

Review of Orofacial Biopsies at Komfo Anokye Teaching Hospital, Ghana

Alexander Acheampong Oti^{1*}, Rita Larsen-Reindorf¹, Robert Nii Lame Laime¹ and Peter Donkor²

¹Komfo Anokye Teaching Hospital, Kumasi, Ghana.

²Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

*Corresponding author. E-mail: aotiacheampong@yahoo.com

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Abstract

There is general scarcity of information on the prevalence of orofacial lesions in Ghana. The purpose of this study was to evaluate the prevalence of such lesions and compare the findings with that of other studies to guide us in our public education programmes. The aim of this research was to determine the prevalence of orofacial lesions as well as their distribution according to age, sex, and anatomic location. This was a retrospective study of all histopathology reports seen at maxillofacial unit of Komfo Anokye Teaching Hospital from January 1999 to October 2010 inclusive. Data on diagnosis, age, sex and anatomic location were collected. A total of 567 histopathology reports were evaluated. Conditions diagnosed included odontogenic cyst 37(6.5%), non-odontogenic cyst 42(7.4%), benign fibrous lesions 32(5.4%), odontogenic tumours 88(16%), non-odontogenic tumours 247(43.4%) and salivary gland tumours 121(21.3%). Squamous cell carcinoma (SCC) and adenoid cystic carcinoma were the most common non odontogenic and salivary gland malignancies respectively. SCC affected males at earlier age as compared with females. Warthin's tumour, which is considered to be rare from most African studies, was observed in this study.

Key words: Biopsy, Orofacial, Malignancy, Benign.

INTRODUCTION

The maxillofacial region is a common anatomic site for the development of infections, cysts and tumours of odontogenic or non-odontogenic origin. A study conducted in the United States reported that such lesions occurred in approximately 27.9% of patients aged 17 and older (Shulman et al., 2004) and in 10.3% of children aged 2 to 17 years (Shulman, 2005). It is known that abnormal changes may occur in any part of the oral mucous membrane exposed to a carcinogen (Siar et al., 2011; van der Meij, 2008). Therefore patients with premalignant oral conditions are at risk of developing similar malignant lesions at multiple sites. Odontogenic tumours are made up of a complex group of lesions of great importance to oral and maxillofacial surgeons. Many of these lesions are true tumours, whereas some are hamartomas.

The frequency and distribution of odontogenic tumours appear to be geographically determined. Studies from North America seem to indicate that odontogenic tumours represent approximately 1% of all oral pathology lesions (Reichart and Philipsen, 2003) whereas African studies show a much higher incidence of odontogenic tumours (Adebayo et al., 2005). Ameloblastoma was the commonest odontogenic benign tumour of the jaws in most of the series from Nigerian (Adebayo et al., 2005; Adebayo et al., 2001; Aregbesola et al., 2005), but in non-African reports (Al-Khateeb et al., 2003), odontoma was the commonest odontogenic tumour. There is also no study that tries to group the various orofacial lesions by their common anatomical distribution from Komfo Anokye Teaching Hospital.

MATERIALS AND METHODS

This is a retrospective study of all histopathology reports on biopsy specimen taken from the Komfo Anokye Teaching Hospital maxillofacial unit from January 1999 to September 2010 inclusive. Information gathered included diagnosis, age, sex and anatomic location. For a report to be included in the study both clinical and histological had to be available. A special data collection form was designed for the study. All data were coded and entered into an excel spreadsheet and cleaned. Analysis was conducted using SPSS for windows V170 (Chicago). Frequencies and descriptive statistics were calculated for all variables.

RESULTS

A total sample size of 567 met the inclusion criteria. There were 329 males' representing 58% and 238 females comprising 42% of cases. Conditions diagnosed included odontogenic cyst (OC) 6.5%, non-odontogenic cyst (NOC) 7.4%, benign fibrous lesions (BFL) 5.4%, Odontogenic tumours (OT) 16%, non-odontogenic tumours (NOT) 43.4% and salivary gland tumours (SGT) 21.3%. The commonest odontogenic cyst was radicular cyst representing 29.7% closely followed by dentigerous cyst 27.1% of the 37 cases.

Of the fibrous lesions, a 19(59.4%) occurred in females and 13(40.6%) were in males with peak age of occurrence ranging from of 11 to 20 years, that is, 53.1% of all the cases. Fibrous dysplasia made up 75.0% of fibrous osseous lesions while 25.0% were ossifying fibroma. The maxilla was more commonly affected as compared to the mandible (40.6%).

Fibrous dysplasias were seen more in the maxilla 16(66.7%) than in the mandible. The age range was 0 to 40 years with mean age of 18.4 years, and with peak age of occurrence being 11 to 20 years and representing 58.3% of cases. Females were more commonly affected representing 14(58.3%) as against 10(43.7%) for males. Ossifying fibroma was more common in the mandible, 5(62.5%), with peak age range of 21 to 30 years. More females were also affected, that is, 62.5% of case with and three (37.5%) occurring in males.

The commonest odontogenic tumour was Ameloblastoma, and represented 77.3% of all odontogenic tumours, and had equal sex distribution. The peak age of occurrence was in the second to third decade (36.8%). There were 2 (2.3%) cases of malignant odontogenic tumours. Odontomas were mainly seen at a younger age in the second decade and were mostly located mainly in the anterior maxilla (80%). Myxoma, which was seen in the third decade, occurred mostly mainly in men (75%).

Non-odontogenic lesions had almost equal sex distribution. The peak age range of occurrence was 31 to 40 years. Squamous cell carcinoma was the commonest non-odontogenic tumour (31.57%) followed by pyogenic granuloma (23.48%). Squamous cell carcinoma (SCC) had male to female ratio of 1.7:1. The peak occurrence was between 41 to 70 years of age. The mean age for SCC was 55.3 years, being lower for men (49.6 years) as compared to females (58.5 years). The maxilla was more affected (42.31%) than the mandible (25.64%). Ten cases (4.1%) affected the tongue with 60% of these located on the ventral surface. Sixty percent (60%) of the squamous cell carcinoma was poorly differentiated. Pyogenic granuloma was more common in females than males in a ratio of 2.6:1 with the maxilla being most commonly affected (82.76%). The peak age of occurrence was 21 to 40 year group.

Osteosarcoma formed the majority of the sarcomas. The age range for sarcomas was 3 to 50 years with a peak age range of 11 to 30 years. Most of the sarcomas occurred in the mandible (64.71%) and were equally distributed between the sexes.

The salivary gland tumours seen had a male to female ratio of 1.75:1. Pleomorphic adenoma was the commonest salivary gland tumour, constituting 50% of all the benign salivary gland tumours. Warthin's tumour constituted 3.31% of all salivary tumours. Malignant salivary gland tumours made up 28.1% with 71.9% being benign. Mean age for malignancy was 53.5 years while that for benign tumours was 35.5 years. A total of 77 salivary gland tumours were seen in males of which 22 (29.3%) were malignant. Out of the 44 cases seen in females, 12(26.0%) were malignant. Of the 34 salivary malignancies seen, male to female ratio was 1.8:1. The submandibular gland had most malignant tumours, representing 47.4%. A total of 10 out of 38 tumours in the right parotid were malignant, representing 26% as against a total of eight out of 22 cases of the minor salivary glands being malignant, that is, 36%. Six cases of the minor salivary gland malignancies representing 75% were located on the palate. The commonest malignant tumour was adenoid cystic carcinoma, which was 13.22% and out of the 16 cases, seven (43.8%), were found in the right side of the submandibular area.

DISCUSSION

A recent study from Kuwait (Ali, 2011) showed that cysts made up 46.3% of all biopsies of jaw lesions as compared to 14.7% in this study. Non-odontogenic cysts represented 3.2% of all submitted specimens in this study, whereas only 1.01% was reported by Daley et al. (1994) in Canada. This relatively low occurrence of odontogenic cysts from this study could be explained by the fact that in Ghana the periapical soft tissues surrounding extracted teeth are rarely taken for histologic diagnosis unless a neoplasm is suspected. Thus a large number of the inflammatory odontogenic cysts especially radicular cysts are probably being missed.

The prevalence of fibrosesous lesions appears lower than the 13.7% observed in Accra, Ghana (Parkins et al., 2009; Abdulai et al., 2004), but similar to the 5.9% observed in Zimbabwe (Chidzonga et al., 1996). However, this study found that, fibrosesous lesions were seen in young patients in Kumasi as in most developed countries (Panda et al., 2007; Sciubba and Younai, 1989; Eversole et al., 1985).

In the present study, odontogenic tumours were far fewer than what was reported by Parkins et al. (2009), Ajayi et al. (2004) and by other studies in Nigeria (Adebayo et al., 2005; Ladeinde et al., 2005) but similar to the 13.7% reported by Aregbesola (2005). The high frequency of Ameloblastoma is consistent with studies from Africa (Adebayo et al., 2005; Parkins et al., 2009) whereas in most American studies odontoma occurred more frequently (Regezi, 2002). A possible factor that may contribute to these geographical differences could be the level of oral health awareness in the different parts of the world. In most western countries, impacted wisdom teeth extraction is more common place due to some reasons of prophylaxis or orthodontics. This could potentially lead to a lower chance of developing ameloblastoma, which usually occurs in the molar region of the jaws.

Non odontogenic tumours and tumour-like lesions constituted the largest group of all the lesions biopsied. This finding is consistent with most of the published African studies (Chidzonga et al., 1996; Kamulegeya and Kalyanyama, 2008; Parkins et al., 2009; Parkins et al., 2007).

The most important aspect of the sex distribution of SCC is that, males were affected earlier with a mean age of 49.6 years compared to 58.5 years in females. This pattern was also evident in the study by Parkins in Ghana, which demonstrated that the peak age of occurrence for female was in the 51 to 60 year group. In terms of aetiology, even though smoking is a well-known risk factor, it is not as common in Ghana as reported by Donkor and Boateng (2000). In that study it was shown that most of the patients who reported at Komfo Anokye Teaching hospital in Ghana had no history of smoking. Cultural attitudes in Ghana make it less likely for women to smoke as compared to most western countries. From empirical observation, men in rural Ghana chew raw tobacco, especially after dinner, for relaxation. A factor which requires further investigation is the role hormone play in the pathogenesis of oral SCC as the incidence in females tends to peak after menopause.

Pleomorphic adenoma was the commonest benign tumour and constituted 50% of all the salivary tumours. This finding is consistent with that of other African studies including Kolude et al. (2001), but lower than that by (Masanja et al., 2003) in Tanzania. The significant finding in this study was the occurrence of Warthin's tumour, which according to most Africa studies is rare. Warthin's tumour occurred in the parotid and was seen only in males. Most of the studies in the West (Faur et al., 2009) and Asia (Subhashraj, 2008) have observed that Warthin's tumour is second to pleomorphic adenoma, usually in males with the parotid as the usual anatomic site. This finding calls for a review of most of the benign salivary tumour pathology slides in the African series to help throw more light on the actual occurrence of this tumour in the African population.

CONCLUSION

Non-odontogenic tumours were the most commonly reported lesions in this series. Ameloblastoma was the commonest odontogenic tumour. The commonest malignancy was squamous cell carcinoma which occurred at a relatively earlier age in males and was mostly poorly differentiated.

The commonest salivary gland tumour was pleomorphic adenoma of the parotid. Most salivary malignancies occurred in the submandibular gland. The anatomic distribution of salivary gland tumours was in a ratio of 3:2:1 for parotid, submandibular and minor salivary glands respectively. The right parotid gland was more commonly affected by tumours than the left.

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