**Ectopic enamel pearl**

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**Abstract**

Enamel pearls are one of a number of different enamel structures that can be found on the roots of deciduous and permanent teeth. They have a distinct predilection for the furcation areas of molar, particularly the maxillary third and second molars. However, they have been found less commonly on the apical portions of the root. This report describes an unusual case of an enamel pearl on apical third of mandibular molar teeth. Enamel pearl was confirmed as predisposing factor for the cause of localized periodontitis; it is very important to recognize their radiographic aspect to ensure proper treatment of involved teeth.

**Introduction**

Enamel pearls are a developmental anomaly of teeth, also known as enamelous, enamel droplets, enamel globules, enamel nodules, enamel knots and enamel exostoses. They are ectopic globules of enamel on the root surface; on rare occasions, they may occur within dentin and in these cases they are referred to as intradental, interdental, or intraodontal enamel pearls. The mean prevalence of enamel pearls is 2.69%; when referring to only molars, it is 2.28%.

Enamel pearls have a predilection for molars and are rarely associated with premolars, canines or incisors. In 20% of cases, multiple teeth are involved; 10.8% have two molars involved; 2.7% have five. In 8.7% of cases, it is possible to find more than one pearl per molar with as many as four pearls on the same tooth. Enamel pearls occur mainly in permanent teeth, but primary teeth can also be affected. Their cause remains obscure. A theory suggests that they develop because of residual Hartwig's epithelial root sheath.

Macroscopically, enamel pearls appear as small, well-defined globules of enamel, generally round, white, smooth and glass-like, that adhere to the tooth via a sessile base. The diameter can vary between 0.3 and 4 mm (mean 1.7 mm).

Histologically, enamel pearls are classified as true enamel pearls (formed entirely of enamel), composite enamel pearls or enamel dentin pearls (formed by enamel and dentin) and enamel-dentin-pulp pearls (formed by enamel, dentin and pulpal tissue). Most enamel pearls are composite enamel pearls appear as well-derived, radiopaque round masses. They are suggested as a cause of periodontitis because they obtrude connective tissue attachment, allowing only a hemidesmosomal junction less resistant to periodontal breakdown.

**Case Report**

A 30-year-old man systemically healthy presented with chief complaint of bleeding gums. Periapical radiograph revealed severe bone loss around the mandibular first molar. The presence of one enamel pearl on the first right molar on mesial root surface (Figure 1). Periodontal probing showed local bleeding on interproximal areas. A diagnosis of chronic localized severe periodontitis was established. Non-surgical periodontal therapy (scaling and root planning) was done. After one month periodontal regenerative surgical therapy with odontoplasty was planned (Figure 2). Reevaluation and follow up planned.

**Discussion**

This rare case of enamel pearl present on apical third of mandibular teeth showed that it had facilitated the progression of periodontitis. It is well established that anatomical or iatrogenic factors can predispose a particular site to periodontitis. Enamel pearls preclude connective tissue attachment. An early diagnosis of enamel pearls is important for better prognosis. Once detected should be surgically eliminated. Moreover, odontoplasty, tunneling, root separation or resection are indicated.

**References**

loss was minimal. The patient tolerated the procedure well and post operation was in good course. Three months later the patient underwent a left retroperitoneal laparoscopic radical nephrectomy. Utilizing 4 port technique, the procedure was uncomplicated and performed with no trouble associating with the repaired AAA (Figure 3). Estimated blood loss was only 94 mL. Post nephrectomy, retroperitoneal abscess was occurred, but it was cured by percutaneous drainage. The patient recovered well after drainage. Pathology revealed clear cell carcinoma in solid masses of 4 cm and 5 cm, which were presumed to be T1bN0M0 renal cell carcinoma. S-creatinine (mg/dL) was elevated from baseline of 1.1-1.5 to 1.7 in 6 months as expected.

**Discussion**

Laparoscopic radical nephrectomy has become an international standard of care for medium to large renal tumors in academic and urban centers. Until now, many renal laparoscopic procedures were carried out via two approaches, transperitoneal and retroperitoneal. Each approach has its advantages and disadvantages. There have been no controlled randomized studies that have compared the two approaches. In this case, considering the large AAA, retroperitoneal approach was easier and safer than transperitoneal with respect to the approach to renal artery.

Partial nephrectomy is currently considered the standard for most T1a (≤4cm) renal tumors and acceptable alternative to radical nephrectomy for select T1b (>4cm) renal tumors. As the result of considering with double tumors and each tumor size >4cm, we concluded partial nephrectomy was very risky and hard. Finally, we concluded that retroperitoneal laparoscopic radical nephrectomy was the optimal procedure for him.

Recently, EVAR to exclude AAA was introduced for patients of poor health status considered unfit for major surgery, and the qualified patient has also quickly replaced open renal surgery for the management of AAA. The diagnosis of AAA and synchronous solid neoplasm is rare. This association is reported about 0.1-3% for renal neoplasm. Most cases have been treated with one-staged procedure. In most of the previous cases, open nephrectomy and AAA surgery have been reported. One-stage open procedure in the patients with AAA and renal tumors may be associated with an increased risk of infection of the vascular prosthesis. Infection of vascular prosthesis is potentially life threatening and dangerous for elderly and high-risk patients. This disadvantage is not less relevant in patients, which can be treated laparoscopic surgery or EVAR than open surgery.

In our case, considering high age and the comorbidities, EVAR has been shown to be associated with a lower procedural mortality and morbidity in the short term, addition to shorter admission times and quicker recovery and offers the possibility of excluding the AAA rapture before treating the nephrectomy. Furthermore, left radical nephrectomy through retroperitoneal approach was very useful and safe with a good orientation of AAA in which endograft was inserted. Thus, the risk of direct graft contamination and rupture appears to be more markedly reduced.

Therefore we recommend a combination of minimally invasive treatments of EVAR and laparoscopic surgery in a staged approach, which allowed a prompt selective patient recovery.

**References**