

MAJOR EXTREMITY AMPUTATION: THE KOFORIDUA EXPERIENCE

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Abstract

Background: Major extremity amputation is a relatively common surgical procedure but there is a paucity of local data concerning such an important part of surgical practice. This study was undertaken to unearth the demographics, the common indications, levels, revision and mortality rates of major extremity amputation in a large orthopaedic facility in Ghana.

Methods: A retrospective study of 94 consecutive patients with 95 major limb amputations between September 2010 to August 2013 was conducted and the results analysed.

Results: Overall, the commonest indication for amputation was trauma which was responsible for 44(46.3%) cases. Of the 95 amputations, 81(85.3%) were lower limb amputations with below knee amputations accounting for 45(47.3%) cases.

The age group 21 – 40years had the highest number of amputations with 38(40%) and the commonest cause in this age group was trauma. Average duration of hospitalization was 32 days with 8 patients (8.4%) requiring re-amputation. Six patients (6.4%) died.

Conclusion: Major limb amputation is drastically life altering especially in third world countries where livelihoods may depend on the ability to perform manual tasks and opportunities for changes in career paths/gainful rehabilitation do not abound. If traumatic conditions are prevented and expeditiously dealt with and chronic diseases like diabetes are carefully managed, there will be a significant reduction in limb loss following trauma or diabetic foot syndrome.

Key Words: Major extremity, Amputation, Koforidua

Introduction

With each passing year, nature scientists/archaeologists continue to unearth overwhelming evidence¹ of major limb amputations in the new stone age (4900 - 4700BC)^{1, 2}. Amputation were carried out for a variety of reasons, some for obvious life or limb threatening conditions and as forms of punishment for societal delinquents^{2,3}.

In the twenty first century, major limb amputations are still a significant part of a surgeon's workload anywhere in the world but the indications and patient demographics may vary considerably from region to region with complications of trauma^{4,7} and diabetes^{8,10} being the most likely causes.

Not many studies are available in Ghana which explore the salient demographic characteristics, indications, level of amputation, revision amputation and mortality rates thus necessitating evaluation of the cases seen at St. Joseph's Hospital, Koforidua, Ghana between September, 2010 to August, 2013.

St. Joseph orthopaedic hospital is one of the few orthopaedic hospitals in Ghana, situated in the Eastern

region which has a population of about 2.1 million people, it provides comprehensive trauma and orthopaedic care to a large catchment area with about 1,500 surgeries performed each year.

Method

A retrospective study of all major limb amputations carried out in St. Joseph Orthopaedic hospital over a three year period from September 2010 – August 2013. Information extracted from the patients records (theatre operation register and patient folders) were age and sex, indication for amputation, level of amputation, duration of hospitalization, revision amputation and mortality rates.

Results

Demographics

A total of Ninety five (95) major limb amputations in ninety four (94) patients (one patient had a bilateral amputation) were performed in the period studied. Of these, 58 (62%) were males and 36 (38%) were females giving a male to female ratio of 1.6:1. The age group 21 -40 years had the highest number of amputations with 38 (40%) cases (fig1)

All amputations for complications of diabetes were in patients aged more than 40 years with 14 (53.8% of diabetics) between the ages of 61-80 years.

Indications

Overall the commonest indication for amputation was trauma accounting for 44 (46.3%) amputations, the

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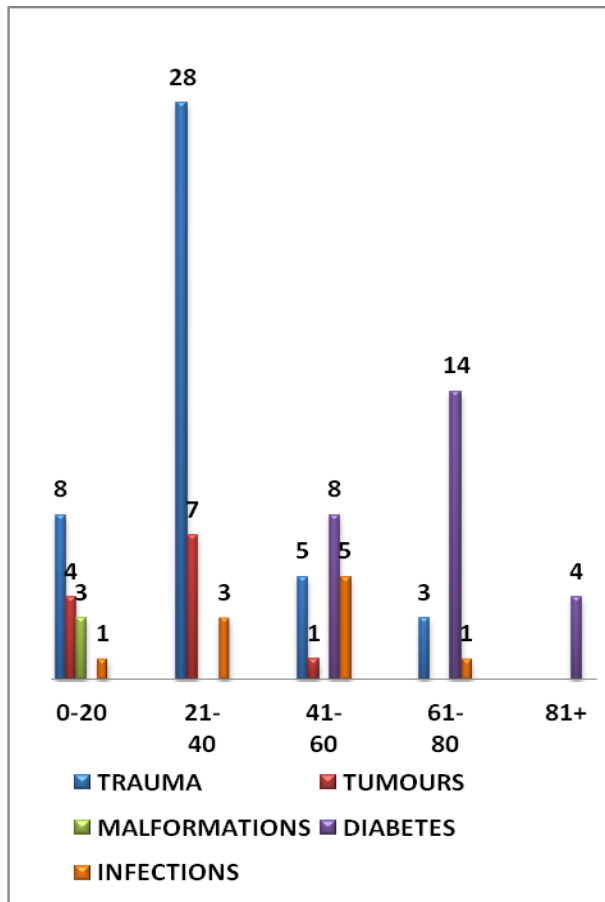


Fig. 1 second leading cause was complication of diabetes responsible for 26 (27.4%) major limb amputations (fig 2).

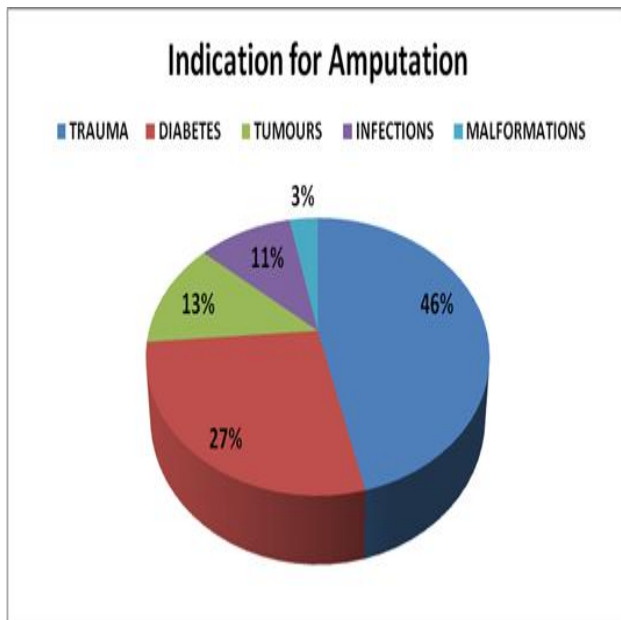


Fig. 2 Indication for Amputation Lower limb amputations were 81 (85.3%) with below knee amputations the most common accounting

for 45 (47.3%) of all amputations and 55% of lower limb amputations. Upper limb amputations were equally distributed between above and below elbow types totaling 7 each and making up 14.7% of all amputations. (fig 3).

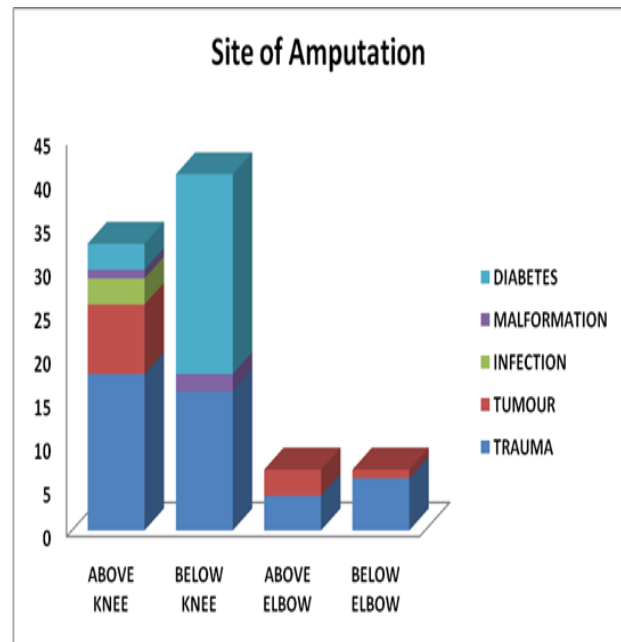


Fig. 3 Site of Amputation Trauma accounted for 18 (50%) of above knee amputations whilst complications of diabetes was responsible for 23 (51%) of below knee amputations making it the commonest cause of below knee amputations. Trauma, 10 (71.4%) was the most prevalent reason for an upper limb amputation.

Average duration of hospitalization

On the average, patients were hospitalized for 32.08 days. Fig 4

Indication	Average Number Of Days Hospitalized
Tumour	21 day
Trauma	34
Infections	40
Malformations	28
Diabetes	37

Fig. 4 Average duration of hospitalization

Revision amputation and mortality rates

Six of the patients died during the period of hospitalization (6.4%) and 8 patients (8.4%) required revision amputations.

Discussion

In our study the leading cause of major limb amputations was trauma. Other sub-regional studies^{5,7,11} have also shown trauma to be the leading

cause even in Nigeria, West Africa's most populous nation although other studies have implicated complications of diabetes as the prime cause^{10,12,13}. This reflects the increasingly heterogeneous nature of our societies where disease patterns are beginning to mirror those of industrialized societies.

The lower limb was the most commonly involved accounting for 85.3% of the amputations in this study. Reports from Kolkata⁶, Lebanon⁸, Tanzania¹⁰ and Cameroon¹² show a predominance of lower limb amputations. This highlights the relatively increased vulnerability of the lower limbs in traumatic incidents and diabetic complications.

Our patients spent an average of 32 days on admission. This is quite high compared to figures from Lebanon which show an average of 10.1 days⁸ and 22.4 days reported by Chalya et al in Tanzania¹⁰. A reason for this prolonged period of hospitalization is the relative lack of physiotherapy/rehabilitation services in most localities making it almost mandatory for patients to use the services provided by the hospital as in-patients until they are adjudged fit for independent ambulation/mobilization.

A mortality rate of 6.4% was recorded, lower than values from studies in Cameroon (8.9%)¹², Tanzania (16.7%)¹⁰ and Lagos University teaching hospital (11.8%)¹³. It is important to note that in the aforementioned studies with higher mortality rates, complication of diabetes were the commonest indication for amputation while in similar study where trauma was the leading cause of amputation, mortality rate was also low at 4.7%⁷ possibly reflecting the effect co-morbid conditions have on survival rates.

Revision amputation rate was 8.4% much lower than 17.5% recorded by Rommers et al⁹ and 22% reported by Ogeng'o et al⁴. This can be explained by the preponderance of amputations for trauma and a considerable number (38%) of the amputations were above knee amputations with better stump muscle coverage and attendant improved vascularity.

Conclusion

Major limb amputation is a life changing event and the chief causes are largely preventable. Provision and upgrading of trauma facilities to expeditiously deal with limb trauma combined with public education on general safety measures

(Road, workplace etc), integration of pre-emptive limb care in the treatment of all diabetics and early detection and treatment of limb tumours will go a long way in reducing limb loss.

Provision of more centres for rehabilitation will reduce hospital stay and make reintegration into society easier for amputees.

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