



The Experience with a Surgical Camp in a Rural Hospital in Northern Uganda

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

Introduction: In Sub-Saharan Africa, surgical conditions remain neglected in its health care systems. This results in a low surgical output from district hospitals with many patients referred to Referral Hospitals in the region. Therefore surgical camps in district hospitals are often necessary where volunteer surgical teams perform a wide range of mostly elective surgical procedures. These surgical camps are pre-planned activities carried out at no cost to the patients who belong to poor and hard to reach vulnerable communities. The purpose of this surgical camp was to offer free specialised surgical service in a rural hospital and hence improve surgical access to a poor vulnerable community in Northern Uganda. Training basic surgical skills and the provision of continuous medical education to medical officers in the region was also part of the objective of this surgical camp.

Methods: A descriptive study using data collected from a one week surgical camp in the year 2011 was performed at St. Joseph's Maracha Hospital. Data from operating log forms regarding date of procedure, patient gender, clinical diagnosis, operation performed and type of anaesthesia was obtained. Data was analysed for age, sex, type and rate of surgical procedure and type of anaesthesia. The participants' involved specialist general surgeons, medical officers, clinical officers, theatre nurses and anaesthetists.

Results: In total, 105 surgical procedures were performed during the 7-day-long camp. Mean age

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of the patients was 39.54 years. The male: female ratio was 1:0.38. Adult inguinal herniorrhaphy formed 68.6% of all surgical procedures.

Conclusions: The bulk of surgical disease encountered during the camp were inguinal hernias. Surgical camps improve access to surgical care to vulnerable hard to reach populations and should become an integral part of health service delivery in rural Africa.

Keywords: Surgical camp; Africa; rural; health service delivery; poor vulnerable community.

ABBREVIATIONS

ASOU : Association of Surgeons of Uganda

1. INTRODUCTION

In Sub-Saharan Africa, surgical conditions remain neglected in its healthcare systems [1,2]. Compared to rich nations in the Western world there is limited access to surgical services and therefore a low surgical output [3,4]. Limited surgical services and inadequate human resources for health, in particular a limited surgical workforce, lack of transportation of patients to the district hospitals that can offer appropriate surgical services are among the numerous reasons for limited access to surgical services [5].

Uganda has a population of 45 million people; however Uganda has fewer than 0.2 surgeons per 1000 people. In Kampala city where only 5% of the population lives 70% of the total number of surgeons practise. This leaves the remaining 95% of the population which live mainly in rural areas, served only by 30% of the total number of specialist surgeons [6]. Access to a surgeon for a peasant in a rural village is not only difficult but also troublesome or in most cases impossible. However, surgery has importance which medicine does not have in the minds of the public according to King et al. [7]. Surgery is also considered the most technically demanding task that a doctor needs to manage.

Unfortunately, most basic surgical procedures are not managed adequately by medical doctors. Therefore many patients are referred to regional referral hospitals to provide surgical care to the rural population. However, there are difficulties in Sub-Saharan Africa associated with referral of patients particularly with transport. Vehicles break down frequently as the roads are so bad. Jellis and Doeschate noted that far more patients can be treated in the peripheral district hospitals with some more knowledge of the appropriate techniques [8,9].

It was with this background that the surgical team at St. Joseph's Maracha Hospital decided to organize a surgical camp in Northern Uganda. Pre-planned activities were volunteer surgeons and surgical teams congregate at a defined place and perform a wide range of mostly elective procedures for a limited period of time are the basis of surgical camps. Surgical camps are performed mainly at no cost to the patient. The direct costs of the camp such as food and water for the venue and transportation to and from the venue are obtained from several fundraising activities prior to the camp. The sources of funds come from the Ministry of Health, individuals and from the business/private sector. The Medical personnel carry out the camp voluntarily and receive no monetary compensation.

The objectives of the surgical camp held in our hospital in Northern Uganda were the following:

1. To offer free specialised surgical service in a rural hospital.
2. To train medical officers basic surgical and management skills who have no specialised surgical training and need to operate independently in their hospital.
3. To provide continuous medical education (CME) to medical officers in Maracha as well as neighbouring districts in West Nile, Uganda
4. To reduce the expense and improve access to surgical services incurred by patients that would have needed to be transferred to a regional referral hospital.

2. METHODOLOGY

The defined area of this project was Maracha district and surrounding districts in West Nile, Uganda. Local advertising on national media was carried out for the planned visit. The surgeons met and sensitized the political leaders, government officials in local government and the district medical officers. Administrative clearance was obtained from the management team of St. Joseph's Maracha Hospital for the use of staff and hospital facilities. The screening of patients

was done by the local surgical team and later by two visiting surgeons.

The surgical team consisted of two visiting surgeons, two local surgeons, three surgical residents, two medical officers, three clinical officers, two anaesthetists and three theatre nurses. The operations were performed from Monday to Friday on a daily basis for one week in the month of January in the year 2011. The date of the procedure, patient age, gender, clinical diagnosis, type of anaesthesia and operation performed were filled in the operating log forms.

Surgical ward rounds were carried out on a daily basis. The local surgical team reviewed the postoperative patients both within 30days after their operation on the ward and also 8 weeks later in the Surgical Out-patient Department of St. Joseph's Maracha Hospital. A final assessment was made on the morbidity and mortality of all surgical procedures performed during the surgical camp. A camp summary report was submitted which included challenges encountered and any recommendations to improve surgical practise.

3. RESULTS

A total of 202 patients attended the surgical camp, of whom 105 were treated surgically. The ages of the patients ranged from 12 months to 87 years. Mean age was 39.54 years. Out of the 202 patients, 105 patients that had surgery 76 (72.4%) were males and 29(27.6%) were females (M:F = 1:0.38). Table 1 shows the different surgical operations performed.

The commonest general surgical operation performed was inguinal hernia repair (adults) in 72(68.6%) of cases (Table 1). Paediatric inguinal herniotomy repairs only constituted 6 cases that amounted to 5.7% of the cases. Whilst there were 2 thyroidectomies that constituted 1.9% of

the operations and 3 laparotomies that amounted to 2.9% of the cases.

Types of anaesthesia used at the surgical camp included locoregional anaesthesia in 78(74.3%) cases; General anaesthesia in 5(4.76%) cases and spinal anaesthesia in 22(20.95%) cases. In total, 95.25% of all procedures were done under local or spinal anaesthesia.

3.1 Morbidity and Mortality

No mortality was recorded up to 8 weeks post-operatively. Postoperative sepsis was the only post-operative complication recorded in 3(2.9%) cases. The septic cases included 1(0.95%) emergency laparotomy for feculent peritonitis. The other 2(2.9%) cases were elective inguinal hernia repairs that developed post-operative wound sepsis. Post-operative sepsis reported in this surgical camp of 2.9% was lower than the 40% sepsis rate reported in the hospital prior to the surgical camp.

3.2 Basic Surgical Skills Workshop

A total of three(3) surgical residents and five(5) medical officers from hospitals in nearby districts participated in the Basic surgical skills workshop which was part of the surgical camp. The participants were exposed to surgical toilet, chest drain insertion, endotracheal intubation, basic suturing techniques, colostomy formation and bowel anastomosis.

3.3 Challenges Encountered during the Surgical Camp

The challenges that were encountered included inadequate nursing personnel especially in recovery areas and limited imaging as well as laboratory investigative capacity. Inadequate surgical sets and anaesthetic equipment and logistical challenges included inadequate sterilisation, lack of running water and power outages.

Table 1. General Surgical Operations

Type of Operation	No. of Patients	Percentage (%)
Inguinal Hernia repair (adult)	72	68.6
Inguinal Hernia repair (child)	6	5.7
Femoral Hernia repair	4	3.8
Excision of skin lesions	18	17.1
Thyroidectomy	2	1.9
Laparotomy	3	2.9

4. DISCUSSION

For the past decade the Association of Surgeons of Uganda (ASOU) has organized surgical camps to provide surgical services to the underserved or vulnerable rural populations in East Africa (6). The male population was overrepresented due to the high burden of inguinal hernia presentations. The procedure per population rate was estimated at 56.41:100,000 in this review; however, lower than that had been estimated three decades ago by Nordberg [10].

The most common surgical procedures encountered in this study included hernia repairs and excision of skin lesions. If properly trained and supported, these procedures are within the competence of a medical officer (non-specialist doctor) [11]. The environment created in a surgical camp forms a platform for surgical apprenticeship where more experienced surgeons work with less experienced surgeons or trainees. The camp may handle a high volume of surgical cases in a practical setting in a short period of time.

Locoregional anaesthesia was used for the majority of surgical procedures in this surgical camp. Locoregional anaesthesia was used in 74.3% of cases. This is in keeping with recommendations on safety and cost of care.

During the camp several challenges were encountered. Screening patients for comorbidities such as congestive heart failure, ischaemic heart disease and noninsulin dependent diabetes mellitus was limited to clinical assessment. Among Ugandan patients there is a significant burden from diabetes mellitus; however, the consequences of not screening these patients is unknown in this context [12,13].

Whereas the population in Northern Uganda have close geographical access to district hospitals they may experience a delay in accessing appropriate surgical care due to many reasons. These reasons include lack of anaesthetic drugs and lack of skilled surgical manpower at the district hospitals in Northern Uganda. These district hospitals tend to prioritise resources for emergency operations like caesarean sections [12]. Several logistical challenges were encountered during the surgical camp which included inadequate sterilisation capacity, limited operating room space, limited

surgical instruments together with power outages and intermittent water supply.

These logistical challenges are not new and may impede access to routine hospital surgical care and even the management of surgical camps [1,2,14]. It is important to take note of these challenges in order to persuade those in power to prioritize the available resources for surgical management.

In this study the scope of surgical conditions that were seen a decade ago are still the same. However, regular documentation of the camps' outcomes and a population-based estimate of the burden of surgical diseases has not been done. Ohene-Yeboah M et al. [4] and Debas HT et al. [15] estimated that in Africa, surgery can address 7% of disability-adjusted life years and there is a probable increase in this surgical burden [2,15]. This surgical camp in West Nile, Uganda was an eye-opener for many doctors in the region to improve their practise. The surgical camp allowed an assessment by the surgical team of the environment under which the doctors in these hospitals worked. It also enabled the assessment of the doctors' surgical skills and to improve and teach such skills. Strict aseptic control measures in theatre resulted in a reduction in the infection rate by >30%. This is one of the reasons why specialists should visit district hospitals [7].

In order to organize a surgical camp successfully, financial support and a dedicated group of individuals is required in order to target a specific population that will benefit from the camp. An agreed work plan with the involvement of sponsors, management of local district hospitals, local leaders and Ministry of Health is necessary to carry out the procedures successfully. Publicity of these activities is needed to ensure sustainability of such camps in the long term.

5. CONCLUSIONS

Surgical camps improve access to surgical care to vulnerable populations and should become an integral part of health service delivery in rural Africa. However, surgical camps will not replace the traditional referral system, but if organized well, they will reduce the surgical referral rate to Referral Hospitals. This will reduce on the budget of the districts. Better knowledge and basic surgical skills resulting in better management of surgical cases by local medical officers is

achieved with surgical camps. Patients also have the advantage of being treated near home.

ETHICAL APPROVAL

As per international standard and University standard ethical approval has been collected and preserved by the author.

CONSENT

The author declares that written informed consent was obtained from all the patients that underwent surgical procedures in this surgical camp.

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COMPETING INTERESTS

The author has declared that no competing interests exist.

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