Spontaneous passage of a dacryolith

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Abstract
A patient had four episodes of recurrent dacryolith over 14 years. Each attack of acutely painful dacryocystitis was terminated by spontaneous passage of the dacryolith. Biochemical and dacryocystographic evidence help to explain the pathogenesis of the condition.

A 38-year-old woman presented with right-sided epiphora and increasing medial canthus pain of 12 days' duration, unresponsive to topical antibiotics prescribed by her general practitioner. Ocular and medial canthal inflammation were absent. Syringing the lower lacrimal canaliculus resulted in regurgitation of clear fluid via the upper punctum, no fluid reaching the nose. Antibiotic drops and heat applications were advised for presumed low-grade dacryocystitis.

Over the next 24 hours an excessively tender medial canthal swelling appeared. This resolved four days later with passage of a hard, dark green, club-shaped dacryolith (Fig 1) into the nasopharynx, which she then spat out. Within two hours pain and swelling subsided and epiphora ceased.

Follow up of the patient 18 months later showed minor watering but maintained patency of the lacrimal passages. Three previous episodes (over 14 years) of similarly treated painful right-sided epiphora were reported. During the 18–24 months before each episode the patient noted slight but gradually increasing unilateral painless epiphora. Each acute attack lasted 7–12 days, pain and epiphora resolving completely and suddenly after she sensed foreign material in the throat. Only eight years previously had the passing material been retrieved, identical in size, shape, and colour to the stone presented on this occasion. She had not previously been examined after an attack. There was no history of abnormal tearing in childhood.

INVESTIGATION
Qualitative biochemical analysis of the dacryolith revealed urate, phosphate, and fibrin. No micro-organisms were isolated from the conjunctiva or nose; coagulase-negative staphylococci were grown from the dacryolith. Digital subtraction dacryocystography showed a somewhat dilated lower half of the lacrimal sac and bilateral nasolacrimal duct patency (Fig 2).

Discussion
Phosphate is principally an intracellular ion. Urate is derived from cell nuclear purine degradation. This suggests dacryolith formation by slow aggregation of cellular debris over an extended period. Antikeratin antibodies found in a dacryolith1 support this idea. The stone may have formed in eddy currents in the dilated sac: alterations in channel wall, flow, or fluid explain calcium formation in general. Stone growth (in this case, over two years) causes relative lacrimal passage obstruction and gradually worsening epiphora. Inflammation (hence fibrin) may be due to stagnant infection or irritation by the stone. Clinical dacryocystitis with patency of the nasolacrimal duct also occurs with lacrimal sac diverticuli.2 Fragmentation3 and immediate displacement4 of adrenaline dacryoliths by irrigation are described.

At present the patient has insufficient symptoms to warrant further investigation. However, future obstruction is likely, either due to non-passage of recurrent dacryolith or repeated inflammation with resultant fibrotic stenosis. Dacryocystorhinostomy may then be indicated.

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