

Multiple parotid calculi: a rare case presentation

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Objective

The aim of this study was to present a rare case of multiple parotid calculi (intraglandular and intraductal).

Case presentation

Here, we report the case of a 35-year-old man presenting with recurrent painful swelling over the left parotid region.

Intervention

Total conservative parotidectomy was performed.

Results

The patient was completely symptom free postoperatively and there was no complication.

Conclusion

Management of multiple intraparenchymal and intraductal parotid calculi is not straightforward. Parotidectomy may be required in some selected cases.

Keywords:

intraparenchymal, multiple parotid calculi, parotidectomy

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Introduction

Sialolithiasis is the most common benign disease of the salivary glands. It accounts for about 50% of diseases of the large salivary glands and thus the most common cause of acute and chronic infections. About 80–90% of sialoliths develop in the submandibular gland or its duct and 6–10% in the parotid gland. Sublingual or minor salivary glands are rarely affected [1]. They develop from the mineralization of nucleus debris consisting of bacterial colonies, shed ductal epithelial cells and cell remnants, mucus plugs, and foreign bodies [2]. Sialoliths are composed of both organic and inorganic matters. Inorganic matters consist mainly of calcium phosphate with smaller amounts of carbonates in the form of hydroxyapatite and smaller amounts of magnesium, potassium, and ammonia. The organic material is composed of various carbohydrates and amino acids [3]. Sialoliths are typically more common in middle-aged men, but some studies suggest a male-to-female ratio of 1:1. The most frequent clinical presentation is swelling and pain in the area of the affected gland [4,5]. Parotid sialolithiasis usually involves one gland at a time, and the stones are usually solitary and often involves the ductal system of the gland. Presence of multiple stones in the parenchyma of the gland is a rare finding [6].

A case report

A 35-year-old male patient presented to the ENT-OPD, NRSMC&H with intermittent painful swelling over his left parotid region for the last 2 years, which responded occasionally to medications.

On examination, the swelling was tender, globular in shape, ~3 cm in diameter, with well-defined margins, hard in consistency, and had an irregular surface. The swelling was mobile over underlying structures, even after clenching his teeth. The skin over the swelling was normal without any sinus or fistula. Bimanual palpation, too, revealed a hard mass. Rest of the clinical examinations of all other salivary glands were within normal limits. Intraoral examination too did not reveal any significant abnormality in the region of the parotid duct opening. Left facial nerve function was normal. No cervical lymph node was palpable.

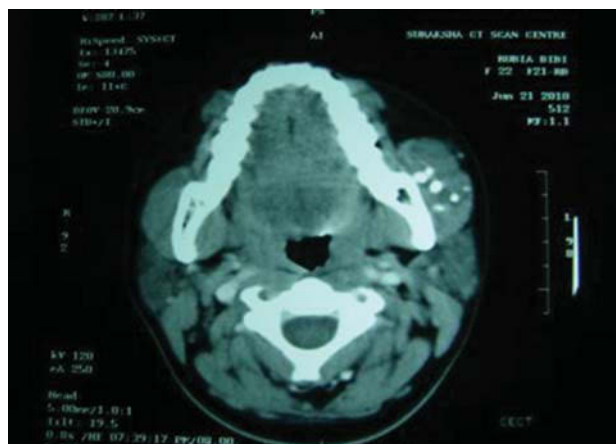
Routine hematological and biochemical parameters were within normal limits. Ultrasonography was suggestive of multiple echogenic shadows in the left parotid region. Computed tomography scan revealed multiple calculi involving the left parotid duct and the substance of the parotid gland (Figs 1 and 2).

Operative intervention

A total conservative parotidectomy of the left side along with removal of the calculi from the parotid duct under general anesthesia was planned. After proper consent, antiseptic dressing and draping, the conventional modified Blair incision was made for

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Figure 1



Computed tomography (CT) scan showing multiple parotid calculi in both lobes.

parotidectomy. Gentle dissection was then made to delineate the superficial lobe, the branches of facial nerve, and the parotid duct area. Superficial lobe of the parotid gland was then removed taking utmost care not to injure the facial nerve. The deep lobe of the parotid was dissected out through the branches of facial nerve without injuring it. The incision was then closed using 3'0 polyglycolic acid (vicryl) and 3'0 monofilament silk after placing corrugated drain. The above-mentioned calculi were chalky white in color with hard but brittle consistency. The postoperative recovery was uneventful, with no clinical features of facial nerve palsy even after 18 months of follow-up.

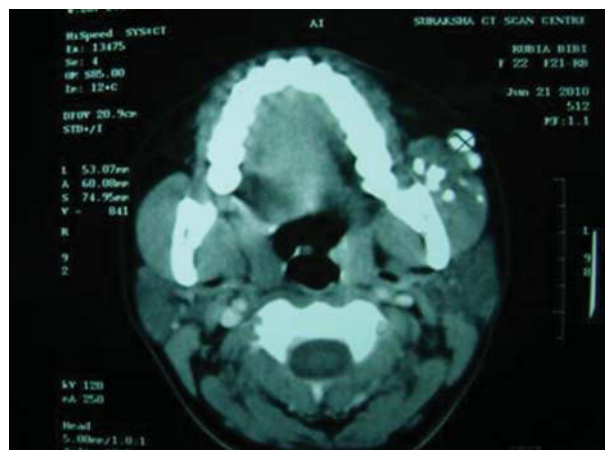
Discussion

Calculi arising from the submandibular duct and gland are well established and quite easy to diagnose, but parotid calculi are quite unheard of in clinical practice.

The pathophysiology of the submandibular duct calculi may not always be applicable in case of parotid duct calculi. The secretion from the parotid duct is mainly serous and the gland drains along the gravity, which is in sharp contrast to the submandibular gland, which secretes mainly mucinous secretion against the gravity. This might explain the common occurrence of the submandibular duct calculi in contrast to the rarity of the parotid duct calculi [7].

Parotid duct calculi most often lodge in the masseteric portion of the parotid duct. A review of 1200 cases of major salivary gland calculi was carried out in 1986, which was suggestive of less than 10% incidence of parotid calculi. The parenchymal

Figure 2



Computed tomography (CT) scan showing multiple intraparenchymal parotid calculi.

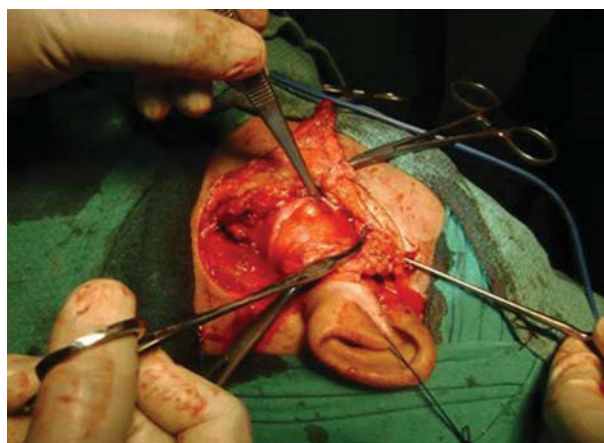
incidence was even rarer to the ductal involvement in the ratio of 1 : 35 [8].

Various investigations have been mentioned in the literature to diagnose parotid calculi. Patey suggested regular use of intraoral films in all cases of chronic parotitis to exclude underlying calculi.

Parotid sialography is another reliable method to diagnose calculous disease. It not only demonstrates the calculi, but will also demonstrate the radio-opaque microcalculi, in addition to the secondary dilatation and constriction of the duct system [9].

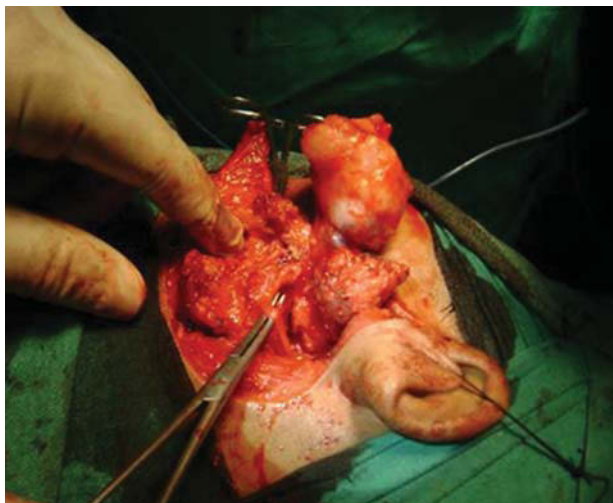
In present day scenario, ultrasonography is in fact the first-line and the most convenient method to diagnose the disease. The use of ultrasonography for the diagnosis of parotid calculi was established in 1978. It is noninvasive and does not carry the harmful effects of

Figure 3



Superficial lobe of parotid gland.

Figure 4



Superficial parotidectomy and branch of facial nerve.

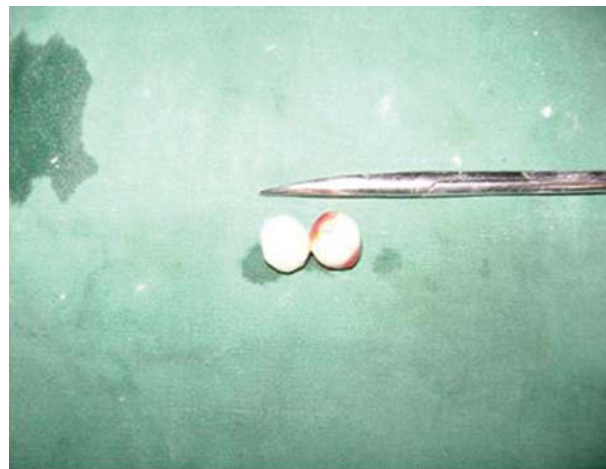
ionizing radiation. Further imaging using computed tomography scan may be carried out to have a better anatomical location of the calculi [10].

The ideal treatment of parotid calculi is surgical [11]. If the calculus is confined to the intraoral part of the parotid duct close to the duct orifice, stomatoplasty is more viable. In those cases in which the calculi is located distal to the duct orifice and intraoral approach is difficult, preauricular incision may be made to shell out the stone [12]. The recent treatments of the parotid calculi need a brief mention. With the technological advancement, ultrasound-guided piezoelectric extracorporeal shockwave lithotripsy has been used for the treatment of parotid calculi with good results [13,14]. The use of sialoendoscope for extraction of calculi from the parotid duct, has been popularized. If, however, there is involvement of the parotid gland in the form of parenchymal calculi or recurrent parotitis, parotidectomy is the treatment of choice, which was performed in our case. Although there are some complications associated with parotidectomy, such as facial nerve palsy, Frey syndrome, or gustatory sweating, the excellent surgical outcomes overweigh its potential complications in competent hands (Figs 3–5).

Conclusion

Although different noninvasive or minimally invasive options are available for the management of sialolithiasis, in this case of multiple parotid gland, both intraglandular and intraductal, total conservative parotidectomy is the treatment of choice. It gives better and permanent result as compared with other procedures, and it is cost-effective. Although there are some complications associated with parotidectomy, the excellent surgical

Figure 5



Parotid calculi.

outcomes overweigh its potential complications in competent hands.

Conflicts of interest

There are no conflicts of interest.

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