

Parotid duct stone – removal by a dormia basket

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Abstract

Removal of a parotid duct calculus using a Dormia basket is described and the literature reviewed. To our knowledge, this procedure has not previously been reported.

Key words: Parotid gland; Calculi

Introduction

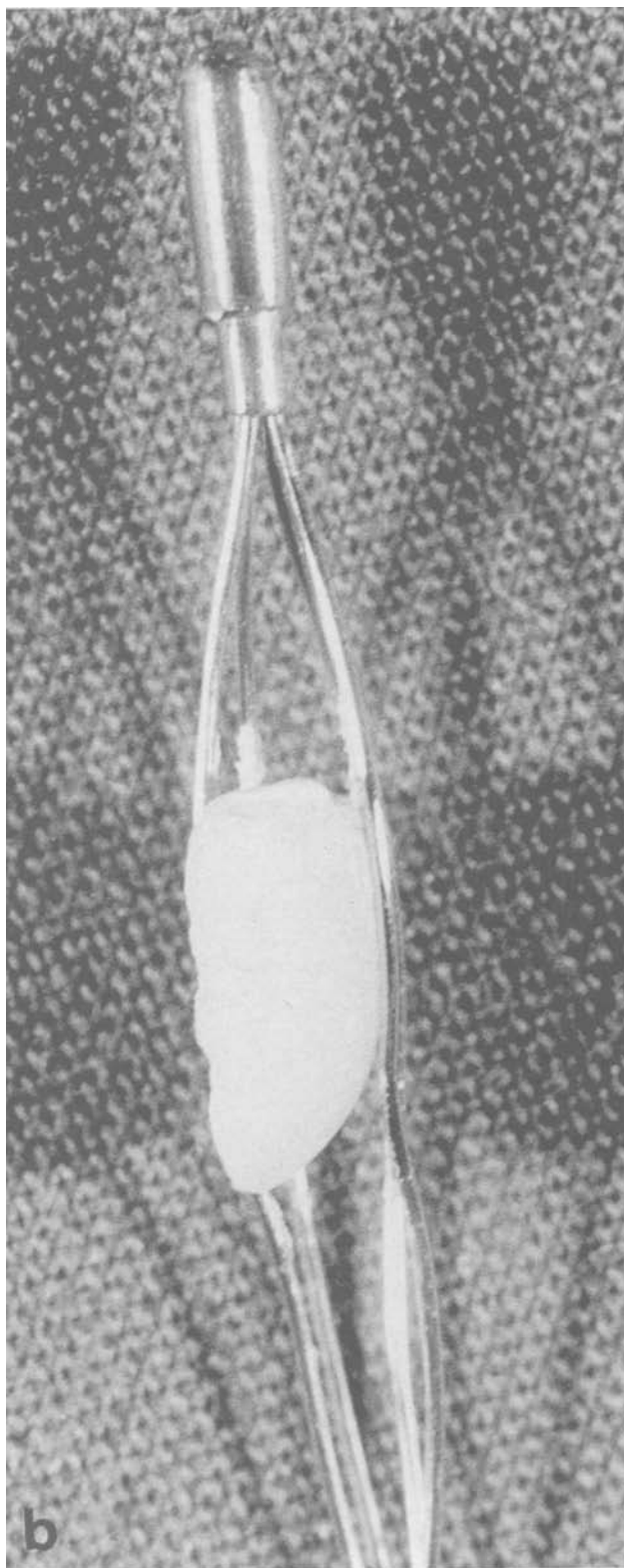
The occurrence of parotid calculi is relatively rare (10–12 per cent of all sialoliths with an even rarer incidence of extra-glandular calculi (40 per cent of all parotid stones) as reported by Yoel (1975). Sialoliths located in the duct are usually elongated, while those situated in the substance of the gland are round or oval (Roberg, 1904; Rauch and Gorlin, 1970).

Various forms of treatment, both surgical and nonsurgical have been described in the literature for parotid duct stone removal. These include: dilatation of the duct and the removal of the stone using an angioplasty balloon (Guest *et al.*, 1992); intraoral carbon dioxide laser (Lustman *et al.*, 1990); extraoral parotid sialolithotomy (Baurmash and Dechiara, 1991); parotidectomy (Seldin *et al.*, 1953; Epker, 1972); and, more



FIG. 1a and b
Dormia basket with parotid stone in place.

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recently, extracorporeal piezoelectric shock wave lithotripsy (Iro *et al.*, 1992 a).

We describe, yet another method for the removal of parotid duct calculi using a Dormia basket.

Case report

A 26-year-old female presented complaining of recurrent right cheek swelling of three years duration. The swelling appeared only at meal times and was more marked and painful

with the ingestion of citrus fruits. It subsided within a few minutes upon gentle massage by the patient.

On examination, the patient's right parotid gland was readily palpated, with diffuse oedema of the right cheek being observed. Intraorally, drainage of saliva from the duct was seen when massaging the gland.

Haematological investigations, including serum uric acid and serum calcium levels were within normal limits. A plain soft tissue periapical radiograph failed to reveal the presence of a stone. A parotid sialogram was carried out which revealed a duct obstruction about 2 cm from its opening. A CT scan carried out a week later showed a radiopaque calculus 2.5 cm from the duct orifice.

In the past, the patient had been offered extraoral surgery for the removal of the stone but this was unacceptable to her. We suggested that we would attempt the removal through the duct orifice using a Dormia basket, failing which we would resort to an external incision over the duct.

The procedure was performed under general anaesthesia. The parotid duct orifice was identified and initially dilated with lacrimal dilators. A metallic Dormia basket (size 3) was then introduced into the duct until it encountered the anterior border of the masseter muscle. The instrument was manipulated further into the duct by gentle twisting movements, until it lay on the lateral surface of the muscle impacted against the stone, the position having been confirmed by external palpation. The duct was now incised intraorally, over the metal sheath of the Dormia basket up to the anterior border of the masseter muscle. The Dormia basket was opened and the stone together with the Dormia basket removed (Figure 1a and b). The stone measured 4 × 2 mm and was sent for biochemical analysis which showed calcium and phosphate.

Post-operatively, the patient had diffuse oedema of the cheek for 48 hours, which responded readily to local ice application and intramuscular dexamethasone injection administered in a dose of 0.5 mg/kg/day in divided doses.

Discussion

As mentioned earlier, parotid duct calculi are relatively rare. Diagnosis of sialolithiasis is mainly by a history of salivary gland swelling with pain at meal times. This is explained by an elevated intraglandular pressure resulting from an increased salivary secretion in an obstructed gland (Levi *et al.*, 1962). If bacterial infection supervenes, painful sialadenitis with abscess formation can result.

Radiological investigations for localization of a stone in the parotid gland include: plain periapical films, sialograms, ultrasound and computerized tomography (CT). A soft tissue periapical view of the cheek using a periapical film followed by a standard postero-anterior film should confirm the presence of a radiopaque stone in the duct or in the superficial lobe of the parotid gland. The ramus of the mandible may sometimes mask the presence of a stone. A parotid sialogram may reveal the site of the obstruction as a filling defect with proximal dilation of the ducts. A high rate of detection using an ultrasound transducer frequency of 7–10 MHz is possible but stones less than 2 mm in diameter are difficult to detect (Wittich *et al.*, 1985). In our experience, CT scans have a greater accuracy than plain X-rays.

Parotid duct stones may be removed by an extraoral or intraoral approach. Extraoral approaches include a small horizontal incision over the duct after having accurately localized the stone, a parotidectomy-like preauricular incision with anterior retraction of a large skin flap followed by stone removal from the exposed duct and surgical extirpation of the entire gland following the failure of conservative methods, (Kenefick, 1961).

An intraoral approach aims to deliver the stone either via the duct orifice, as by using a balloon angioplasty catheter or by incising the duct to facilitate the delivery of the stone, using a carbon dioxide laser. These appear to be ideal procedures, but are expensive and are not available at most centres.

The Dormia basket has been in use by urologists for removal of ureteric stones for some years. Kelly and Dick (1990) described its usage for the removal of a stone from Wharton's duct, but to our knowledge, the use of this instrument in parotid duct stone removal has not been reported before. In our case, we successfully delivered the stone, using the Dormia basket.

Shock wave lithotripsy of salivary gland stones, with the subsequent discharge of fragments through the duct orifice is an attractive but expensive proposition. Its use should be limited to those patients in whom incision or dilatation of the efferent duct is not expected to succeed (Iro *et al.*, 1992 b).

Conclusions

The use of a metallic Dormia basket for the removal of parotid duct stones would, thus, appear to be a compromise in terms of cost effectiveness, availability and minimal morbidity to the patient.

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