



## RESEARCH ARTICLE

# Parotid sialolithiasis – a case report with emphasis on diagnostic aids

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## ABSTRACT

Sialoliths are calcified organic matter that forms within the secretory system of the major salivary glands. Salivary gland calculi account for the most common disease of the salivary glands, and may range from tiny particles to several centimetres in length. It is the most common cause of acute and chronic infections. While the majorities of salivary stones are asymptomatic or cause minimal discomfort, larger stones may interfere with the flow of saliva and cause pain and swelling. We are presenting the case of 52 years old male patient complains of swelling on the right side of the face since 2 months. The majority of sialoliths occur in the submandibular gland or its duct; here we are presenting a case of parotid glands with emphasis on diagnostic aids.

## INTRODUCTION

When the deposition of calcium salts, primarily calcium phosphate occurs in an unorganized manner in soft tissue, it is referred to as heterotropic calcification. Heterotropic calcification which results from deposition of calcium in normal tissue despite normal serum calcium and phosphate levels is known as idiopathic calcification. Sialoliths belongs to the category of idiopathic calcification.<sup>1,2</sup> Mechanical, inflammatory, chemical, anatomical, neurogenic, infectious, strange bodies, etc. are the different aetiological hypothesis have been put about

salivary calculi. It seems to be combination of a variety of these factors usually determines the precipitation of tricalcic phosphate, which, once crystallized into hydroxyapatite becomes the initial focus.<sup>3,4</sup>

## CASE REPORT

A 52 years old male patient reported to the department with medical referral for dental assessment for swelling in right side of face. Patient noticed it 2 months back, was not associated with pain except while eating. History of present illness revealed increase in

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size of swelling while eating. No history of metallic taste or dry mouth. Patient used to chew gutka 2 to 3 times daily from last 20 years.

A single diffuse swelling was present on right side of face extending from medial canthus of eye to inferior border of mandible and from tragus of ear to zygomatic complex area. Overlying skin was normal. Swelling was having ill-defined edges (figure-1) and right parotid opening was inflamed and painful, but no pus discharge was noticed.

On palpation all relevant inspectory finding were confirmed. There was no local rise in temperature was non-tender and firm in consistency on palpation. Intraorally parotid duct opening was inflamed and painful. Based on clinical finding provisional diagnosis of parotitis of right side was made. Salivary flow was decreased on right side of parotid as compared to left side. OPG was taken and revealed a round radiopacity on right side behind the right angle of mandible suggestive of sialolithiasis. PA view was taken and revealed a round radiopacity on right side of parotid gland suggestive

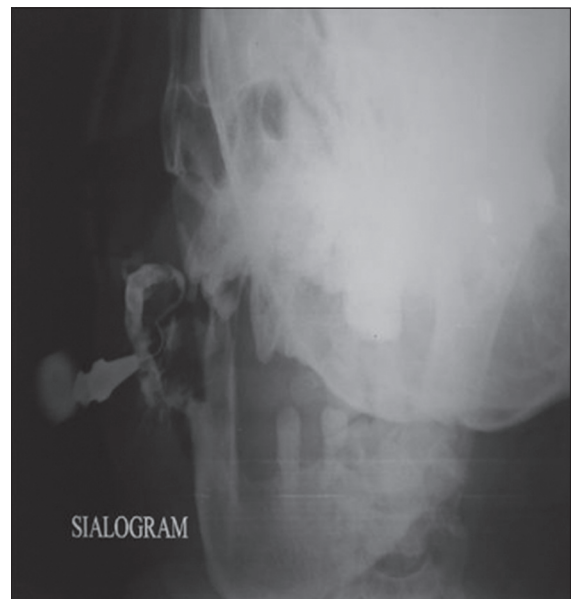


**Figure 1.** Swelling on the right side of the face.

of sialolithiasis (figure-2). Sialography of right parotid was done for precise location of sialolith and revealed dilated irregular tortuous right parotid duct with filling defects suggestive of calculi (figure-3).



**Figure 2.** PA view reveals the round radiopacity on right side of parotid.



**Figure 3.** Sialography of right parotid revealed dilated irregular tortuous right parotid duct with filling defects suggestive of calculi.

CT scan of right parotid was done and revealed calculus measuring 7mm noted in the proximal parotid duct. Contrast filled parotid duct is dilated and tortuous distal to the calculus. Another calculus measuring 9mm noted in the distal parotid duct within the gland (figure-4&5). Final diagnosis of parotitis due to sialolithiasis of right side was made.



**Figure 4.** Contrast CT showing the calculi.



**Figure 5.** Contrast CT showing the calculi.

Antibiotics was prescribed and surgical excision of the stone was advised and referred to department of oral surgery for the same.

## DISCUSSION

Sialolithiasis is common disorder affecting salivary glands. It affects 12 in 1000 of the human population.<sup>1,5</sup> Males are more commonly affected as compared to females with a ratio of 2:1.<sup>1,6</sup> Major salivary glands are commonly affected includes 80% submandibular gland or its duct, 6% parotid gland and 2% in sublingual or minor salivary glands.<sup>1,7</sup>

As already discussed there are different etiological hypothesis for the formation of sialolithiasis. In the literature we found two phases for the formation of sialoliths, first a central core and layered periphery is the second one.<sup>1,8</sup> Central core is formed by salts due to precipitation and periphery is formed of organic and inorganic material.<sup>1,9</sup>

Sialoliths usually encountered in middle aged persons with slight predilection for men. Clinical features include moderately severe pain. The occlusion of the duct prevents the free flow of saliva and this stagnation or accumulation of saliva, when under pressure, produce pain. Patient also complains of intermittent transient swelling during meals, which resolves after meals. As the calculus itself rarely blocks a duct completely, the swelling subsides as salivary demand diminishes and as saliva seeps pass the partial obstruction. It may be associated with fever and malaise. Pus may exude from the duct orifice in some cases. Soft tissue surrounding the duct shows a severe inflammatory reaction, which may appear as swelling, redness and tenderness. Stones in the more peripheral portion of the duct may often be palpated, if they are of sufficient size. Sometime, overlying mucosa may ulcerate over the stone

allowing the calculus to extend into the oral floor. No or very little saliva is seen to be coming out through the duct orifice. The involved duct may contain a single stone or multiple stones. Upon excision and gross examination, they appear yellow in color.<sup>1,6,9</sup>

Careful history and examination are important in the diagnosis of sialolithiasis. Bimanual palpation of the floor of the mouth, in a posterior to anterior direction, may reveal a palpable stone in majority of the cases of submandibular calculi. For parotid stones, careful intraoral palpation around Stenson's duct orifice usually reveals a stone. Deeper parotid stones are often not palpable. Imaging modalities, both conventional and advanced are very useful in diagnosing sialolithiasis. Ultrasonography is good diagnostic tool to reveals ductal and mineralized stones with an accuracy of 99%.<sup>3,10</sup> Trans-occlusal radiography is a useful in submandibular calculi. For parotid gland, periapical view in the buccal vestibule (reduce the exposure to avoid burnout of sialoliths) is most commonly used. Sialography is indicated when sialoliths are radiolucent. The film usually shows contrast medium present behind the stone. They are radiopaque, so that even very small ones are visible in well made radiograph. Scintigraphy could be performed in the event of a suspected sialolithiasis, when sialography is not indicated and in patients with no permeable glandular ducts. Advanced techniques includes computerized tomography, nuclear magnetic resonance, cone beam CT becomes the choice of the examination to detect gland calculi, because these are non invasive. Sialendocopy is a new diagnostic aid which overcomes the limitations of conventional radiology.<sup>3,11</sup>

Management includes manual manipulation of stone within duct. The patient must be well hydrated and apply moist warm heat and along with massage

of the gland. Sialogogues are useful to promote production of saliva and to flush the stone out of the duct. If the stone is palpated near the orifice of the duct it can be removed by an incision made directly over it through the mucus membrane of the mouth. Stone in the gland then excision is advised. Antibiotics can be advised if infection is present.

Recent advances include extracorporeal shock wave lithotripsy (ESWL) and endoscopic intracorporeal shockwave lithotripsy (EISWL). In this shockwaves are given directly to the stone. Salivary lithotripsy is another useful technique to remove the calculi.<sup>1,12</sup>

## CONCLUSION

Some sialoliths can be asymptomatic, early diagnosis is very important to prevent the bacterial ascent into parenchyma of the gland. Long term obstruction may lead to sialadenitis, infection, atrophy of the gland and fibrosis.

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