

## Spectrum of Oral and Maxillofacial Surgical Procedures in Kano, Nigeria

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### ABSTRACT

*The goal of the maxillofacial surgeon is to correct facial deformity while eradicating surgical diseases, prevent recurrence or complication and restore function. The aim of this paper is to review the surgical procedures carried out in a new tertiary teaching hospital. A retrospective study of patients with maxillofacial surgical diseases seen at the Department of Dental and Maxillofacial Surgery, Aminu Kano Teaching Hospital, Kano, Nigeria, between 2001 and 2003, was conducted. A total of 87 patients had various (primary and secondary) surgical procedures during the period under review. There were 51 males and 36 females, a male to female ratio of 1:0.61 with an age range of 3 days to 90 years and a mean age of 34.5 years. The majority of the patients were in the lower socio-economic group. Reduction and immobilization of the jaw fractures (n = 21, 23.3%) was the most common, followed by transosseous wiring (n = 12, 13.3%). The most common complications were malocclusion (n = 14, 29.8%) and facial defects (n = 12, 25.5%). Reduction and immobilization, and tumour surgery of the jaws seem to be the most common surgical procedures while osteotomy was the least. Reduction and immobilization with simple arch bars appeared to be very effective, more so when the patients could not afford more modern methods of treatment. Reconstructive surgeries of ablated jaws are advocated in view of the devastating aesthetic and psychosocial effects that these have on the patients.*

### INTRODUCTION

The aim of maxillofacial surgeries is to eradicate active diseases and to prevent recurrence and complications. Maxillofacial trauma (1–3) and tumours (4,5) with their attendant morbidity constitute some of the major problems with which the maxillofacial surgeon in this environment is confronted. Therefore facial disfigurement (6,7) is one of the main reasons for presentation at the maxillofacial clinics.

Successful accomplishment of restoration of function and aesthetics usually depends on the experience and dexterity of the surgeon and the facilities available. The purpose of this paper is to review the scope of maxillofacial surgical procedures and complications of such procedures during a two-year period (2001–2003) of practice by the authors at the Dental and Maxillofacial Surgery Department, Aminu Kano Teaching Hospital, Kano, Nigeria. The centre serves four of eight states in Nigeria's northwest geopolitical region.

### MATERIALS AND METHODS

This is a retrospective study conducted at the Department of Dental and Maxillofacial Surgery, Aminu Kano Teaching Hospital, Kano, Nigeria, over a two-year period between

May 2001 and April 2003. All patients who had maxillofacial surgical procedures were identified from the record file of the unit and their case notes were retrieved and reviewed.

A total of eighty-seven patients had various surgical procedures during the period under review. All cases were managed by the authors. Apart from the trauma and congenital cases, all other patients with swellings, cysts and tumours were histopathologically diagnosed. The demographic data, surgical procedures and complications were then analyzed using Microsoft Excel.

### RESULTS

Eighty-seven patients representing 77.7% of total patients presenting with maxillofacial surgical diseases during the period under review had 98 (90 primary and 8 secondary) surgical procedures. There were 56 males and 31 females, a male-female ratio of 1.9:1. The age range was from three days to 90 years (mean = 34.5 years) (Table 1) and the majority (n = 30, 34.5%) were in the third decade of life.

The socio-demographic characteristics are shown in Table 1. Based on the type of anaesthesia employed, 77 (88.5%) were classified as major while the remaining 10 (11.5%) were classified as minor procedures. Socio-economic stratification of the patients was carried out using occupation according to the assessment of Oyedepi (8) with a modification. Class I were senior public servants, professionals, managers, contractors, businessmen, large scale traders and farmers; class II – intermediate grade public ser-

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Table 1: Personal characteristics of the patients

Characteristics	Number	%
<b>Gender distribution</b>		
Male	56	64.4
Female	31	35.6
<b>Mode of anaesthesia</b>		
Major/general anaesthesia	77	88.5
Minor/local anaesthesia	10	11.5
<b>Occupation</b>		
Professionals (lawyers, doctors, engineers etc)	4	4.6
Artisans (barbers, tailors, mechanics, hairdressers etc)	5	5.7
Small scale business	7	8.0
Trading	18	20.7
Farming	11	12.6
Teaching	3	3.4
Civil servants	10	11.5
Students	13	14.9
Labourers/messengers/cooks	2	2.3
Drivers	6	6.9
Unemployed/housewife	8	9.2
<b>Age:</b>		
Range	3 days to 90 years	
Mean	34.5 years	

vants and senior school teachers; class III – junior grade public servants, artisans, drivers and small scale businessmen; class IV – labourers, messengers, petty traders and similar grades; class V – students, unemployed, full time housewife, subsistence farmers. Thirty-two (36.8%) were in social class V while 4 (4.6%) were in social class I.

Table 2 shows the diagnosis/indications for surgery with mandibular fracture (n = 24, 27.6%) being the commonest. The surgical procedures included reduction and immobilization (n = 21, 23.3%), trans-osseous wiring (n = 12, 13.33%), resection (n = 7, 6.73%) and others (Table 3). Less common procedures were C-shaped osteotomy, inverted L-osteotomy, bicoronal flap, grafts and correction of ectropion. The most common complication was malocclusion (n = 14, 29.8%), followed by facial defects (n = 12, 25.5%) and others (Table 4). Seven (58.3%) of the 12 facial defects were observed following resection with disarticulation. Secondary surgical procedures (n = 8) were carried out to correct some of these complications.

## DISCUSSION

This study showed a wide variation in the scope of maxillofacial surgical procedures encountered during the

Table 2: Diagnosis/indications for surgery

Diagnosis/indications	Number	%
<b>Odontogenic tumours</b>		
Ameloblastoma	4	4.6
Ameloblastic fibroma	1	1.2
<b>Cysts</b>		
Odontogenic keratocyst	1	1.2
Dentigerous cyst	1	1.2
Dermoid cysts	2	2.3
Frontal sinus cyst	1	1.2
<b>Fibro – osseous</b>		
Ossifying fibroma	2	2.3
Fibrous dysplasia	1	1.2
Cementifying fibroma	1	1.2
<b>Salivary gland tumours</b>		
Pleomorphic adenoma (parotid)	5	5.7
Spindle cell cancer (submandibular gland)	1	1.2
Ectopic salivary gland	1	1.2
<b>Non – odontogenic tumours</b>		
Osteosarcoma	1	1.2
Giant cell granuloma	1	1.2
<b>Congenital</b>		
Cleft lip and palate	8	9.2
Ankyloglossia	2	2.3
<b>Trauma</b>		
Middle 1/3 # (maxilla)	7	8.0
Mandibular #	24	27.6
Zygomatic complex #	5	5.7
Nasal complex #	1	1.2
tissue injury/avulsion/laceration	9	10.3
Ectropion upper eyelid	1	1.2
Contracture (nasolabial region)	1	1.2
<b>Others</b>		
osteomyelitis	2	2.3
Bilateral TMJ dislocation	1	1.2
Ankylosis	1	1.2
Collapsed anterior frontal sinus	1	1.2
Foreign body in cheek	1	1.2
<b>Total</b>	<b>87</b>	<b>100%</b>

period under review in a new tertiary hospital. In this study, among the cysts, tumours and tumour-like lesions of the jaws, the odontogenic tumours, led by ameloblastoma, remain the commonest. This trend is in line with global reports (5, 9). Regarding the non-tumour lesions, trauma (n = 46, 55.2) was the commonest with mandibular fracture being the leading indication in that group. Facial trauma in Nigerian Africans are common (1, 2, 10, 11). The age range in this study is in conformity with publications on maxillofacial surgical diseases (1, 3, 9). There were two very young patients with congenital cleft lip and palate. The various surgical procedures in this study were in line with prescribed procedures employed for maxillofacial surgical diseases.

The commonest post-operative morbidity were facial defects, malocclusion and drooling of saliva. These occurred

Table 3: Primary surgical procedures

Surgical procedures	No	%
Enucleation	2	2.2
Resection with disarticulation	7	7.7
Repair	8	8.8
Excision	6	6.6
Surgical shaving	1	1.1
Release of contracture	1	1.1
Reduction and immobilization	21	23.3
Suturing	7	7.7
Débridement	3	3.3
Parotidectomy	5	5.5
Trans-osseous wiring	12	13.3
Percutaneous approach	2	2.2
Sequestrectomy	2	2.2
Release of ectropion and skin grafting	4	4.4
Coronoidectomy	1	1.1
Acrylic cap splint	2	2.2
Release of ankyloglossia	1	1.1
Onlay graft (alloplastic)	1	1.1
Removal of foreign body	1	1.1
C-shaped ostectomy	1	1.1
Inverted L-shaped osteotomy	1	1.1
Bicoronal flap	1	1.1
<b>Total</b>	<b>90</b>	<b>100%</b>

Table 4: Post-Operative complication

Complications	No	%
Facial nerve weakness/paralysis	3	6.4
Parotid fistula	2	4.3
Oro-nasal fistula	1	2.1
Wound breakdown	2	4.3
Malunion	1	2.1
Post-traumatic headache	2	4.3
Trauma (burns) to lip from surgical drill	1	2.1
Drizzling of saliva	4	8.5
Speech difficulty	3	6.4
Immobility of tongue	2	4.3
Facial defects	12	25.5
Malocclusion	14	29.8
<b>Total</b>	<b>47</b>	<b>100%</b>

following surgical ablation of the mandible with resultant loss of sulcus depth. This is similar to the report of Adekeye and Apapa (12). Reconstruction of the lost segments usually alleviates these (13–15). Unfortunately, because of the low economic empowerment of most of the patients (Table 1), only two of them had reconstruction of mandibular defects, one with autogenous iliac crest bone graft and the other insertion of Steinmann's pin (Table 5). Most Nigerian patients attending tertiary institutions are usually in the lower and intermediate socio-economic group (16–19). Ameloblastoma is notorious for its high recurrence rate (20–22).

In this study, recurrence was post-surgical shaving of a fibrous dysplasia.

Our experience has shown that fibro-osseous lesions in indigenous Africans are unrelentless in their growth, hence

Table 5: Secondary surgical procedures

Indications	Secondary surgical procedures	No	%
Loss of mandibular segments	autogenous iliac bone crest graft	1	12.5
Loss of mandibular segments	insertion of Steinmann's pin	1	12.5
Wound breakdown	secondary suturing	1	12.5
Wound breakdown	skin grafting	1	12.5
Malunion with aperthognathia	refracture with trans-osseous wiring	1	12.5
Oronasal fistula	repair	1	12.5
Parotid fistula	cannulation of the duct	2	25.0
<b>Total</b>		<b>8</b>	<b>100%</b>

excision of lesion is recommended. Two years is a short period to comment on recurrence of odontogenic tumours as some are reported to have recurred 30 years post operatively (22). Facial nerve weakness post-parotidectomy recovered about six weeks post-operatively following physiotherapy and neurobion/Vit. B complex therapy in two cases except where it was sacrificed during radical parotidectomy. Post-traumatic headache is usually one of the components of post-concussional syndrome (22) which usually resolves with time.

## CONCLUSION

This study has highlighted the various surgical procedures carried out at the Department of Dental and Maxillofacial Surgery, Aminu Kano Teaching Hospital, Kano, Nigeria. Reduction and immobilization and tumour surgery of the jaws seem to be the most common surgical procedures while osteotomy was the least. Reduction and immobilization with simple arch bars appeared to be very effective, more so when the patients could not afford more modern methods of treatment which are relatively expensive. Reconstructive surgeries of ablated jaws are advocated in view of the devastating aesthetic and psychosocial effects that these have on the patients.

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