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REVIEW ARTICLE

A Review of Salivary Gland Neoplasms in Eastern Nigeria For A Five-Year Period from January 1, 2000 to December 31st 2004

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ABSTRACT
To review salivary gland lesions in Eastern Nigeria. The archives of the department of morbid anatomy, was reviewed for patients with salivary lesions confirmed by biopsy. Thirty-three biopsies were received. Twenty (60.6%) are from males, thirteen (39.4%) are from females. The most common sites for salivary lesions are in the parotid region in twenty-five cases (75.8%), the submandibular gland region in eight cases (24.2%). Types found are; inflammatory retention cyst from chronic calculous sialoadenitis four (12.1%), lymphangioma one (3%), mucoepidermoid carcinoma five (15.1%), adenoid cystic carcinoma three (9%), pleomorphic adenoma 12 (36.4%), acinic cell carcinoma one (3%), invasive moderately differentiated squamous cell carcinoma one (3%), simple cysts one (3%), Embryonal rhadbomyosarcoma one (3%). Malignant fibrous histiocytoma and granular cell myoblastoma each had one (3%).Monomorphic adenoma one (3%). Infiltrating adenocarcinomas of the salivary glands one (3%). The mean age for these lesions is thirty-nine years, ranging from four to ninety five years. Sixty eight years for Adenoid cystic carcinoma, twenty six years for mucoepidermoid and thirty five years for Pleomorphic adenoma. Pleomorphic adenoma was the most common lesion seen. It occurred almost exclusively in the parotid glands eleven cases (91.6%)
KEY WORDS: *Salivary gland, neoplasms, review, Enugu, five-year period.*

INTRODUCTION

The department of morbid anatomy at the University of Nigeria Teaching Hospital (UNTH) ENUGU caters for over 30 million people, mainly Black Africans of Ibo ethnic group. The laboratory receives approximately 2000 surgical pathology specimens per year. Majority of these specimens comprise of outside referrals in 60% of cases, while 40% are from hospital patients including admissions. The biopsies were either from excision and core needle biopsies.

In UNTH, Nigeria record of incidence and pattern of salivary lesions is scanty and, there had been no prior published report on this subject. Salivary gland tumours are quite uncommon, but they do elicit considerable medical interest because of their multifaceted clinical presentation, varied histological appearances and the associated difficulties in predicting their prognosis1. In United States there is an estimated annual incidence of 2.2 to 2.5 cases per 100,000 people; they therefore constitute only about 2% of all head and neck neoplasms2. Nearly 80% of these tumors occurred in the parotid glands, 15% in the submandibular glands and the remaining 5% in the sublingual and minor salivary glands [2]. Benign neoplasms are reported to make up about 80% of parotid tumors, 50% of submandibular tumors and less than 40% of sublingual and minor salivary gland tumors [2].

MATERIALS AND METHODS

The study took place at the University of Nigeria Teaching hospital following its approval in January 2007.The department of morbid anatomy UNTH Enugu is the largest referral histopathology center in Eastern Nigeria. The laboratory receives approximately 2000 surgical pathology specimens per year.

A total of thirty-three biopsies were received and analyzed and facts presented using simple percentages.

RESULT

Twenty of the specimens (60.6%) are from males, while thirteen (39.4%) are from females. The most common sites for salivary lesions were the parotid region in twenty-five cases (75.8%), the submandibular gland region in eight (24.2%).

The tumour types found were; inflammatory retension cyst from chronic calculous sialoadenitis four (12.1%), lymphangioma one (3%), mucoepidermoid carcinoma five (15.1%), adenoid cystic carcinoma three (9%), pleomorphic adenoma 12 (36.4%), acinic cell carcinoma one (3%), invasive moderately well differentiated squamous cell carcinoma was responsible for one case (3%), simple cyst one (3%), embryonal rhadbomyosarcoma one (3%). Malignant fibrous histiocytoma and granular cell myoblastoma had each one case (3%) respectively. Monomorphic adenoma was one (3%). Finally infiltrating adenocarcinomas involving the salivary glands had one (3%).

The most common lesion observed was pleomorphic adenoma, while the most common malignant lesion affecting the salivary glands here is Adenoid Cystic Carcinoma. The average age range for these lesions is thirty-nine years, ranging from four to ninety five years. Adenoid cystic carcinoma however occurred at an older average age of sixty eight years, while mucoepidermoid carcinoma is seen at a lower average age of twenty six years. Pleomorphic adenoma is also seen at an average of thirty-five years.

DISCUSSION

Salivary gland tumours appear quite uncommon in our environment, and constitute a mere1.7% of all lesions seen. The pleomorphic adenoma, also called benign mixed tumor is the most common salivary gland neoplasm with eleven cases (91.6%). It is seen almost exclusively in the parotid glands, except for one (8.3%) that occurred in the submandibular gland.

Ellis et.al had previously reported that “the most common location of occurrence of pleomorphic adenoma is the parotid (85%) followed by the minor salivary glands (10%), in which the palate, upper lip and buccal mucosa are most commonly affected”[2]. Although pleomorphic adenoma is seen here at an average age of thirty-five years, Ellis et al,also reported that these tumors are most often diagnosed in the 4th to 6th decades of life and are uncommon in children although they are second only to hemangiomas in that population2. This report show them as more frequent in males than females with a ratio of 2:1. Other studies demonstrate that they are seen more frequently in women with a female-to-male ratio of 3-4:1 [3,4,5].

The typical clinical presentation of a pleomorphic adenoma is as a slow-growing, painless and firm mass. All parotid pleomorphic adenoma seen were found in the superficial lobe of the parotid, similar to the report by Ellis et.al.[2] They were also typically nontender to palpation and tended to be mobile when small but may become fixed with advanced growth. These tumors were nearly always solitary. No Facial nerve paralysis in association with pleomorphic adenomas is seen.

The gross appearance of these pleomorphic adenomas are smooth or lobulated, well-encapsulated tumor that is clearly demarcated from the surrounding normal salivary gland. They are typically solid tumors and may have areas of gelationous myxoid stroma. Cystic degeneration or tumor infarction and necrosis were rarely seen except in large, long-standing lesions. Microscopically, these tumors are composed of varying proportions of gland-like epithelium and mesenchymal stroma. The epithelial cells displayed several different patterns of growth—small nests, solid sheets, ductal structures or anastamosing trabeculae. The stroma was just as variable rangingn from myxoid, chondroid, fibroid or osteoid. On microscopic examination, the incomplete encapsulation and transcapsular growth of tumor pseudopods characteristic of pleomorphic adenoma was demonstrated.

Treatment was by complete surgical excision with a surrounding margin of normal tissue,i.e., superficial parotidectomy with facial nerve preservation, sub-mandibular gland excision with excellent results. Rupture of the capsule and tumor spillage in the wound is also believed to increase the risk of recurrence, so meticulous dissection was paramount in the surgery as described by other authors in previous reports [2,3,4].

Chronic calculous sialoadenitis is next with four cases (12.1%). It is really a pseudotumour of inflammatory origin following calculous blockade of the main parotid duct. The most common

malignant tumour is mucoepidermoid carcinoma, with five cases (15.1%). Mucoepidermoid carcinoma has previously been reported to be the most common salivary gland malignancy, making up between 5 and 9% of all salivary gland neoplasms 6. We found it develops most commonly in the parotid gland in 4 cases (80%) and submandibular gland in one (20%). The tumour has also been documented in other studies to arise predorminantly in 67% of cases from the parotid glands and in 33% of cases in the minor salivary glands [7, 8,9,10].

Table1: Shows the distribution of the salivary gland neoplasm with respect to site, mean age and sex.

Histopathologic type of salivary gland neoplasm.	Parotid gland (Frequency)	Submandibular gland (frequency)	Sex		Average age in years.
			M	F	
Chronic sialoadenitis		4	3	1	45
Lyphangioma	1		1		18
Mucoepidermoid carcinoma	4	1	2	3	26
Adenoid Cystic carcinoma	3		1	2	68
Pleomorphic adenoma	11	1	8	4	35
Acinic cell tumour	1		1		30
Invasive squamous cell carcinoma	1		1		53
Simple cyst	1			1	4
Embryonal rhabdomyosarcoma	1		1		10
Malignant fibrous histiocytoma	1			1	43
Granular cell myoblastoma	1		1		46
Monomorphic adenoma		1	1		42
Adenocarcinoma		1		1	30

Though, the mean age of occurrence in our study for this tumor is 26 years. Ellis et .al 1991 reported that this tumor displays a uniform age distribution between the ages of 20 and 70 years, with a slight peak in occurrence in the 5th decade [2]. He further noted that, although it is rare before age 20, it is the most common salivary gland malignancy in the pediatric and adolescent populations. Mucoepidermoid carcinoma also occurs more frequently in women than in men and in Caucasians than in African Americans [2]. Thus, agreeing with our observation here that it is more common in females, with a female to male ratio of 3:2. Often the only complaint was the presence of an enlarging but asymptomatic mass. Occasionally patients reported a rapid enlargement of a previously stable mass. On gross inspection, mucoepidermoid carcinomas appeared well circumscribed and one was partially encapsulated. The cut surfaces of the tumor contained both solid areas, cystic areas. The cystic spaces often contained viscous or mucoid material. Microscopically, these tumors are characterized by the presence of two populations of cells—the mucus cells and the epidermoid cells, the proportion of which helps to define the grade of the tumor. Most are either low-grade mucoepidermoid, characterized by prominent cystic structures and mature cellular elements or intermediate-grade tumors displaying fewer and smaller cysts and occasional solid islands of epidermoid tumor cells.

Three patients had a Stage II disease, which was treated by surgical excision alone— parotidectomy with facial nerve preservation, submandibular gland excision or wide local excision of an involved minor salivary gland. One was however a Stage III disease which required a more radical excision and also warranted additional intervention such as a neck dissection and postoperative radiation therapy.

Adenoid cystic carcinoma has three cases (9%), and was more common in females with a female to male ratio of 2:1. It's reported to account for approximately10% of all salivary gland tumours in United States, where it's the most common malignant tumour of submandibular and minor salivary glands [11,12]. The mean age of presentation of adenoid cystic carcinoma is 68 years. Whereas Spiro et al reported that the ages of patients range from 20-84 years, with a median of 52 years11. Clinical presentation was as an asymptomatic mass in two patients, the third patient presented with pain. No facial paralysis was seen. Gross appearance was typically as a well defined but not encapsulated mass that can be seen infiltrating surrounding normal tissue. Microscopic

appearance is cribriform. Treatment options used include complete surgical resection and postoperative radiation therapy, with sacrifice of the facial nerve necessary for tumor eradication because of the propensity for this tumor to demonstrate perineural invasion. All the patients unfortunately were lost to follow up. Reported problems of management include tumor recurrence rates which vary in the literature but reportedly can be as high as 42%. Another problem with this tumor is its propensity for distant metastasis, the most common site being the lung [7,8,9,10]. Both local recurrence and distant metastasis can develop many years after initial treatment and multiple recurrences in the same patient have been reported [7, 8,9,10].

There was a case of primary squamous cell carcinoma of the salivary glands. In order to make this diagnosis, a high-grade mucoepidermoid carcinoma, metastatic squamous cell to the gland or intraglandular nodes and direct extension of a squamous cell carcinoma was first excluded. It occurred in a male patients aged 53 years. The gross and microscopic appearance is similar to squamous cell carcinoma of other primary sites, and was well differentiated with keratinization, and surface ulceration and spread to regional lymph nodes. Treatment consisted of surgical resection, neck dissection and postoperative radiation. There was a case of adenocarcinoma of the salivary glands, which occurred in a 30-year-old female involving the submandibular gland. Clinical presentation was as an enlarging mass.

There was also a case of Acinic cell carcinoma (3%) involving the parotid gland in a 30- year-old male. It is reported to be a rare tumor that accounts for about 1% of all salivary neoplasms [5,3]. This malignancy presented as an asymptomatic enlarging mass. It has been reported most commonly in the parotid gland, especially more in females with a peak incidence in the fifth and sixth decades of life 1. Microscopically the tumor was well differentiated and partly encapsulated, resembling the serous elements of the normal parotid gland. It is significant to note that generally forecasting the clinical behaviour of this tumour based solely on histological appearance is difficult. The soft tissue lesions seen here included a rare benign tumour called granular cell myoblastoma, resembling granular cells from other sites and are composed of sheets of uniform cells with small nuclei and abundant granular PAS positive cytoplasm that exhibit S100 immunoreactivity. The rest soft tissue tumours were malignant fibrous histiocytoma and embryonal rhabdomyosarcoma one each. They are therefore sarcomas, which needed to be distinguished from spindle cell carcinomas. Embryonal rhabdomyosarcoma was seen in the large parotid duct of a 10-year-old male, while malignant fibrous histiocytoma was found in a 43-year-old female. Morphologically they were indistinguishable from similar lesions found in other sites. Management involved wide surgical excision and chemotherapy.

In conclusion Salivary gland tumours remain quite uncommon in our environment, constituting a mere 1.7% of all lesions seen in the period of study. The pleomorphic adenoma also called benign mixed tumor was the most common of all salivary gland neoplasms seen in the period of study. It was seen almost exclusively in the parotid glands eleven cases (91.6%) while only one (8.3%)occurred in the submandibular gland. The most common malignant tumour was mucoepidermoid carcinoma, which was responsible for five cases (15.1%).

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