

Shock wave lithotripsy of a parotid duct calculus

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Abstract

Extracorporeal shock wave lithotripsy, a relatively new non-invasive method of treating salivary gland calculi, is rarely used in UK hospitals. We present a case of parotid duct calculus treated successfully by lithotripsy in a United Kingdom (UK) district General Hospital.

Key words: Lithotripsy; Salivary Gland Calculi

Introduction

Surgical excision of the affected salivary gland is often necessary for cases of sialolithiasis in which the calculus cannot be removed by intra-oral dilatation or incision of the duct.¹ This requires a general anaesthetic with the risk of cranial nerve injuries and the disadvantage of a scar. This is, of course, more of a problem with the parotid gland because of the risk of injury to the facial nerve.

Extracorporeal shock wave lithotripsy is a relatively new non-invasive method of treating salivary gland calculi.^{2,3} The first documented case of the successful lithotripsy of a salivary gland stone in a patient was in 1989.⁴ Lithotripsy is used mainly in mainland Europe and North America from where most of the published work in the medical literature has come from.

There have been very few reports of the use of lithotripsy from hospitals in the UK. This case is presented to help increase the awareness of UK hospital doctors to extracorporeal shock wave lithotripsy as a safe, effective, non-invasive alternative treatment option for salivary gland calculi.

Case report

A 55-year-old woman presented with a five-year history of recurrent swelling of the left parotid gland. The swelling was worse with eating when associated discomfort was noted. Examination revealed a non-tender diffuse swelling of the left parotid gland. Intra-oral examination and bimanual palpation did not reveal any calculus or discharge from the parotid duct.

Plain X-ray did not show any abnormality. A parotid sialogram (Figure 1) revealed a calculus in the periacinar part of the dilated parotid duct which was confirmed on ultrasound (US) imaging. Extracorporeal shock wave lithotripsy was carried out on three occasions at intervals of about six weeks. Following each procedure the patient passed out grit, sludge and small fragments of the calculus spontaneously (Figure 2). Each lithotripsy was preceded by ultrasound that showed the size of the calculus to be smaller than before. After the third procedure she was symptom-free with free flow of saliva. The patient was still asymptomatic at 12 months' follow-up.



FIG. 1
Parotid sialogram showing a calculus in the periacinar part of the dilated parotid duct.

Discussion

Sialolithiasis commonly affects the submandibular gland in about 80 per cent of cases. Recurrent, non-suppurative sialadenitis may be helped by hydration, massage and secretagogues. The calculus may sometimes be expressed manually. In general an intraoral incision made over the

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FIG. 2

Intra-oral view of Stenson's duct showing an extruding calculus after shock wave lithotripsy.

calculus facilitates its removal. Stricture formation is a complication. It may be necessary to remove the whole gland if the calculi are recurrent and symptomatic or the above measures have been unsuccessful.¹ There is the risk of injury to the surrounding cranial nerves, a need for general anaesthesia as well as scar formation. The use of extracorporeal shock wave lithotripsy as a treatment for urolithiasis has been available since 1980.⁵ After the first documented case of lithotripsy of a salivary gland calculus in a patient was presented in 1989,⁴ several workers have used this method with good results.^{3,6} The new non-surgical lithotripsy for removal of salivary gland stones can be performed by means of piezoelectric,^{3,4} electromagnetic wave,^{7,8} electrohydraulic⁹ or laser techniques.^{10,11} More recently some centres are using a fluoroscopically-guided basket retrieval of salivary calculi to complement extracorporeal shock wave lithotripsy.¹²

Lithotripsy reduces the calculus to small fragments that can be flushed out with spontaneous salivation or following the use of a secretagogue. US monitoring is needed during lithotripsy to adjust the energy waves directed to the stone, and observe fragmentation of the stone as well as avoiding injury to the adjacent anatomical structures. The treatment does not require anaesthesia, sedation or analgesic and is an out-patient procedure done in the X-ray department. The shockwave treatment session is usually one but a maximum of three may be required in some patients.³ Each treatment session lasts an average of 30 minutes.⁶

A successful treatment outcome or symptom relief is best achieved in patients with parotid stones and intraductal submandibular stones with a diameter less than 7 mm.⁶ Symptom relief occurs not only in patients with complete stone clearance but also in most patients with residual fragments.^{6,13-15}

In a study looking at the results of extracorporeal shock wave lithotripsy in 1998, the mean follow-up period of 48 months (range six to 71 months) showed 76 per cent of patients to be symptom free.¹⁵ Of these, 50 per cent had complete clearance of their calculi while the remaining 26 per cent had residual asymptomatic calculi fragments. A further 17 per cent of patients with residual calculi fragments noticed marked improvement after further extracorporeal shock wave lithotripsy treatment.

Minor side-effects of mild pain, gland swelling and cutaneous petechiae that did not need treatment were reported in 24 per cent of the cases treated with lithotripsy

by Ottaviani.¹³ Minor cutaneous petechial haemorrhage that was no longer visible after four days has also been reported.³

Extracorporeal shock wave lithotripsy for salivary gland calculi is an efficient and minimally invasive technique that can be done successfully as an out-patient procedure with careful patient selection.

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