

## REFEREED ARTICLE

### SQUAMOUS ODONTOGENIC TUMOUR: REPORT OF FIVE CASES FROM NIGERIA AND REVIEW OF LITERATURE

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#### ABSTRACT.

**Objectives:** To report and describe 5 cases of squamous odontogenic tumour(S.O.T) that accumulated in the file of the biopsy services of the Lagos University Teaching Hospital, Lagos during a period of 21years, review the literature and to comment on the nature of this rare tumour.

**Methods:** Haematoxylin and eosin stained sections of each of the tumours histologically diagnosed as S.O.T were reviewed with the objective of reconfirming the diagnosis in the biopsy report file.

**Results:** 5 cases of S.O.T. were diagnosed during this period. The mean age of occurrence ( $\pm$ SD) was 36.6 years  $\pm$  10 (range 20 to 45 years). All the five (100%) cases presented in females, 4(80%) occurred in the mandible and 1 (20%) occurred in the maxilla. All the 4 mandibular lesions occurred in the body of the mandible while the single maxillary lesion occurred in the posterior region.

**Discussion:** All the 5 cases in the present series presented in females, though review of the literature showed that this tumour do occur in males also but with a female predominance. The mandibular prevalence (4 out of 5) in this series contrasts with reports in the literature. This variation may be due the limited number cases studied, but are however important additions to the few reported cases.

**Conclusion:** Care should be taken not to misdiagnose this condition as acanthomatous ameloblastoma or well differentiated squamous cell carcinoma. Although, it has an infiltrative pattern of growth, S.O.T. has become accepted as a distinct lesion rather than a variant of ameloblastoma. Treatment should be by conservative excision

**Keywords:** Squamous odontogenic tumour, report, Nigeria.

#### INTRODUCTION AND LITERATURE REVIEW

Squamous odontogenic tumour is a rare benign neoplasm first reported in 1975 by Pullon and colleagues<sup>1</sup>.

Since their report several additional cases have been reported<sup>2,7</sup>. Of the sixteen cases (6 males, 10 females) evaluated by Goldblatt and his colleagues<sup>2</sup>. The age at

discovery of the lesion ranged from 11 to 67 years with 10 cases occurring between 19 and 31 years of age. In addition, ten cases occurred in blacks, while in three cases the race was not stated. However, these sex and racial distributions are difficult to interpret without knowing the sex and race. characteristics of the overall population served by the various biopsy services used<sup>2</sup>.

The lesions occurred with approximately equal frequency of involvement of the maxilla and mandible. In the maxilla the lesions centered on the incisor-cupid area, whereas in the mandible the lesions had a

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predilection for the bicuspid-molar area. However, several cases exhibited multiple site involvement, including maxillary and mandibular involvement in the same patient. No cases were confined to areas of the jaw outside the alveolar process<sup>2,4,6,7</sup>. However the 3 cases reported by Odukoya<sup>5</sup> occurred in the mandible.

Typically, Lesions are often asymptomatic but may present with mobility of involved teeth, pain, and tenderness to percussion and occasionally abnormal sensation<sup>2</sup>. Radiographically, squamous odontogenic tumour presents as a well circumscribed, often semilunar lesion associated with the roots of teeth and as a result has been speculated to arise from the rests of malassez<sup>2,6,8,9</sup>.

In 1979, Wright<sup>8</sup> reported five cases of squamous odontogenic tumour-like proliferation occurring in the walls of odontogenic cyst. The question of whether these lesions arise by budding off cystic lining or from independent proliferation of mural odontogenic rests remains to be answered. Although it has an infiltrative pattern of growth, the reported follow-up of squamous odontogenic tumour, which is substantial, indicates that they are no more aggressive than the odontogenic cyst with which they are associated<sup>2,8</sup>. However in 1985, Hietanen et al<sup>10</sup> reported a recurrent case of peripheral squamous odontogenic tumour in a 24 year old female.

Histologically, squamous odontogenic tumour is composed basically of islands of squamous epithelium scattered randomly throughout a background of mature fibrous connective tissue.

The epithelial islands could be round to ovoid, to markedly irregular in shape without a peripheral palisaded or polarized columnar layer. The peripheral layer is usually quite flattened or at least cuboidal. The squamous cells are very uniform and exhibit no pleomorphism, nuclear hyperchromatism or mitotic activity. Occasionally, individual cell keratinization is present but no epithelial pearls. Other variable findings are microcyst formation involving only small portions of the epithelial islands. Lamellar calcification in the epithelium and globular, eosinophilic structures are seen within the islands. Histochemical studies indicate that the hyaline masses are not amyloid<sup>2,4,9,10</sup>. The purpose of the present article is to report five additional cases from Nigeria, review the literature, and comment on the nature of this uncommon entity.

## MATERIALS AND METHODS

The materials for this study comprised of Haematoxylin and Eosin stained section and paraffin embedded tissue blocks of cases of patients histologically diagnosed as having squamous odontogenic tumour at the Department of Oral pathology and Biology of the Lagos University Teaching Hospital, Lagos over a 21year period (1973 to 1993).

Haematoxylin and eosin stained section of each of the tumours were reviewed with the objective of reconfirming the diagnosis in the biopsy report file.

## RESULTS

The demographic data of cases are as presented in Table I

**Table 1:** Demographic data of cases

Case	Age (year)	Sex	Location	Extent or size (cm)	Duration (Months)	Provisional diagnosis	Histological diagnosis
1	40	F	Right mandible	43 to 48	Unkown		Squamous odontogenic tumour (S.O.T)
2	35	F	Left mandible	31 to 35	6	Fibrous dysplasia	S.O.T.
3	45	F	Right mandible	-	6	Odontogenic keratocyst	S.O.T.
4	43	F	Right mandible	11 to 16	20	Ossifying fibroma	S.O.T.
5	20	F	Left mandible	5cm by 4cm	3	-	S.O.T.

### *Histological features of the 5 presented cases:*

All the 5 cases diagnosed as squamous odontogenic tumour basically demonstrated benign appearing islands, sheets or strands of squamous epithelium scattered randomly throughout a background of mature fibrous connective tissue. The islands of neoplastic cells demonstrated flattened peripheral layer of cells. The squamous cells were very uniform and exhibited no pleomorphism, nuclear hyperchromaticity or mitotic figures.

All the 5 cases demonstrated evidence of microcyst formation and eosinophilic coagulum within some of the epithelial islands. The eosinophilic coagulum was confirmed to be amyloid negative with congo red stain in one case. Also seen were chronic inflammatory cell infiltrate consisting of lymphocytes, plasma cells and histiocytes (Fig. 1).

### **Discussion**

Squamous odontogenic tumour, a benign neoplasm was first reported by Pullon et al<sup>1</sup> in 1975 and thereafter more cases have been added by other authors<sup>2,4,5-7</sup>. All the 5 cases of squamous odontogenic tumour reported in this series presented between the ages of 20 and 45 years with 36.6 years as the mean age of occurrence. This is comparable with previous reports in the literature though Odukoya<sup>5</sup> reporting on 3 cases of this tumour gave a slightly higher mean age of occurrence of 40.0 years. However Goldblatt<sup>2</sup> reviewing sixteen cases of this tumour, reported majority (10 cases) to have occurred in young adults of 19 to 31 years of age. Interestingly, all the 5 cases in the present series presented in females though, the study by Goldblatt<sup>2</sup> showed that this tumour do occur in

males also but with a female predominance.

In this study, 4 from the 5 reported cases of this tumour presented in the mandible and only one occurred in the maxilla. The site of involvement in the present series however contrasts with the report by Goldblatt<sup>2</sup> in which 10 of the sixteen cases reviewed presented in the maxilla, 6 in the mandible and 3 patients exhibited multiple site involvement. The variation may be due the limited number cases studied, but are however important additions to the few reported cases.

The histologic features of all five cases of squamous odontogenic tumour in this study were consistent with reports in the literature<sup>2,6,9</sup>. Evidence of microcyst formation, eosinophilic coagulum within some epithelial islands and absence of peripheral palisading of cells characteristic of this tumour was demonstrated by all the 5 cases. The squamous cells were uniform, exhibiting no pleomorphism, nuclear

hyperchromaticity or mitotic figures. Although it has an infiltrative pattern of growth, squamous odontogenic tumour, has now become accepted as a distinct lesion rather than a variant of the ameloblastoma and this report reinforces the need for careful histologic evaluation of all lesions found in the alveolus and periodontium. Treatment was by conservative excision and there was no record of recurrence.

### CONCLUSION

Squamous odontogenic tumour which is an uncommon lesion is a benign odontogenic neoplasm probably arising from rests of malassez. Care should be taken not to misdiagnose this condition as acanthomatous ameloblastoma or well differentiated squamous cell carcinoma. Although, it has an infiltrative pattern of growth, squamous odontogenic tumour has become accepted as a distinct lesion rather than a variant of ameloblastoma. Treatment should be by conservative excision.

### REFERENCES

1. Pullon P.A, Shafer W.G, Kerr D.A. Corio R.L. Squamous Odontogenic Tumour: Report of six cases of a previously undescribed lesion. *Oral Surg. Oral Med. Oral Pathol.* 1975; 40:616-630.
2. Goldblatt L.I, Brannon A.P, Ellis G.L. Squamous Odontogenic Tumour : Report of five cases and review of literature. *Oral Surg.*1982; 54: 187-196
3. Favia G. H, Di Alberti L;Scerano A, Piattelli A. Squamous Odontogenic Tumour: Report of two cases. *Oral Oncol* 1997 Nov; 33(6):451-453.
4. Shafer W.G; Hine M K; Levy B M, Tomich C E . Ectodermal Tumours of Odontogenic Origin: In A Textbook of Oral Pathology. Philadelphia J.B. Saunders1983 Pg. 276-292.
5. Odukoya O. Odontogenic Tumours: Analysis of 289 Nigerian Cases *J.Oral Pathol Med.* 1995;24:454-475.
6. Haghghat K, Kalmar JR, Mariotti AJ. Squamous odontogenic tumor: diagnosis and management. *J Periodontol.* 2002 Jun;73(6):653-656.
7. Barrios TJ, Sudol JC, Cleveland DB. Squamous odontogenic tumor associated with an erupting maxillary canine: case report. *J Oral*

- Maxillofac Surg. 2004  
Jun;62(6):742-744.
8. Wright Jr, J.M. Squamous Odontogenic Tumour-like proliferations in Odontogenic Cysts. Oral Surg. 1979;47: 354-358.
  9. Tatemoto Y, Okada Y, Mori M 1). Squamous Odontogenic Tumour: Immunohistochemical Identification of Keratin. Oral Surg. Oral Med. Oral Pathol. 1989;67:63-67.
  10. Hietanen J, Lukinmaa P.L, Ahonen P, Krees R, Caloniuss P.E. Peripheral Squamous Odontogenic Tumour. Br J Oral Maxillofac Surg. 1985 Oct; 23(5): 362-365.