A Five Year Audit of Cases Admitted in Maxillofacial Surgery Wards in a Nigerian Teaching Hospital

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ABSTRACT

Objective: Admissions of Maxillofacial surgery patient's are on the rise. However, search of English literature shows that there has not been any audit on pattern of maxillofacial admission done in any Nigerian hospital. The objective of the study was to review the indications and pattern of maxillofacial surgery admission in a Nigerian Teaching hospital over a 5-year period.

Methods: A retrospective review of the pattern of maxillofacial admissions in a Teaching Hospital in North-West Nigeria from January 2011 to December 2015. Sources of information included maxillofacial ward admission records; patients' case files, accident and emergency records and patients discharge registers.

Results: One thousand one hundred and thirty (1,130) patients were admitted into the maxillofacial ward during the study period with an overall gender ratio of 1:1.25. 260 patients were admitted as emergencies while 870 patients were admitted on elective basis. Review of treatment given showed that reduction and immobilization/ arthroplasties had the highest frequency (29.38%) while sequestrectomies had the lowest frequency of 0.80%.

Conclusion: A progressive increase in the number of admission of patients into maxillofacial surgery wards shows that there is need for advocacy to improve the practice of the specialty in this region in terms of resources allocation and manpower development.

Keywords: Admission audit, Maxillofacial surgery, Retrospective studies, Tertiary care center.

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INTRODUCTION

Surgical audit is a normal part of surgical practice,[1] it is a systematic, critical analysis of the quality of surgical care provided with the aim of improving care, providing continuous education for surgeons and guiding appropriate use of health resources.[2]. Oral and maxillofacial surgery is one of the surgical sub- specialties in Nigeria. It is a relatively young specialty of medicine established in the second half of the 20th century, supported by general surgeons and inspired by talented dentist.[3] The scope of oral and maxillofacial surgical services depends on the prevalent medical conditions in the environment, the training of maxillofacial surgeons and the presence or absence of other surgical specialist like the otolaryngologists, plastic surgeons, ophthalmologists or even the general surgeons. Maxillofacial surgery services have evolved over the years with an increase in the complexity of cases seen and an improvement in the standard of care. In developed countries, maxillofacial surgery has evolved into various subspecialties[4] cutting across management of patients with orofacial infections, tumors (benign and malignant), congenital abnormalities, facial fractures/ trauma and its sequelae, cosmetic treatment amongst others. These services are often rendered either on emergency or elective basis. A lot of elective maxillofacial services are rendered as office /out-patient procedures; however, there are some patients requiring treatments who must be admitted to the maxillofacial wards.

In most Nigerian hospitals, maxillofacial surgery units do not have designated wards or beds, rather they share space allocation with other surgical specialties as the need arises. To the best of the

authors knowledge there has not been any audit on the pattern of maxillofacial admissions in any Nigerian hospital. This information is crucial in the light of increasing maxillofacial surgery cases. The information obtained from this study, would be needed for future planning, resource allocation and effective policy formulation. Hence this study was carried out with the objective of discussing the specific indications and pattern of admissions into maxillofacial surgery wards in a tertiary health centre over a period of 5 years.

MATERIALS AND METHODS

This study was a retrospective review of the pattern of maxillofacial surgery admissions in a Teaching Hospital from January 2011 to December 2015. Sources of clinical information included maxillofacial ward admission records; patients' case files, accident and emergency records and patients discharge registers. Information obtained included age and sex of patient, indication for patient admission, duration of hospital stay and the route of patient admission (from the out-patient clinic or from the accident and emergency department), type of service rendered to the patient and patient outcome.

The indication for hospital admission was classified into emergency and elective; these were further subdivided, based on the underlying pathology, into trauma/temporomandibular joint (TMJ) ankylosis, infection, neoplasm/cyst, congenital abnormalities, anaphylaxis and reconstructions. Patients with incomplete information in their case notes were excluded from the study. Ethical approval for this study was obtained from the Health Research Ethical Committee (HREC) of the teaching Hospital

The data was analyzed using statistical package for social sciences (SPSS) version 16.0 (SPSS Inc, Chicago, IL). Absolute numbers and simple percentages were used to describe categorical variables. Quantitative variables were described using measures of central tendency (mean, median) and measures of dispersion (range, standard deviation) as appropriate.

RESULTS

The study involved a total of one thousand one hundred and thirty (1,130) patients comprising of 460 adult male patients, 380 adult female patients and 290 pediatric patients (167 males and 123 females). Ages of the adult male patients ranged from 18-89 years while that of the adult female patients ranged from 18-80 years. Ages of the pediatric patients ranged from one and half months to 17 years. 260 patients were admitted via the emergency unit while 870 patients were admitted on elective basis. Mean hospital stay for emergency admissions was 10 days while for elective admission mean stay was 16 days (Table 1).

Number of patients admitted during the study period and indications for hospital admission versus gender of patients are presented in Tables 2 and 3 respectively.

Table 1: Socio-demographic characteristics of the study population

Variable	Number (%)	Mean±SD
Gender		
Adults (18-89 years)		
Males	460 (54.8)	34.53±16.79
Females	380 (45.2)	33.31±16.91
Children (0-17 years)		
Males	167 (57.6)	6.94± 3.92
Females	123 (42.4)	5.58± 2.14
Age group (years)		
0-9	254 (22.5)	
10-19	96 (8.5)	
20-29	406 (35.9)	
30-39	151 (13.4)	
40-49	67 (5.9)	
50-59	66 (5.8)	
60-69	42 (3.7)	
70-79	30 (2.7)	
80-89	18 (1.6)	
Type of admission		
Elective	870 (77.0)	
Emergency	260 (23.0)	
Duration of hospital stay for electives		
0- 7 days	80 (9.2)	
8-14 days	169 (19.4)	16.01 ± 5.4
15-21 days	442 (50.8)	
22-28 days	179 (20.6)	
Duration of hospital stay for emergency		
0-7 days	93 (35.8)	
8-14 days	144 (55.4)	10.01 ± 4.4
15-21 days	11 (4.2)	
22-28 days	12 (4.6)	

Table 2: Number of admission per annum

Year	Number of patients	Percentage of total admissions
2011	110	9.73
2012	211	18.67
2013	232	20.53
2014	264	23.36
2015	313	27.70
Total	1130	100.00

Table 3: Indication for admission versus gender distribution.

	Emergency		Elective		Total	Percentage
Diagnosis	M	F	M	F		
Trauma/TMJ ankylosis	62	30	171	89	353	31.2
*Infection	77	70	103	105	354	31.3
Neoplasm/cyst	9	6	130	120	265	23.5
Cleft lip and palate	-	-	50	45	95	8.4
Anaphylaxis	2	4	-	-	6	0.5
Reconstruction	-	-	23	34	57	5.0
Total	150	110	477	393	1130	100.00

*Infection were facial cellulitis, Ludwig's angina, orbital cellulitis of odontogenic origin and acute Osteomyelitis.

Table 4: Mortality based on diagnosis

Diagnosis	Mean age	Frequency	Percentage
Infection	49.0	11	73.33
Neoplasm	58.0	4	26.67
Total	-	15	100.00

Neoplasm's included- squamous cell carcinoma of the maxillary antrum (stage IV) and adenocystic carcinoma (stage IV)

Table 5: Treatment modalities employed

Variables	Number	Percentage
Excision and Enucleation	126	11.2
Incisions and drainage	345	30.5
Mandibulectomies	120	10.6
Maxillectomies	15	1.3
Sequestrectomies	9	0.8
Reduction and immobilization/ Arthroplasties	353	31.2
Reconstructions	57	5.0
Cleft lip and palate repair	95	8.4
Palliation	4	0.4
*Medications	6	0.5
Total	1130	100.00

*medications included empirical and drugs based on sensitivity patterns - these were ceftriaxone, penicillins, ofloxacin, metronidazole, gentamicin.

Mortality during the period of study was mainly from infection and neoplasm; the details are presented in Table 4. Review of treatment given showed that reduction and immobilization/ arthroplasties were the commonest treatment modality employed with a frequency of 29.38% while sequestrectomies had the lowest frequency with 0.80%, (Table 5).

DISCUSSION

The worldwide pattern of oral and maxillofacial surgical conditions has been rarely reported despite its significance in head and neck medicine.[5] There are numerous documented audits of admission in different branches of medicine in the English literature,[6,7] the author's search of the English literature, however, revealed

only one in maxillofacial surgery. Admission of patients for the purpose of maxillofacial surgery treatment is as old as the profession itself. Admission of patients in emergency maxillofacial surgery cases is usually for treatment, resuscitation and observation while admission for elective cases is often for optimization for surgery, surgery and post-operative care.[7]

Care for maxillofacial patients on admission is rendered by maxillofacial surgeons and general surgery Nurses. Therefore, the admission of maxillofacial surgery patients with similar pathologies into a single ward under the care of highly skilled and specialized nurses would make nursing care and review by surgeons prompt and efficient. This care can also be enhanced by the sub-specialization of maxillofacial surgeons into its core[4,8] areas of maxillofacial surgery(maxillofacial trauma, Dentoalveolar surgery, oro-facial cancer and reconstructive surgery, orthognathic surgery, cleft lip and palate, craniofacial surgery, skull base surgery, stereolithography, facial aesthetic surgery, laser and cryosurgery, Pre-prosthetic surgery and dental implants) . However, there is currently no specialized training into the various sub-specialties of maxillofacial surgery as well as lack of formal training for the nurses that take care of maxillofacial patients in our facility.

Our study showed that there was an increase in the number of patients' admitted into the maxillofacial unit as the years progressed with the number of maxillofacial surgery cases tripling between the first year and the fifth year under review. This trend may be a reflection of an increase in awareness of the scope and practice of maxillofacial surgery in the region as well as making it obvious that there is a need for more specialists in this field. Admission for elective maxillofacial surgeries accounted for 77 % of our total maxillofacial admissions, this finding was comparable to the study by Adem et al.[9] in Ethiopia who also observed that elective surgeries accounted for 74.1% of surgical admissions generally.

More males than females were admitted and the age group most commonly affected was the 20-29 years age group. Our study showed that infection accounted for the commonest cause for emergency admission. These Infections were mostly facial cellulitis, Ludwig's angina, orbital cellulitis of odontogenic origin and acute Osteomyelitis. The high rate of infection could be attributed anecdotally to the increasing incidence of quacks being involved in various dental procedures in the country.

Trauma is known as an important cause of hospitalization in Africa[10], and it was the second most common cause for emergency admission in our study. This was similar to the study of Paingha and Gbobo[10] in a three years review of paediatric admission in Bayelsa State, Nigeria. None of the patients in our study had an emergency reconstruction. Patients' with neoplasm who had emergency admission were mostly inoperable malignancies who presented with acute pain, spontaneous bleeding or chronic anemia requiring resuscitation.

The most common treatment modality employed within our study period was reduction and immobilization and arthroplasties. Arthroplasies were done for subjects managed for TMJ ankylosis most of whom were young patients who reported a history suggestive of missed diagnosis of condylar fractures following trauma. The overwhelming frequency of these procedures buttresses the fact that trauma still remains a major problem of developing economies. This has been corroborated by others in Nigeria [5,11]and across the world.

The mortality rate as seen in our study was 1.33%. This was significantly higher than 0.0021% documented by Fahad et al.[3] in a 3 years review of maxillofacial admissions in Pakistan. Our mortalities were recorded from infection and neoplasm while that of Fahad[3] were mostly from RTA and fire arm injuries. The presence of dedicated maxillofacial intensive care unit (ICU) in Fahad's facility may have contributed to a reduction in their mortality rates. Mortality from maxillofacial infections and tumors in our environment commonly results from late presentation.[12,13] Improved oral health education especially at the community level will ensure early presentation and thus, reduce the devastating consequences commonly associated with descending cervicofacial and advanced malignant neoplasm in our environment.

CONCLUSION

Increased number of admission of patients into maxillofacial surgery ward during the period of our review showed that there is need for advocacies to improve the practice of the specialty in this region in terms of resources and manpower. Findings of this audit also dictates need for development of the secondary care facilities as a number of subjects managed in this tertiary center could have been treated in secondary centers and thus allow the tertiary centers to concentrate on complex maxillofacial cases.

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