

# CASE REPORT

## PYOCELE OF LACRIMAL SAC – UNUSUAL PRESENTATION

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### HOW TO CITE THIS ARTICLE:

Harish M. O, Anil Doddamani, Faiz Muqtadir, Mallikarjunswamy. "Pyocele of Lacrimal SAC – Unusual Presentation". Journal of Evidence Based Medicine and Healthcare; Volume 1, Issue 7, September 2014; Page: 547-551.

**ABSTRACT: PURPOSE:** To report an unusual case of right lacrimal pyocele. Lacrimal sac pyocele or a mucocele presents with symptoms like epiphora, associated recurrent conjunctivitis and swelling at the inner canthus with mild erythema of the overlying skin. On regurgitation a frank purulent discharge flows from the lower punctum. If openings of canaliculi are blocked at this stage the so called encysted pyocele results.<sup>3</sup> our case differs from the usual in that in spite of a presence of a pyocele there is no external or internal swelling and no associated symptoms other than excessive watering of eye.

**KEYWORDS:** Dacryocystitis, pyocele, dacryocystorhinostomy, nasolacrimal duct.

**INTRODUCTION:** Dacryocystitis is an inflammation of the lacrimal sac. It can be congenital or acquired. Acquired dacryocystitis can be acute or chronic depending on the etiology and presentation. Chronic dacryocystitis is frequently caused by nasolacrimal duct obstruction or infection.<sup>1</sup> Nasolacrimal duct obstruction is due to many of the nasal pathology like hypertrophied inferior turbinate, deviated nasal septum, allergic rhinitis, chronic sinusitis, trauma etc., which causes epiphora and may lead to complications.<sup>2</sup> Chronic stagnation of tears within the lacrimal sac leads to formation of mucocele which upon pyogenic infection turns into pyocele.

**CASE REPORT:** A 66 year old female presented to our hospital with complaints of right sided nose block and excessive watering of right eye since 6 months. She gives a clear history that it initially started with mild itching and redness in the right eye associated with excessive watering. She says that on putting pressure on inner side of the eye she used to get sticky pus like material. She consulted an ophthalmologist and was given medications, which upon taking reduced the itching and redness but excessive watering persisted. She used to clear off the sticky pus which collected at the inner side of her eyes by putting pressure. Over a course of time she was not able to express out the sticky pus and excessive watering continued. She was then advised surgery for which she came to our centre.



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On examination right lacrimal sac area was hyperpigmented. On palpation there was no regurgitation of fluid from the lacrimal punctum. Lacrimal irrigation showed regurgitation from both upper and lower punctum.<sup>4,5</sup> Lacrimal probing gave a hard stop, suggesting that the common canaliculi is patent. Diagnostic nasal endoscopy did not reveal anything except for the mild deviated nasal septum to right side. There was no discharge in the inferior meatus or at the opening of the nasolacrimal duct. Computed tomographic imaging showed a cystic lesion of 1.5x2 cm in the region of lacrimal fossa and bilateral concha bullosa with mild deviated nasal septum to right side.<sup>6</sup>

She was taken up for an endoscopic dacryocystorhinostomy under general anesthesia after medical fitness.<sup>7</sup> Nasal decongestion was achieved by placing a ribbon gauze soaked in 4% xylocaine in 1:1000 adrenaline and infiltrating the mucosa with xylocaine in 1:2 lakh adrenaline. Septoplasty was not performed as there was enough space for endoscopic surgery. Firstly concha bullosa on the right side was excised. A curvilinear incision was then made starting just above the axilla of the middle turbinate going anteriorly and inferiorly up to the inferior turbinate. The muco-periosteal flap was elevated posteriorly exposing the frontal process of maxilla and the lacrimal bone. Thin lacrimal bone was gently removed with freer's elevator. Frontal process of maxilla was then removed with the help of kerrison's punch to expose the whole of lacrimal sac which was bulging and cystic. Upon giving incision to the sac, the collected pus was drained and the incision extended from superior to inferior pole. The medial wall of the sac was excised with trucut forceps and microscissors. Syringing of the upper and lower punctum was done to clear all the pus and obtain free flowing pathway. Gelfoam soaked in the antibiotic-steroid drops was placed in the remnant sac and the nose was packed.

Nasal pack was removed on the first post-operative day and lacrimal irrigation was done. She was started on Antibiotic – steroid eye drops, Normal saline nasal douches and steroid (Fluticasone) nasal spray for 1 month. Patient was reviewed in the out-patient department twice at 1 week intervals for lacrimal irrigation and confirming the patency.

**DISCUSSION:** The lacrimal excretory system is prone to infection and inflammation for various reasons. This mucous membrane-lined tract is contiguous with two surfaces (conjunctival and nasal mucosal) that are normally colonized with bacteria.<sup>8</sup> The functional purpose of the lacrimal excretory system is to drain tears from the eye into the nasal cavity. Stagnation of tears in a pathologically closed lacrimal drainage system can result in dacryocystitis.

Acquired dacryocystitis can be acute or chronic. Acute dacryocystitis is heralded by the sudden onset of pain and redness in the medial canthal region. An insidious onset of epiphora is characteristic of chronic inflammation or infection of the lacrimal sac. Chronic dacryocystitis is rarely associated with severe morbidity unless caused by a systemic disease.<sup>9</sup> The primary morbidity is associated with chronic tearing, mattering, and conjunctival inflammation and infection.<sup>10</sup>

Obstruction to the drainage of tears through lacrimal system can be anywhere starting from the upper and lower punctum to the nasolacrimal duct guarded by Hasner's valve. The obstruction can be either anatomical or functional.<sup>11</sup> Anatomic obstructions are more common than functional obstructions, the approximate rates being 70% and 30% respectively. Anatomic

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obstructions are complete blockages most commonly noted between the lacrimal sac and nasal cavity. Functional obstructions are caused by either critical narrowing within the lacrimal system that delay normal lacrimal flow or a failure of the proximal pumping mechanism. Both anatomic and functional obstructions may be managed with endoscopic DCR; however, surgery of anatomic obstructions is noted to have superior outcome.<sup>12</sup>

Obstruction to the nasolacrimal duct causes stagnation of tears in the lacrimal sac leading to epiphora. This stagnant tear will invariably get secondary bacterial infection leading to acute dacryocystitis which may progress on to become chronic dacryocystitis if untreated. Clinical picture of chronic dacryocystitis may be divided into four stages.<sup>13</sup>

**Stage 1:** Chronic catarrhal dacryocystitis. It is characterized by mild inflammation of the lacrimal sac associated with blockage of NLD. In this stage the only symptom is watering eye and sometimes mild redness in the inner canthus. On syringing the lacrimal sac, either clear fluid or few fibrinous mucoid flakes regurgitate. Dacryocystography reveals block in NLD, a normal-sized lacrimal sac with healthy mucosa.<sup>14,15</sup>

**Stage 2:** Lacrimal mucocele. It follows chronic stagnation causing distension of lacrimal sac. It is characterized by constant epiphora associated with a swelling just below the inner canthus. Milky or gelatinous mucoid fluid regurgitates from the lower punctum on pressing the swelling. Dacryocystography at this stage reveals a distended sac with blockage somewhere in the NLD<sup>14, 15</sup> sometimes due to continued chronic infection, opening of both the canaliculi into the sac are blocked and a large fluctuant swelling is seen at the inner canthus with a negative regurgitation test. This is called encysted mucocele.

**Stage 3:** Chronic suppurative dacryocystitis. Due to pyogenic infections, the mucoid discharge becomes purulent, converting the mucocele into 'pyocele'. The condition is characterized by epiphora, associated recurrent conjunctivitis and swelling at the inner canthus with mild erythema of the overlying skin. On regurgitation a frank purulent discharge flows from the lower punctum. If openings of canaliculi are blocked at this stage the so called encysted pyocele results.

**Stage 4:** Chronic fibrotic sac. Low grade repeated infections for a prolonged period ultimately result in a small fibrotic sac due to thickening of mucosa, which is often associated with persistent epiphora and discharge. Dacryocystography at this stage reveals a very small sac with irregular folds in the mucosa.<sup>14, 15</sup>

Our case belongs to stage three, which is chronic suppurative dacryocystitis with pyocele of lacrimal sac. Our case differs from the usual case in that; there is absence of recurrent conjunctivitis and swelling which is the hallmark of a pyocele of lacrimal sac. External dacryocystorhinostomy (DCR) is a well-known and standardized surgical procedure, usually performed by the ophthalmologists. Pyocele is a relative contraindication for external DCR because the skin incision could heal poorly and the chances of fistula formation.<sup>16</sup>

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**CONCLUSION:** Lacrimal sac pyocele is a complication of chronic dacryocystitis. It may be asymptomatic without swelling, as it was in our case. All patients need to be evaluated with CT scan to identify the presence of pyocele. In case of pyocele, endoscopic endonasal approach of DCR is better than external DCR to prevent the chances of fistula formation and poor healing.

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Date of Submission: 11/08/2014.  
Date of Peer Review: 12/08/2014.  
Date of Acceptance: 21/08/2014.  
Date of Publishing: 02/09/2014.