Original Article-2

Clinicopathological Features of Jaw Tumours

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ABSTRACT

Background: We reviewed case records of patients diagnosed to have jaw tumours to determine clinical presentation, histological subtypes and difficulties encountered in the management.

Patients and Methods: Between Jan 1980 and december 1999,136 patients were diagnosed to have jaw tumours.

Results: Seventy (51.4%) patients were males while 66 (48.6%) were females. The mandible was most common primary site-77 (56.6%) followed by maxilla-59 (43.3%). Histopathology- Fibro-osseous tumours were most common-41 (30.1%), followed by Ameloblastoma-28 (20.6%), cystic tumours-21 (15.4%), osteosarcoma-6 (4.4%), undifferentiated carcinoma-6 (4.4%), fibromyxoma-5 (3.6%), Burkitt's lymphoma-4 (2.9%), plasmacytoma-3 (2.2%) and Odontoblastoma in-2 (1.5%).

INTRODUCTION

Jaw tumours are noted for being slow growing and highly disfiguring. They appear to display remarkable features among Africans as Annand, Davey, and Cohen[1] put it in 1967 "Doctors in tropical Africa have for a long time reported that tumours of the jaw are among the tall trees in the jungle of surgical pathology". It is of interest therefore to report our clinical experience from the Plastic Surgery Department of the National Orthopaedic Hospital, Enugu, Nigeria.

Our Department has been handling jaw tumours since its inception 30 years ago. This report presents a 20 years review of these tumours from both clinical and pathological angles.

MATERIALS AND METHODS

The medical records of patients with clinical diagnosis of jaw tumours treated at the National Orthopaedic Hospital between January 1980 and December 1999 were retrospectively evaluated. Only patients whose diagnoses were confirmed histologically were analyzed. The data was collected as regards to age, sex, site of lesion, duration of symptoms and histologic diagnosis.

RESULTS

Case records of one hundred and thirty six patients were available for review. Seventy (51.4%) were males while 66 (48.6%) were females. The mandible was most common site-77 (56.6%) followed by maxilla in-59 (43.3%) patients. Pathologically Fibro-osseous tumours were common-41 (30.1%), followed by Ameloblastoma in 28 (20.6%) patients. Other tumours included cystic tumours, 21 (15.4%), osteosarcoma and undifferentiated carcinoma in 6 (4.4%) each. Fibromyxoma occurred in 5 (3.6%) patients, Burkitt's lymphoma in 4 (2.9%), plasmacytoma in-3 (2.2%), Odontoblastoma in-2 (1.5%) and others (Table 1).

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Table 1. SUMMARY OF JAW TUMOURS

S/n	Histological types	No of patients (percentage)	Mean Age (years)	Sex ratio Male: Female
1.	Fibro-osseous tumours	41 (30.1)	19.3	19:22
2.	Ameloblastoma	28 (20.6)	33.2	15:13
3.	Cystic tumours	21 (15.4)	20.0	11:10
4.	Fibrosarcoma	6 (4.4)	27.0	2:4
5.	Undifferentiated carcinoma	6 (4.4)	39.0	4:2
6.	Osteosarcoma	6 (4.4)	12.5	5:1
7.	Fibromyxoma	5 (3.6)	18.0	2:3
8.	Burkitt's lymphoma	4 (2.9)	9.5	2:2
9.	Plasmacytoma	3 (2.2)	16.5	2:1
10.	Odontoblastoma	2 (1.5)	17	1:1
11.	Osteoclastoma	1 (0.7)	22	M
12.	Giant cell reparative tumour	1 (0.7)	30	M
13.	Aneurysmal bone cyst	1 (0.7)	25	F
14.	Adenomatoid odontogenic tumour	1 (0.7)	20	M
15.	Juvenile angiosarcoma	1 (0.7)	35	M
16.	Fibromyxosarcoma	1 (0.7)	21	F
17.	Malignant osteoclastoma	1 (0.7)	30	M
18.	Squamous cell carcinoma	1 (0.7)	45	F
19.	Soft tissue sarcoma	1 (0.7)	36	M
20.	Hemangioma	1 (0.7)	27	F
21.	Myofibroma	1 (0.7)	25	F
22.	Fibroma	1 (0.7)	22	M

M - Male, F - Female,

The peak age group was 11 to 20 years (54 or 39%) followed by third decade 21-30years with 26 (19.1%) patients. Only 14 (34.1%) of 41 patients presenting with fibro-osseous tumours presented in the first one year while 13 (31.7%) presented between 1-5years and 14 (34.1%) others after 5 years.

Table 2. Jaw tumours according to age

Age	Fibro-osseous	Ameloblastoma	Cystic tumors	Others	Total
0-10 years	4	-	1	10	15
11-20 years	23	7	10	14	54
21-30 years	10	9	4	6	29
31-40 years	2	4	3	5	14
41-50 years	1	6	1	5	13
51-60 years	1	2	-	3	6
61-70 years		-	2	3	5
Total	41	28	21	46	136

Majority 17(60.7%) of the patients with Ameloblastoma presented between 1 to 5years after its onset while only 4 (14.3%) presented in the first year. Cystic and other tumours tend to present earlier with more than half 11(52.4%) presenting in the first year (table 3).

Table 3. Duration of symptoms of jaw swelling before presentation.

Duration/tumour	Fibrooseous	Ameloblastoma	Cystic tumours	Others	Total
Less than1 year	14	4	11	24	52
1-5 years	13	17	10	16	57
6-10 years	10	5	-	4	19
10-20 years	4	-	-	2	6
Not stated	-	2	-	-	2
	41	28	21	46	136

For Fibrooseous tumours, maxilla 29 (70.7%) was the common site; while for Ameloblastoma mandible 24 (85.7%) was common site. Cystic tumours affected the mandible in 16 (76.2%) patients compared to the maxilla in 5 (23.8%) patients. Other tumours affected the mandible in 25 (54.3%), more than the maxilla in 21 (45.7%) patients (table 4).

The distribution of the average age at presentation and sex ratio is shown in table 1. The average age of patients who presented with fibrooseous tumour was 19.3 years, ameloblastoma 33.2 years, while fibrosarcoma and osteosarcoma were 27 and 12.5 years, respectively. Male to female ratio among patients was as follows: Fibro-osseous tumours 19:22, Ameloblastoma, 15:13, cystic tumours, 11:10. Undifferentiated carcinoma and osteosarcoma show male preponderance of 4:2 and 5:1 respectively (table 5).

DISCUSSION

This study highlights the clinicopathological features of jaw tumours presenting to the National Orthopaedic Hospital Enugu over a 20 year period. Fibrooseous tumours constitute 30.1% of all the tumours seen in this study (table 1).

Table 4-Sites of Jaw Tumour.

Tumor/ site	Mandible	Maxilla	Total
Fibro-osseous tumour	12	29	41
Ameloblastoma	24	4	28
Cystic tumours	16	5	21
Others	25	21	46
Total	77	59	136

Fibro-osseous tumours constitute a diverse, interesting and challenging group of conditions that pose difficulties in classification and treatment. Fibro-osseous lesions containing cementum are considered to be of periodontal membrane origin and are most common in the mandible and maxilla[2]. Common to all is the replacement of normal bone by a tissue composed of collagen fibres and fibroblasts that contain varying amounts of mineralized substance, which may be bony or cementum in appearance.[3]

Females were affected more (male: female ratio: 19:22) similar to study by Hamner et al[4]. It has been observed that the tumour may affect any bone but the jaws are the most frequent with most authors showing a small predominance for the maxilla.[5] Our current study shows the maxilla to be more commonly affected in (70.7%) patients with Fibro-osseous tumours.

Treatment was mainly by contour reduction except in a few patients who presented with distorting tumours of the jaw; two had mandibulectomy and one hemimaxillectomy and one patient who had recurrence two years after contour reduction had hemimaxillectomy. Function and aesthesis were generally not so much affected after surgery in this group of patients.

Ameloblastoma is the second most common of the tumours seen in the present study, constituting 20.6 % of the total jaw tumours.

Most are benign but locally invasive odontogenic neoplasm of the mandible and maxilla that rarely exhibits malignant behaviour.[6] Ameloblastoma is the most common odontogenic tumour of the jaw.[7] The tumour derives from the ectodermal epithelium that has the capacity to differentiate into enamel epithelium. The cells may reach the ameloblastoma stage without forming the true enamel.

Though usually clinically and histologically benign, ameloblastoma has a propensity for dangerous and disfiguring growth and for recurrence, often delayed, following inadequate therapy.[8] It may produce facial deformity and disturbances of speech, deglutition and mastication.[5, 9] Metastases occur very rarely.[6]

Ameloblastoma affected the mandible in 24 (85.7%) and maxilla in 4 (14.3%) patients in this study. A previous study from Ibadan shows that Ameloblastoma was the commonest odontogenic tumour and that maxilla: mandibular ratio was 1:9 with the mean age being 33 years[10] similar to the current study. The most common benign jaw tumour in children in present study was ameloblastoma,[11] though Pramulio et al[12] have described ameloblastoma as a tumour of adults and that it is more common in Africans. The youngest of our patient with ameloblastoma was 11 years while the oldest was a 62 year man who had had the tumor for over 10 years. The mandible to maxilla ratio was 2.7:1 in one study compared to 4:1 in the present study.[13]

Treatment of ameloblastoma can be variable; the type of treatment for each case should take into consideration the clinical type of the tumour, patient's age and medical status, location of the tumour in the jaws (mandible or maxilla), size of tumour and the likelihood of the patient attending follow up appointment.[7] 24 of 28 (85.7%), patients presented with ameloblastoma after one year thereby exhibiting huge, disfiguring tumours with functional disturbances in speech, chewing and swallowing. This also resulted in resections with wide gap, which necessitated reconstruction; facilities for which is not readily available in our environment. Bone grafts, Kirschner wire as spacers and polymethylmetacrylates were commonly used for the defects. One of the reasons for choosing the option of resection with a good margin in our patients was the fact that most of them do not come for follow up where the smallest recurrence could be easily picked up and treated immediately. Most of the patients who ahd had minimal margin resection elsewhere came to our centre with huge disfiguring tumours needing mandibulectomy. No microvascular procedures were carried out as our unit has no facility or expertise for this. The results were not usually aesthetically pleasing to the patients and follow up was rather poor.

Arotiba shows male to female ratio of orofacial tumours in children to be 1.4:1 with benign tumours (59.8%) being more prevalent than malignant tumours (40.2%).[13] Our current study shows a male to female ratio of all the jaw tumours to be 1.1:1 with benign tumours constituting 79% of all the tumours and malignant lesions, 21% in both adults and children. Fibrosarcoma has been described as a neoplasm, which produces collagen fibres but no new bone or cartilage formation. Predisposing lesions include-fibrous dysplasia, Paget's disease or giant cell tumour. Fibrosarcoma is also seemingly induced by chronic osteomyelitis or irradiation[13]. Five of 7 cases of fibrosarcoma studied by slootweg and Muller[14] affected the mandible while 2 involved the maxilla. There were 3 males and 4 females with age range of 11 to 59 years.

Present study shows 6 patients with fibrosarcoma with 4 being females and two males. The mandible was affected in 4 while the maxilla was affected in 2 of the patients. Their age ranges between 11 and 58 years with an average of 27 years. These patients had maxillectomy and mandibulectomy with radiotherapy. The prognosis was however bad as they all died within two years of treatment. The summary of other tumors is shown in table 1.

Oji has reported ignorance and poverty as the main reasons for the late presentation in 120 of his 128 patients who presented with orofacial tumours.[15] He also attributed difficulty in treatment of these patients to advanced stages of the tumours as noticed in this study. Similar findings were reported by one of co-author earlier in the 1970.[16]

CONCLUSION

This study shows the differential diagnosis of jaw tumours. It has also revealed the age range affected by common tumours and the fact that our patients present quite late with huge disfiguring tumours. The challenge this poses to reconstruction in our environment with no or limited facilities for microvascular surgery are obvious. Education will go a long way to encourage patients to present early once swelling is noticed, even if it is painless.

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COMMENTS

The article reviews the clinicopathological features of the jaw tumors seen at a center in Nigeria. The results shown are no different from what we already know about Nigeria. The fibro-osseous tumour has been sighted most followed by ameloblastoma. The incidence of ameloblastoma is in accordance with the recent study.[1] The article would have further added to knowledge if the group of fibro-osseous tumors were further classified accordingly. The histopathological classification of ameloblastoma and its clinical presentation would have further added to the current knowledge. The entity of cystic tumours which has been shown to be 15% is also confusing. This should have been further classified as per lesion.

It is known now that compared to west ameloblastoma is not a rare entity in Nigeria.[2] Burkitt's lymphoma which is regarded as rare in west is again seen in Nigerian population. A recent study states that it is endemic in Nigeria and form 39% of all the childhood cancers. Jaws are affected in 65% patients and it has a male preponderance.[3]

As of the late presentation of such patients for treatment, a well oiled primary health structure will go a long way in educating the masses for early referral for treatment which would result in less disfigurement. More international aid and training should be provided by world fraternity so that latest microvascular reconstruction modalities are available in even most interiors of Africa.

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