, the rule is first to treat the infection and afterward to consider surgical correction. If the condition is serious, or bilateral dacryocystoceles are obstructing ventilation, referral in the early neonatal period is necessary to prevent complications and infection.⁴ Surgical options comprise recanalization of the nasolacrimal duct and external dacryocystorhinostomy, with success rates of 93% and 91%, respectively.⁸


Dacryoadenitis is also empirically treated with systemic antibiotics until the exact cause is identified. Inflammatory causes are treated with 80 to 100 mg of oral prednisone once daily, along with an antiulcer medication, such as 150 mg of oral ranitidine twice daily. Viral causes are treated for symptom relief, including

cool compresses over the affected area and over-the-counter analgesics. Lastly, bacterial causes are treated with systemic antibiotics based on the age of the patient and severity of the symptoms, with the same medications and regimens as listed for dacryocystitis.¹

Our patient was treated with oral amoxicillin-clavulanate (20 to 40 mg/kg/d in 3 divided doses). His mother was advised to apply a warm compress to the affected area and to give the child some children's acetaminophen, as required, for symptom relief. She was also advised to call if the boy's symptoms were worsening or if she had any further concerns. The patient was seen in the office for the next 2 days, and because he was improving steadily, the antibiotics were continued for their full course.

Conclusion

Dacryocystitis and dacryoadenitis are common infections and inflammations that can affect the pediatric as well as adult population. A thorough history and ocular physical examination are essential to diagnosing these conditions. Medical intervention is

often required. Empiric treatment should be started immediately, but can later be modified based on etiology and patient response. 

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Competing interests

None declared

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