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Original Article

Clinicopathologic Audit of Salivary Gland Lesions

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Abstract

Introduction: Salivary gland lesions present with varied clinical features because of the complex architecture of the glands. A good understanding of the distribution, natural history, epidemiology, and etiopathogenesis is essential for diagnosis and management. **Materials and Methods:** A retrospective cross-sectional study of all salivary gland lesions seen between January 2007 and December 2016 at the Biopsy Service of Lagos University Teaching Hospital was conducted. **Results:** There were 224 salivary gland lesions over the 10-year study period; 115 (51.3%) females and 109 (48.7%) males (M/F 1:1.05). The age range was 2 months to 86 years with a mean age of 37.07 years. Salivary gland lesions were more common in the third and fourth decades (18.8% and 18.3%, respectively). There were 55 (24.6%) cystic lesions, 55 (24.6%) benign neoplasms, 84 (37.5%), malignant neoplasms, and 29 (12.9%) inflammatory salivary gland lesions. The ratio of malignant tumors to benign tumors was 1.5:1. **Conclusion:** Salivary gland lesions are more prevalent in the third and fourth decades of life; malignant tumors were more prevalent than benign tumors. Malignant tumors and inflammatory lesions were more common in males whereas benign and cystic lesions were more common in females.

Keywords: Mucocele, salivary glands, sialadenitis

Introduction

Salivary gland lesions are relatively uncommon lesions with varied clinical presentations. Even though they are uncommon in the general populace, they account for a huge chunk of oral pathologic biopsies.[1] These lesions are either neoplastic, inflammatory, immunopathologic, or cystic. Salivary glands have a complex architecture, and lesions with different etiopathogenesis and clinical course can arise from different parts of the glandular structure.

Salivary gland pathologies are important because they may affect the function and aesthetics of an individual. Understanding the distribution, etiopathogenesis, natural history, and epidemiology of salivary gland pathologies is essential for diagnosis and management.

Salivary gland tumors have been reported to be approximately 3–4% of head and neck tumors,[1] with pleomorphic salivary adenoma being the most common tumor.[1-3] While salivary gland tumors are relatively common, others such as mucoceles, sialadenitis, sialolithiasis, and Sjögren's syndrome may also be seen in salivary glands.

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Mucoceles are salivary gland cysts commonly found on the lower lip and may result from trauma or obstruction to minor salivary gland excretory duct.[4] This study aims to analyze the distribution and frequency of salivary gland lesions from our Biopsy Service.

Materials and Methods

This was a descriptive retrospective cross-sectional study of all salivary gland lesions that presented at the Biopsy Service of Oral and Maxillofacial Pathology/Biology and Anatomic and Molecular Pathology Units of Lagos University Teaching Hospital (LUTH) Lagos, Nigeria between January 2007 and December 2016. Information including age at first presentation, gender, site, and duration and other clinical features were retrieved from patients' medical records. Information on final histopathologic diagnosis was retrieved from biopsy records. Parameters of interest were analyzed, and level of

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significance was set as $P < 0.05$. Descriptive statistics were used in presenting categorical variables as frequencies and percentages, whereas mean and standard deviation (SD) were calculated for numeric variables.

Ethical principles for medical research involving humans were adhered to (Helsinki declaration). Data was analyzed with EPI info 7.0 (EPI-INFO statistical software package version 7.0).

Results

There were 224 salivary gland lesions over the 10-year study period; male to female ratio was 1:1.05. Mean age for males was 38.07 years (SD, 23.19), whereas mean age for females was 36.12 years (SD, 18.11); the difference was not statistically significant. The age range was 2 months to 86 years with a mean age of 37.07 years (SD, 20.66). Salivary gland lesions were more common in the third and fourth decades (18.8% and 18.3%, respectively) [Figure 1], whereas patients over 60 years had 15.2%. The most common sites were the palate 52 (23.2%), submandibular gland 47 (21%), parotid gland 44 (19.6%), sublingual gland 26 (11.6%), and lower lip 19 (8.5%) [Figure 2].

Pleomorphic salivary adenoma (PSA) was the most common lesion with a mean age of 35.46 (SD, 20.80) followed by adenocystic carcinoma with a mean age of 34.76 (SD, 23.16), mucous extravasation cyst with a mean age of 32.93 (SD, 16.78), mucous retention cyst with a mean age of 38.23 (SD, 27.61), mucoepidermoid carcinoma with a mean age of 37.87 (SD, 21.90), and sialolithiasis with a mean age of 36.33 (SD, 29.76) [Figure 2].

There were 55 (24.6%) cystic lesions, 55 (24.6%) benign neoplasms, 84 (37.5%) malignant neoplasms, and 29 (12.9%) inflammatory salivary gland lesions [Table 1]. The ratio of malignant tumors to benign tumors was 1.6:1.

Mean age for cystic lesions was 35.66 years (SD, 21.55) and the mean duration was 2 months; they were more common in females (M:F 1:1.2), 21-40 years age group (37.1%) [Table 2], lower lip (37.0%), and mucous extravasation cyst was the most common (55%). Mean age for benign tumors was 34 years (SD, 21.51) and mean duration before diagnosis was 5 months; they were slightly more common in females than males (M:F 1:1.1), 21-40 years age group (42.5%) [Table 2], parotid gland (42.6%) whereas pleomorphic adenoma was the most common (92.6%).

Mean age for malignant tumors was 35 years (SD, 21.17) with mean duration to diagnosis of 1.8 months; they were more common in males than females (1.1:1), 21-40 years age group (37.1%) [Table 2], palate (50.2%), and adenocystic carcinoma was the most common (41.0%). Salivary gland inflammatory lesions had a mean age of 34 years (SD, 25.48) with mean duration to diagnosis of 1 month; they were more common in males (M:F 1.5:1), fourth decade of life (26.4%), submandibular gland (67.9%), and sialolithiasis was the most common lesion (57.1%).

Discussion

Salivary gland lesions sometimes pose a diagnostic dilemma to surgeons because of their diverse clinical features. A good understanding of the distribution and natural history of salivary gland lesions is crucial for adequate management. Salivary gland lesions occur within a wide age range, as reflected in our study, with a peak incidence in both the third and fourth decades. There is a slight female predilection for these lesions in this study similar to a report,[5] whereas an essentially equal gender distribution has also been reported.[6]

In this study, pleomorphic salivary adenoma was the most common lesion as well as the most common neoplasm; this is similar to reports from other studies[7-10] and also agrees with a report on clinicopathologic review of submandibular gland tumors in Lagos, Nigeria by Adeyemo *et al*.[11] This study also showed that malignant salivary gland neoplasms were more common than benign neoplasms, which is consistent with a study[12] but different from studies which reported a higher prevalence for benign neoplasms.[5,13,14] Adenocystic carcinoma was the most common malignant neoplasm followed by mucoepidermoid carcinoma seen in this study,

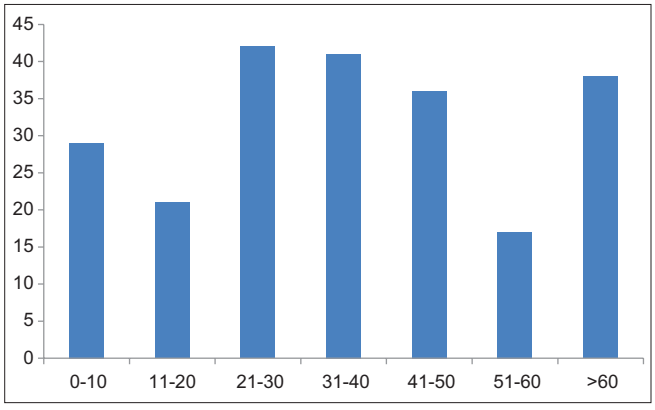

Figure 1: Age distribution of Salivary gland lesions.

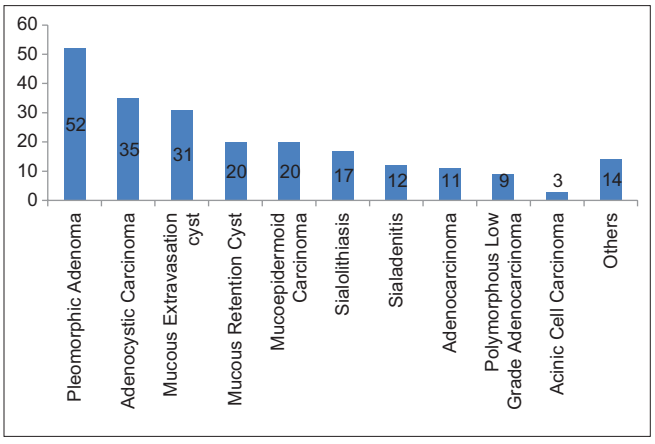

Figure 2: Site distribution of Salivary gland lesions.

Table 1: Site distribution of Clinico-pathologic groups

	Palate	Parotid	Submandibular gland	Sublingual gland	Lower lip	Upper lip	Buccal mucosa	Labial mucosa	Tongue
Cystic lesions 24.6%	0	1.9% (*n*=1)	9.3% (*n*=5)	37% (*n*=20)	29.6% (*n*=16)	3.7% (*n*=2)	3.7% (*n*=2)	5.6% (*n*=3)	9.3% (*n*=5)
Benign tumors 24.6%	16.7% (*n*=9)	42.6% (*n*=23)	22.2% (*n*=12)	0	1.9% (*n*=1)	11.1% (*n*=9)	1.9% (*n*=1)	1.9% (*n*=1)	0
Malignant tumors 37.5%	50.6% (*n*=42)	21.7% (*n*=18)	12% (*n*=10)	1.2% (*n*=1)	1.2% (*n*=1)	1.2% (*n*=1)	8.4% (*n*=7)	0	3.6% (*n*=3)
Inflammatory 12.9%	0	1% (*n*=3.6)	67.9% (*n*=19)	17.9% (*n*=5)	0	7.1% (*n*=2)	0	0	0

Table 2: Age-group distribution of Clinico-pathologic groups

	Age distribution			
	0-20 (years)	21-40 (years)	41-60 (years)	>60 (years)
Cystic lesions 24.6%	24% (*n*=13)	37.1% (*n*=20)	24% (*n*=13)	14.9% (*n*=8)
Benign tumors 24.6%	18.5% (*n*=10)	42.5% (*n*=23)	26% (*n*=14)	13% (*n*=7)
Malignant tumors 37.5%	26.5% (*n*=22)	37.4% (*n*=31)	19.3% (*n*=16)	16.8% (*n*=14)
Inflammatory 12.9%	(32.9%)	21.4% (*n*=6)	28.5% (*n*=8)	17.8% (*n*=5)

which is in contrast to studies that reported mucoepidermoid carcinoma as the most common.[1,7-9] In a retrospective study of orofacial malignant neoplasms in Lagos, Nigeria, Arotiba *et al*.[15] reported mucoepidermoid carcinoma as the most common malignant salivary gland lesion. While malignant tumors were more common in males in this study as also reported by Arotiba *et al*., benign tumors were more common in females.

Mucoceles (mucous extravasation cyst and mucous retention cyst) are commonly seen in the minor salivary glands and were classified as cystic lesions in this study even though only the retention type has an epithelial lining. Mucous extravasation cyst usually results from trauma to the duct of the minor salivary gland, whereas the retention type usually is a result of blockage of the duct. When these lesions are seen on the floor of the mouth, they are called Ranula[14] because of resemblance to the underbelly of a Frog. In this study, the extravasation type was more prevalent than the retention type, which may be due to its association with traumatic etiology. Mucoceles were more prevalent in the third decade of life in this study with a slight female predilection, and the lower lip was the most common site, same as reports from other studies.[16,17]

Sialolithiasis and sialadenitis were classified as inflammatory salivary gland lesions. Sialolithiasis has been reported to be the most common disease of the salivary gland[18,19] in contrast to findings from this study, in which they are the seventh most common; this may be due to underreporting and some of these lesions may also not present to the maxillofacial center. In this study, sialolithiasis was seen more in the fourth decade of life, male predilection with the submandibular gland more frequently involved, in accordance with previous reports.[20,21] In this study, there was no definite age group or gender predilection for sialadenitis. Review of literature revealed that sialadenitis was more prevalent in the parotid gland; however, in the present study, 63.6% of cases were seen in the submandibular gland.[21,22]

Conclusion

Salivary gland lesions are more prevalent in the third and fourth decades of life; malignant tumors were more prevalent than benign tumors. Malignant tumors and inflammatory lesions were more common in males while benign and cystic lesions were more common in females.

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Conflicts of interest

There are no conflicts of interest.

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