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Review Article

Squamous Odontogenic Tumor of the Jaw

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Abstract

The squamous odontogenic tumor has been described in just 50 instances in the English-language literature since it was initially published in 1975. These cases usually show the microscopic features of the tumor in great detail. However, there aren't many papers that include radiographic elements, particularly ones that focus on differential diagnosis. To help dental doctors during routine diagnosis, the current book suggests evaluating jaw lesions that have the same radiographic features as the squamous odontogenic tumor.

Keywords: benign tumor; odontogenic lesion; rests of malassez; squamous odontogenic tumor

Abbreviations:

SOT: Squamous Odontogenic Tumor; **SCC:** Squamous Cell Carcinoma

Introduction

Pullon, et al. originally reported the uncommon, benign epithelial odontogenic tumor known as the squamous odontogenic tumor (SOT) in 1975. [1] The tumor has been referred to by several names before this study was published, including "benign epithelial odontogenic tumor," "acanthomatous ameloblastoma," "acanthomatous ameloblastic fibroma," "hyperplasia and squamous metaplasia of residual odontogenic epithelium," and "benign odontogenic tumor, unclassified." There have only been a few instances reported in the literature. [2] Only studies with supporting photomicrographs that show a typical squamous odontogenic tumor are cited in this article. Some case reports that were not included in the present review appear to reflect the desmoplastic form of ameloblastoma.

Histological Origin

The histogenesis of SOT may include several factors. Lesions that are connected to the alveolar process close to the lateral surface of the root are caused by the Rests of Malassez, and the lesions that are formed associated with the coronal part of erupted or impacted teeth may be caused by dental lamina. [1-4] The origins of the extraosseous variety have been identified as surface stratified squamous epithelium and Serres resting. [2]

Epidemiology and Clinical Features

Squamous odontogenic tumors have been documented in patients of all ages, with the third decade of life having the highest reported incidence. The mandible is frequently affected, and there is a small male predilection. Multiple lesions were depicted in the same person in many case studies [5-8], and three siblings had multicentric lesions according to one study. [9]

Radiographic findings

Many of the instances that have been reported on radiographs feature a triangular or semicircular radiolucency along the lateral surfaces of the roots, with the apex of the triangular radiolucency being towards the alveolar crest. There might be a hyperostotic margin. In cases with crystal bone loss, the lesion may resemble the alveolar bone loss observed in chronic periodontitis, which can lead to tooth movement. [8] In some cases, an impacted or unerupted tooth has been accompanied by a pericoronal radiolucency. Saucerization of the underlying bone may result from peripheral lesions. [4] Singh Ankur, et al. reported a case of SOT of the maxilla with a rare multilocular presentation mimicking ameloblastoma. They performed scintigraphy and reported regions of cold spots internally and hot spots at the periphery suggesting a cystic cavity surrounded by a bony wall with a relatively increased bone formation. [10]

Histopathology

The squamous odontogenic tumor consists of well-differentiated squamous epithelium in the form of islands and large strands and is supported by mature fibrous connective tissue. The islands are evenly spaced out and clearly distinguished from the stroma of connective tissue around them. Flat to cuboidal cells make up the basal cell layer, whereas the interior cells have squamous differentiation. Within the islands of cells, there is little to no diversity in cell size, shape, or staining properties, and mitotic activity is scarce to nonexistent.

The islands frequently have microcyst development and vacuolization. It is common to observe intraepithelial calcification. The calcification may take place irregularly or in a laminal fashion. [1,7] Eosinophilic material aggregation and keratin synthesis may be seen on the islands. A squamous odontogenic tumor has not been reported to include ghost cells, nor does the supporting connective tissue show signs of hyalinization or development of dentinoid material. There may be the presence of chronic inflammation. [2]

Differential Diagnosis

Despite having a distinct microscopic appearance, SOTs can be mistaken for other diseases such as ameloblastoma and squamous cell carcinoma (SCC). The acanthomatous and desmoplastic forms of ameloblastoma have been incorrectly reported as SOTs. Within the tumor islands, both variations show squamous differentiation, while the peripheral cells clearly show ameloblastic transformation, including columnar shape, the polarization of elongated nuclei away from the basement membrane, and vacuolated or transparent cytoplasm. Even though they might be less obvious in the desmoplastic version, these modifications can still be seen after a comprehensive and in-depth inspection of the specimen. The squamous odontogenic tumor, whose peripheral cell layer is made up of flat to cuboidal cells, does not exhibit these alterations. Desmoplastic ameloblastomas frequently have islands and strands that are narrow and compressed rather than spherical and broad-based, as in SOTs. Desmoplastic ameloblastoma frequently displays swirls of squamous cells in the squamoid regions, which are absent in SOT. [11,12]

SOT and well-differentiated SCC can be mistaken for one another, but the islands in the former are clearly defined, and the cells lack the variations in cell size, shape, and nuclear staining that are present in the latter. Atypical mitotic figures or chromatin anomalies are not present in SOT, which has few to no mitotic figures. Furthermore, significant keratin production is uncommon.

Periodontal granulation tissue, dentigerous and radicular cysts might occasionally show foci of SOT-like growth. [11,12] This trait has been explained as a reactive, non-cancerous process that develops as a result of cyst development or inflammation. Although no definite criteria have been found to distinguish between the reactive proliferation and the neoplastic process, Melrose noted that the reactive islands seldom include intra-epithelial calcification or generate microcysts. The prognosis of the basic cystic process does not appear to be altered by reactive foci of SOT inside the connective tissue wall of odontogenic cysts. [13]

Management

SOT is usually managed with enucleation, curettage, and local excision. En bloc excision has been used to treat clinically aggressive lesions. [5] Ide had described a case in which a squamous cell carcinoma coexisted with a SOT. [14] Norris had reported a case with a mandibular intra-osseous SCC and also having bilateral SOTs in the maxilla. [6] Few cases of recurrences have also been reported in the literature. Two recurrences were reported by Baden et al. [2]

Conclusion

Squamous Odontogenic Tumor is a benign odontogenic tumor of the jaw. It is a rare pathology and usually appears as a small lesion. Although, cases have been reported in the literature showing large-sized SOTs. Occasionally this tumor mimics ameloblastoma, although it is not as aggressive as ameloblastoma. Care should be taken to confirm the diagnosis through biopsy and histopathology before treating this lesion.

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