

# Peripheral squamous odontogenic tumor associated with an impacted mandibular third molar: A case report.

Prasanth T<sup>1</sup>, S. Mannivannan<sup>2</sup>, Percy Ida Augustine<sup>1</sup>, Narayana PY<sup>3</sup>, D. Angelin<sup>1</sup>, S. Jeslin Mary<sup>1</sup>

## ABSTRACT

**Introduction:** Squamous odontogenic tumor is a benign but locally infiltrative, epithelial odontogenic tumor. This case report presents a case of a peripheral variant of squamous odontogenic tumor.

**Case Presentation:** A 29-year-old male patient presented with pain in the left posterior mandible region for one month. Radiographic examination revealed an impacted left mandibular third molar with no other abnormalities.

**Management and Prognosis:** The impacted tooth was removed under local anaesthesia. Histopathological examination of the abnormally thick pericoronal tissue, covering the impacted tooth revealed islands of bland squamous epithelium in a background of mature fibrous connective tissue. The prognosis was good with no signs of recurrence after one year of follow-up.

**Conclusion:** Squamous odontogenic tumor should be considered in the differential diagnosis of pericoronal pathoses, although it is rare in this location.

**Keywords:** Mandible, Odontogenic, Peripheral, Squamous Odontogenic Tumour.

Oral and Maxillofacial Pathology Journal (2023): <https://www.ompj.org/archives>

## INTRODUCTION

Squamous Odontogenic Tumor (SOT) is a benign but locally infiltrative, epithelial odontogenic tumor. To date, less than 50 cases of SOT have been reported in English literature and, to the best of our knowledge, less than 10 cases of the peripheral variant of SOT were reported.<sup>1,2</sup> Earlier, the tumor was reported under a variety of names, including benign epithelial odontogenic tumor; acanthomatous ameloblastoma; acanthomatous ameloblastic fibroma; hyperplasia and squamous metaplasia of residual odontogenic epithelium; and benign odontogenic tumor, unclassified.<sup>1</sup> SOT has been defined as a benign but locally infiltrative odontogenic neoplasm consisting of islands of well-differentiated squamous epithelium in a fibrous stroma. The epithelial islands occasionally show foci of central cystic degeneration.<sup>2</sup> This article presents a rare case of a peripheral variant of SOT, associated with an impacted mandibular molar.

## CASE PRESENTATION

A 29-year-old male reported to the private dental clinic with a chief complaint of pain in the lower left back tooth region for one month. The medical history of the patient was unremarkable. Intraoral examination revealed an inflamed pericoronal flap of 38 and a distal periodontal pocket of 37. Radiographic examination (Figure 1) revealed vertically impacted 38. Based on clinical and radiographic examination diagnosis of vertical impaction of tooth 38 was made. The

<sup>1</sup>Department of Oral and Maxillofacial Pathology, Sree Mookambika Institute of Dental Sciences, Kulasekharam, Kanyakumari district, Tamilnadu, India, <sup>2</sup>Consultant Oral & Maxillo Facial Surgeon, Kothai Facial & Dental Care Centre, Vellore, Tamilnadu, India, General Dentist & Oral Pathologist, Al Afia Ghyathi Medical Center, Abu Dhabi, UAE.

**Corresponding author:** D. Angelin Associate Professor Department of Oral and Maxillofacial Pathology Sree Mookambika Institute of Dental Sciences Kulasekharam, Kanyakumari District, Tamil Nadu - 629 161. E-mail id - angelinbinu@rediffmail.com

**How to cite this article:** Thankappan P, Manivannan S, Augustine PI, Narayana PY, Angelin D, Mary SJ. Peripheral squamous odontogenic tumor associated with an impacted mandibular third molar: A case report. Oral Maxillofacial Pathol J 2023;14(1): page no. 124-126

**Source of Support:** Nil

**Conflict of Interest:** None

patient underwent surgical extraction of tooth 38. During the procedure, the dental surgeon noticed an abnormally thick pericoronal tissue, which was subjected to histopathological examination. From intraoperative findings, differential diagnosis of dentigerous cyst and ameloblastoma was made. Gross examination of the biopsy specimen showed a soft tissue bit measured about 1.5x1cm in size, greyish in color and firm in consistency. The microscopic examination of

the tissue revealed peripheral stratified squamous epithelium with irregular rete ridges and varying shaped islands of bland appearing squamous epithelium in a mature fibrous connective tissue stroma composed of fibroblasts and collagen fibres (Figure 2 & 3). Based on the histopathological and clinical findings, the confirmatory diagnosis of the Peripheral variant of SOT was made. The patient has been followed up for one year postoperatively and there was no recurrence noticed.

## DISCUSSION

SOT was first described by Pullon et al in 1975. The most common variant is the intrabony or central type. A rare peripheral variant has also been described. The first completely extraosseous case was reported by Baden et al. in 1993.<sup>1</sup> Most of the peripheral cases arise and develop in the periodontium of permanent dentition. One case was reported in deciduous dentition and four cases were detected in edentulous areas.<sup>2</sup>

SOT is known to occur in a wide age range, from first to eighth decade of life, with the mean age of occurrence being 38.2 years.<sup>2</sup> Slight male predilection is observed. As compared to a broad age range and slight male predilection, our case has occurred in 29 yrs old male. The lesion can affect both the jaws equally with common sites of involvement as anterior region in maxilla and posterior region in the mandible.<sup>2</sup> SOTs occurring in maxilla were found to be more aggressive than in mandible. This was mainly due to the anatomy and porous and medullary nature of bone.<sup>3</sup>

Typically, lesions are often asymptomatic but, may present with mobility of involved teeth, pain, and tenderness to percussion. Regarding the pathogenesis of SOT, most researchers have pointed toward a periodontal ligament origin for the central variant. Whereas, peripheral SOT may originate in the gingival surface epithelium as a “dropping off” phenomenon or from remnants of the dental lamina.<sup>2</sup>

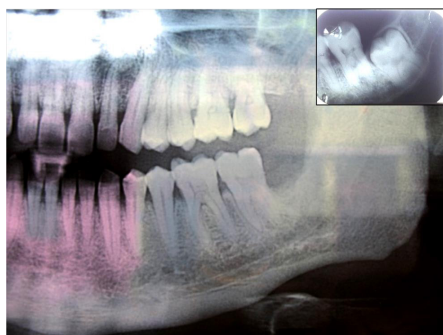
Radiography of the central variant usually shows a well-defined unilocular triangular radiolucency localized between the roots of the teeth. Extensive SOTs may show multilocular pattern.<sup>2</sup> The peripheral variant may cause saucerization of the underlying bone.<sup>1</sup> But the present case didn't show any radiographic findings.

Histopathologically, it usually presents as islands of benign squamous epithelium in mature connective tissue stroma without evidence of peripheral columnar cells, palisading nuclei, or stellate reticulum.<sup>2</sup> Microcystic vacuolization, individual cell keratinization, and laminated calcified bodies can also be noted.<sup>4</sup> Circular areas of fibroblasts and fibrous condensation/hyalinization can be seen around some of the epithelial islands, which suggests a connective tissue reaction to epithelial proliferation.<sup>2</sup> The peripheral variant usually exhibits hyperplasia of surface epithelium with formation of irregular rete ridges and “dropping off” of small sheets and islands into the superficial lamina propria.<sup>4</sup> The present case showed similar histopathological features with hyperplastic surface epithelium, formation of irregular rete ridges, and islands of squamous epithelium. In one of the reported cases, electron microscopy showed epithelial cells with features similar to cells of stratum spinosum.<sup>5</sup>

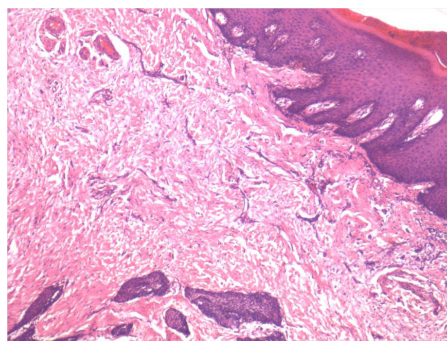
Immunohistochemical studies of SOT by Favia et al have confirmed the proliferative activity of odontogenic epithelium, by heavy staining for keratin 13/16; also, the squamous differentiating cells in the centre of the tumor islands showed positivity for involucrin.<sup>4</sup>

The differential diagnosis of SOT includes acanthomatous and desmoplastic variants of ameloblastoma, well-differentiated squamous cell carcinoma, and SOT-like proliferations that occur in the wall of odontogenic cysts like dentigerous cyst and apical periodontal cyst. Acanthomatous variants of ameloblastoma exhibit squamous differentiation within the tumor islands with ameloblastic change of the peripheral cells. The islands and strands of desmoplastic ameloblastoma often are thin and compressed rather than rounded and broad-based as seen in SOT. The epithelial cells in squamous cell carcinoma exhibit characteristic dysplastic features which are usually absent in SOT. SOT like proliferations represent a reactive proliferation of cystic lining epithelium or residual odontogenic epithelial cell rests in the connective tissue wall of cysts.<sup>4</sup>

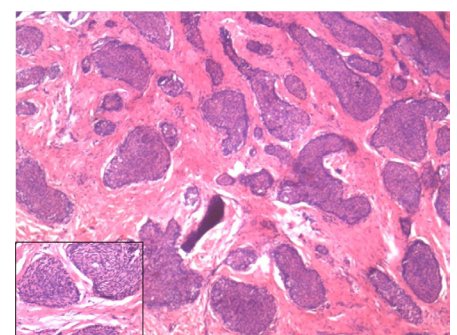
Treatment of SOT involves conservative local excision, curettage, enucleation, and scaling of adjacent teeth. Recurrence have been reported in only one case, most likely due to insufficient removal.<sup>2</sup> Potential complication of the SOT



**Fig. 1:** Postoperative orthopantomogram showing no recurrence after one-year follow-up. Inset showing preoperative intraoral periapical radiograph of vertically impacted 38.



**Fig. 2:** Photomicrograph showing stratified squamous epithelium with irregular rete ridges and varying shaped islands of bland appearing squamous epithelium in a mature fibrous connective tissue stroma. (H&Ex100)



**Fig. 3:** Photomicrograph showing islands of bland appearing squamous epithelium. Inset showing microcyst formation within the epithelial island. (H&Ex400)

includes transformation into squamous cell carcinoma.<sup>5,6,7</sup> Our case was treated by conservative local excision and no recurrence was noted after one-year follow-up.

## CONCLUSION

The purpose of this presentation is to highlight the importance of histopathological examination for arriving at a confirmatory diagnosis in addition to clinical and radiographic findings and squamous odontogenic tumor should be considered in the differential diagnosis of pericoronal pathoses, although it is rare in this location.

## REFERENCES

1. Malathi N, Radhika T, Chelvan H, Thamizh, N, Nandakumar. Peripheral squamous odontogenic tumor. Indian Journal of Dental Research. 2012;23:286-8.
2. Badni M, Nagaraja A, Kamath VV. Squamous odontogenic tumor: A case report and review of literature. Journal of Oral and Maxillofacial Pathology. 2012; 16:113-7.
3. Barrios TJ, Sudol JC, Cleveland DB. Squamous odontogenic tumor associated with an erupting maxillary canine: Case report. J Oral Maxillofac Surg. 2004;62:742-4.
4. Favia GF, Alberti LD, Scarano A, Piattelli A. Squamous Odontogenic Tumour: Report of Two Cases. Oral Oncology. 1977;33:451-3.
5. McNeill J, Price HM, Stoker NG. Squamous odontogenic tumor: Report of case with long-term history. J Oral Surg. 1980;38:466-71.
6. Ide F, Shimoyama T, Horie N, Shimizu S. Intraosseous squamous cell carcinoma arising in association with a squamous odontogenic tumour of the mandible. Oral Oncology. 1999;35:431-4.
7. Dones NRM, Gamba TO, Flores IL, et al. Squamous Odontogenic Tumor: Literature Review Focusing on the Radiographic Features and Differential Diagnosis. The Open Dentistry Journal. 2015;9:154-8.

