

Establishment of Oral and Maxillofacial Surgical services in a Tertiary Health Facility in Tanzania.

Original
Article

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ABSTRACT

Objective: Tanzania's burden of oral and maxillofacial conditions significantly increases the demand for surgical services. Therefore, we report establishing sustainable oral and maxillofacial surgical services for delivering high-quality, evidence-based surgeries in a cost-effective, safe, and efficient manner

Methods: In 2021/2022, plans were made to establish oral and maxillofacial surgical services at the Muhimbili National Hospital- Mloganzila, Tanzania. During the preparatory phase of the program, a team of oral and maxillofacial surgeons from the Muhimbili National Hospital-Upanga developed a strategic plan to see through this establishment. During this phase, the team selected patients with orofacial conditions requiring surgical management, operated on them, and followed them up after surgery.

Results: In the preparatory phase, twenty-five patients were surgically managed. The age of patients ranged between 8 and 76 years with a mean age of 33.68 ± 2.83 years and the male-to-female ratio was 2.1:1. Most of the diagnosed cases managed during the preparatory phase were benign lesions/ cysts (n =10, 40.0%) and traumatic conditions (n =8, 32.0%) Ablative surgical procedures were frequently performed (n=12, 48.0%)

Conclusion: This was a successful establishment of oral and maxillofacial surgical services in a new state-of-the-art health facility in Tanzania.

Key Words: Oral and maxillofacial surgery, Establishment, Surgical Services, Tanzania. .

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INTRODUCTION

The oral and maxillofacial region (OMR) of the body is susceptible to various conditions from birth to adulthood including developmental anomalies, benign and malignant neoplasms, infectious and inflammatory diseases, and traumatic conditions^[1]. Any ailment in this region of the body affects not only one's ability to eat, breathe, and/or speak but also affects interactions with others consequently impacting one's quality of life. Thus, managing patients with oral and maxillofacial disease is necessary, often by surgical modality^[2].

As it is in other African countries^[3-7], the burden of oral and maxillofacial conditions in Tanzania is significant [8-11]. An increase in the burden of the disease has led to a rise in demand for theatre services. A recent study from Muhimbili National-Upanga (MNH-Upanga) in Tanzania reported a two-fold annual increase in the number of oral and maxillofacial surgeries performed in the center^[1].

This, in turn, has led to an overload of cases requiring surgical care in operating theatres of MNH-Upanga, hence surgical management of most patients with oral and

maxillofacial conditions getting delayed^[12]. To overcome this challenge, there was a need to establish oral and maxillofacial surgical services in a new modern, state-of-the-art hospital facility, the Muhimbili National Hospital-Mloganzila (MNH-Mloganzila) built on the outskirts of Dar es Salaam.

Thus, we aimed to establish sustainable oral and maxillofacial surgical services for delivering high-quality, evidence-based surgeries in a cost-effective, safe, and efficient manner across a large community in an established health facility, and subsequently be one of the university-training hospitals for Oral and Maxillofacial residents in Tanzania. This article briefly outlines the process of establishing oral and maxillofacial surgical services at the MNH-Mloganzila tertiary health facility.

METHODS

Planning and Preparatory Phase

Prior to establishment of the oral and maxillofacial surgical services, a team of Oral and Maxillofacial Surgeons (OMSs) sat to discuss the requirements for successful starting the program. The list of issues discussed included:

1. Assessment of need for oral and maxillofacial surgical services.
2. Scope and types of oral and maxillofacial surgical services that will be carried out.
3. Infrastructure requirements.
4. Armamentarium and supplies requirements.
5. Staffing needs.
6. Protocol in place.
7. Hospital administration and community engagement.
8. Methods of sustainability and continuous assessment of the surgeries.

Need assessment: Considering an influx of patients with various oral and maxillofacial conditions seeking surgical care at the Muhimbili National Hospital coupled with the limited theatre space, there was a definite need for establishing oral and maxillofacial surgical services at the MNH-Mloganzila health facility.

Scope of surgical services:

All specialized oral and maxillofacial surgical services were to be carried out, including but not limited to the management of benign and malignant tumors, developmental/congenital conditions requiring surgical intervention, and open reduction and internal fixation of facial bone fractures.

Facility requirement:

As it is with any surgical service, an operating theatre with proper layout, ventilation, lighting, and sterile environments is a necessity. There should be availability of surgical tables, anesthesia machines, and sterilization units, and diagnostic tools. Moreover, adjacent support areas like patient receiving/waiting area and recovery room.

Armamentarium

A full set of a standard Oral and Maxillofacial surgery tray is of utmost importance. Without the surgical instruments, the surgeries would hardly be carried out.

Staffing need At least two Oral and Maxillofacial surgeons must be available in the center. They shall carry out day-to-day surgical activities and patient care pre-and post-operatively. Apart from the surgeons, there should be a team of anesthesiologists and anesthetists, nursing staff (for theatre and wards), radiologists and radiographers, pathologists, and laboratory scientists.

Protocols

A necessity to develop tailored standard operating procedure (SoP) protocols that clearly define preoperative, intraoperative, and postoperative care of the patients. Protocols for infection control, patient safety, and emergency response must also be in place.

Hospital administration and community engagement

A need to engage hospital administration during implementation and methods of capturing patients through community outreach programs to inform the people about the availability and scope of oral and maxillofacial surgical services.

Sustainability and continuous assessment of the surgeries.

Strategies to ensure the services will be sustainable and protocols for patient record keeping to be set as a database and a tool to assess the number, type, and outcome of the oral and maxillofacial surgeries eventually carried out in the center.

On-site implementation and initiating surgical services

As a starting step, the lead author was permanently stationed at the MNH-Mloganzila. The oral and maxillofacial surgeons from the Muhimbili National Hospital were scheduled to have a weekly rotation at the MNH-Mloganzila. At MNH-Mloganzila, a 600-bed hospital, general surgery, orthopedic, and gynecological procedures had already been initiated, meaning the theatres were fully functional, with all requirements. For inpatient care, wards had been established as well. The only challenge was to get an armamentarium. The hospital management had agreed to place an order for the equipment. While waiting for the consignment, the lead author mobilized efforts to seek a donation from stakeholders, and through that, one functional oral and maxillofacial surgical tray was assembled. Meanwhile, locally tailored SoPs were developed with the help of a colleague in Nigeria. Efforts of communication included: patients being informed regarding the startup of a new oral and maxillofacial surgical unit during a specialist consultation clinic carried out at the MNH-Upanga, informing staff members of various departments (e.g. emergency medicine and orthopedics), and informing dental surgeons in various hospitals within and out of the city of Dar es Salaam.

For the surgical procedure, to start with, the beginning selected cases were those with ASA scores of I or II. The lead author and Oral and Maxillofacial surgeons from MNH-Upanga carried out surgical procedures (Figure 1). Subsequently, oral and maxillofacial surgery residents at the Muhimbili University of Health and Allied Sciences were brought into the team.

Post-treatment phase

After the surgical procedure, all patients were admitted to the wards for at least 3 days to guarantee sufficient recovery.

Upon discharge, patients were requested to come back to the hospital in 1 week for follow-up and assessment of any complications. A patient registry was designed to capture important information from the patients.

After completion of the initial trial phase, the sustainability of the surgical service was ensured by setting specific days weekly to carry out various oral and maxillofacial surgical procedures in the theatre. Efforts to raise awareness in the community were also put in place by both the surgical team and the hospital management.

RESULTS:

The oral and maxillofacial surgical services were successfully launched in the new state-of-the-art Hospital, the MNH-Mloganzila, and the development of Standard operating protocols. Before carrying out any surgical procedure a thorough medical history of the patient was taken followed by a comprehensive general and local examination of the patient. The surgical team discussed the planned treatment and the patients were involved in the decision-making regarding the surgery proposed by the team.

In the preparatory phase, twenty-five patients (with various oral and maxillofacial conditions) were surgically managed. The age of patients ranged between 8 and 76 years with a mean age (SEM) of 33.68 (2.83) years and the male-to-female ratio was 2.1:1. Most of the diagnosed cases managed during the preparatory phase were benign lesions/ cysts (n =10, 40.0%) and traumatic conditions (n =8, 32.0%) (Table 1).

Some benign tumors/cysts managed included dentigerous cysts, ameloblastoma, lipoma, and ranula. The majority of the traumatic conditions were facial bone fractures involving both the midface and the mandible. Sialadenitis, sialolithiasis, and sinusitis were the inflammatory diseases managed, while there was only a single case of squamous cell carcinoma during this preparatory phase. Ablative surgical procedures (such as segmental resection of the mandible, sialoadenectomy, and wide tumor excision) were frequently performed (n =12, 48.0%) (Table 1).

The different nature of the surgical conditions and subsequent management options significantly contributed to boosting the team's confidence. This was because the OMS team appreciated the importance and challenges of establishing oral and maxillofacial surgery practices in a new environment. None of the patients had unanticipated complications related to surgical procedures.

Table 1: Summarized details of patients managed surgically during the preparatory phase

Social Demographics, Diagnosis, and Nature of the Surgical Procedure	Number (Percentage)
Sex	
Male	17 (68.0%)
Female	8 (32.0%)
Age Groups (years)	
< 18 years	2 (8.0%)
18-60 years	22 (88.0%)
> 60	1 (4.0%)
Mean age (standard error of the mean)	33.68 (2.83) years
Diagnosis groups	
Benign tumors/ cysts	10 (40.0%)
Traumatic conditions (facial bone fractures and soft tissue injury)	8 (32.0%)
Inflammatory conditions	6 (24.0%)
Malignant lesion	1 (4.0%)
Nature of Surgical Procedure	
Ablative (tumor excision, sialoadenectomy, mandibulectomy)	12 (48.0%)
Open reduction and Internal fixation	7 (28.0%)
Conservative (cyst enucleation, sinusotomy)	6 (24.0%)



Figure 1: An intraoperative picture of the team of oral and maxillofacial surgeons operating on a patient during the preparatory phase at MNH-Mloganzila.

DISCUSSION

Muhimbili National Hospital-Upanga, located in the heart of the city of Dar es Salaam has a well-established oral and maxillofacial unit, that receives and treats patients with different oral and maxillofacial conditions from all over the country ^[13].

About half of the practicing OMS (who are around 30 in the whole of Tanzania) are in this facility, yet the unit of oral and maxillofacial surgery has been allocated only one operating theatre. Considering the ever-rising number of patients seeking care for craniofacial diseases ^[1], MNH-Upanga faced an overload of cases requiring surgical care in operating theatres causing most patients with craniofacial disease/ conditions to get management late ^[12].

This forced the team of OMS to establish another surgical centre in effort to fast the management of the patients seeking oral and maxillofacial surgical care. Establishing any new surgical service is bound to face some hardship. The barriers identified in the literature are related to human resources, structural and financial factors ^[14]. In the present project, the main barriers faced were equipment and human resources. The MNH-Mloganzila is a recently established tertiary health facility, with all the necessary structural requirements, had a team of anesthesiologists and anesthetists, nursing staff (for theatre and wards),

radiologists and radiographers, pathologists, and laboratory scientists to mention few, however, there was lack of a permanent OMS. This human resource challenge was overcome by stationing a permanent OMS at the MNH-Mloganzila also there were OMS residents from MUHAS who had weekly rotations at the facility under the guidance of the OMS stationed at MNH-Mloganzila. The lack of equipment was tackled by seeking donations from stakeholders in the initial phase, while the hospital management was processing the purchase of another set. The development of the surgical protocols and standard operating procedures (SOP) was not challenging. The team responsible for developing the SOP was composed of experienced surgeons, moreover, SOP and protocols from other centers (MNH-Upanga and from Nigeria) were available for modification to fit the current project.

During the preparatory phase, more male patients were surgically managed than females, and this was not very surprising considering the recent study from MNH-Upanga on the spectrum of oral and maxillofacial surgical procedures had similar findings ^[1]. The selected patients for surgical management during the preparatory phase were of a vast age range and had different underlying conditions. This thoughtful selection of patients was reached after a healthy OMS discussion during the consultation clinics. The idea of selecting patients for surgery enabled the team of OMS to understand and learn the feasibility and challenges of each procedure.

The investment in establishing a sustainable oral and maxillofacial surgical service at the MNH-Mloganzila facility has helped to reduce the workload in the MNH-Upanga. Which was the main objective of the program aiming at subsequently helping the patients in the long term. With the establishment of OMS at MNH-Mloganzila, the patients will be treated at the earliest time possible, and this will be cost-effective for patients for they will not incur huge extra treatment costs brought about by multiple visits to the hospital while waiting to be scheduled for surgery. In addition, this established program provides an opportunity for the OMS residents to have more theatre time and subsequently become more competent after graduating as oral and maxillofacial surgeons.

CONCLUSION:

We report on the successful establishment of sustainable oral and maxillofacial surgical services at a recently built state-of-the-art tertiary-level hospital that can serve as a training center and become a model for the expansion of oral and maxillofacial surgical services in Tanzania. The establishment of sustainable oral and maxillofacial surgical services facilitates early and cost-effective management of patients requiring craniofacial surgeries in Tanzania. This, therefore, contributes significantly to the objective of providing equal and high-quality health care to all Tanzanians.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest concerning this article

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