

## CURRENT INDICATIONS FOR MAJOR LOWER LIMB AMPUTATIONS AT CIVIL HOSPITAL, KARACHI

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### ABSTRACT

*Objective:* To find out current indications for major lower limb amputation at a tertiary care teaching hospital of Karachi - Pakistan.

*Study Design:* Case series.

*Setting & Duration:* Department of Orthopaedic Unit II, Civil Hospital, Karachi March 2007 to August 2007.

*Methodology:* Case sheets of all patients who had major lower limb amputation during six months period. Main outcome measures were patient's age, gender, limb affected, indication for amputation, complications, associated procedure performed, duration of hospital stay and outcome.

*Results:* Total 53 patients had major limb amputation with mean age of 47.49 years. Complications of diabetes was the most common cause of limb amputation in 29 (54.7%) patients followed by trauma in 22(45.3%) patients. Most common additional procedures performed were debridement in 26 (49%) patients, split skin grafting in four (7.5%) and vascular repair in one (1.9%) patient. Hospital stay of patients ranged from 8 to 33 days with mean duration of 17.3 days. One (1.9%) patient expired during hospital stay from sepsis.

*Conclusion:* Complications of diabetes followed by trauma was the leading indication of major limb amputation.

**KEY WORDS:** Amputation, Diabetes, Trauma, Indication, Pakistan

### INTRODUCTION

Limb amputations have been done since time immemorial. The first surgical description of a leg amputation was by Hippocrates (460-377 BC). Although prostheses are not mentioned in medical literature from ancient times, they were indeed made and used as learnt from the non-medical books and pictures.<sup>1</sup>

The loss of a limb often has profound economic, social and psychological effects on the patient and their family.

However in many cases, amputation of the limb is the only viable option to save the patient's life. The indications for limb amputations are generally considered as the three Ds: dead, deadly and dead loss.<sup>2</sup> The common indications for limb amputation vary in different parts of the world, but commonly they comprises of trauma,<sup>3</sup> complications of diabetes mellitus<sup>4</sup> and peripheral vascular disease.<sup>5,6</sup> Most amputee patients in developed countries are older than 60 years of age, and 80-90% of lower limb amputations are performed as a result of vascular problems.<sup>7-9</sup> However in the developing world like Pakistan, the major cause of limb amputation is still the complications of diabetes. This study was planned to observe the common indication for major limb amputations in a larger tertiary care teaching hospital.

### METHODOLOGY

This was a Case series of amputations done at the Civil Hospital, Karachi, Orthopaedic Unit I. Case notes of all patients who had major lower limb amputations within the study period from July 2007 to December 2007 were examined. Main outcome measured were

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patient's age, gender, limb affected, indication for amputation, complications, associated procedure performed, duration of hospital stay and outcome.

## RESULTS

Total 53 patients had major limb amputation during the study period. Mean age  $\pm$  SD of patient was  $47.49 \pm 13.20$  years. Males predominates as compared to females (Table I). Complications of diabetes was the most common cause of limb amputation in 29 (54.7%) patients followed by trauma in 22 (45.3%) patients (Table II). Most common additional procedures performed were debridement in 26 (49%) patients and split skin grafting in four (7.5%) and vascular repair in one (1.9) patient. Complications documented during the hospital stay are shown in Table III. Hospital stay of patients ranged from 8 to 33 days with mean duration of stay was 17.3 days. One diabetic patient expired during hospital stay from sepsis. Outcome of all patients is shown in Table III.

## DISCUSSION

Amputation is still often viewed as a failure of treatment. The responsibility for performing an amputation most commonly fall on the most junior member of the surgical team. Whatever the reason for extremity amputation, it should not be viewed as a failure of treatment. Amputa-

tion can be the treatment of choice for severe trauma, vascular disease and tumours. The decision to perform an amputation often comes after all other options have been exhausted. It is a final decision that cannot be reversed once initiated. Mayfield<sup>10</sup> showed that over a period of a decade general surgeons performed 44.8% of amputations followed by vascular surgeons 32.9%, orthopaedic surgeons 16.3%, podiatrists 4.3% and other specialties 1.7%. Three-quarters of primary surgeons were residents. The number of amputations performed by general surgeons declined over the 10 years, while the number of amputations performed by other surgical specialties remained fairly stable. This study highlights diabetic foot sepsis as the major indication for limb amputation. This is in contradistinction to what is reported in developed countries where peripheral vascular disease is the leading cause for limb amputation.<sup>7-9</sup> Unfortunately, most often patients presents late when extensive gangrene has occurred, and revascularization and limb salvage is not a feasible option. Risk of amputation of lower limb is increased up to 15 fold in diabetic patients.<sup>11</sup> Factors contributing to this include sensory neuropathy, motor neuropathy causing gait abnormality and deformity; autonomic neuropathy causing abnormal blood flow; macrovascular diseases causing ischemia; poor glycemic control causing increased risk of infection. Inadequate care of infection and ulceration of limb is also a potentiating factor for limb amputation.

A study from Nigeria<sup>12</sup> showed diabetes to be responsible for amputation in 26% of cases while in a Kenyan study it was 26.5%.<sup>13</sup> About half the patients requiring amputation will require amputation of the remaining limb within five years.<sup>14</sup> People with diabetes who had major limb amputation have a higher perioperative mortality rate.<sup>15</sup> This study did not showed this trend of high

**Table I. Demography of patients**

Variable	Number
Age (Mean $\pm$ SD)	47.49 $\pm$ 13.20 Years
Gender	
Male	46 (86.8%)
Female	7 (13.2%)
Side of limb	
Right	33 (62.3%)
Left	20 (37.7%)

**Table II. Indications of amputations**

Indications	No. (%)
Complication of Diabetes	29 (54.7)
Trauma	22 (45.3)
Acute Vascular Event	2 (5.7)
Burns	1 (1.9)

**Table III. Complications during stay and Outcome of patients**

Complications	No. (%)
Wound Infection	19 (35.8)
Wound Hematoma	4 (7.5)
Stump necrosis	2 (1.9)
Outcome	No. (%)
Discharge	32 (60.4)
Referred	19 (35.8)
Left Against Medical Advice	1 (1.9)
Expired	1 (1.9)

mortality, the main reason was most of the patients were referred to medical ward after amputation for good glycemic control most probably which was responsible for decreased mortality rate in orthopaedic ward.

Trauma was the second common indication for lower limb amputation in this study. Majority of the patients were referred from far flung areas of the country, late presentation being the cause of amputation as it was the only viable option left to save the life of the patient. These limbs may be salvaged by revascularization and stabilization of fractures, but the procedure may not be successful. Different Nigerian studies have reported trauma to be the leading cause of limb amputation in over 70%.<sup>3,16,17</sup>

Duration of hospital stay has been identified as one of the main determinants of cost associated with amputation.<sup>18</sup> Mean hospital stay was 17.3 days in this study which is less than reported from Nigeria (24.7 days)<sup>17</sup> and Netherland (42 days) 19 and more than that reported from United States (15.9 days).<sup>20</sup>

One of the utmost worries for a person undergoing amputation surgery is overcoming the psychological stigma that society associates with loss of a limb. Persons who have had amputations are often viewed as incomplete individuals. Following the removal of a diseased limb and the application of an appropriate prosthesis, the patient can resume being an active member of society and maintaining an independent lifestyle. It should be emphasized that most amputations do not represent a failure of the patient, health care provider, or health care system. Amputation is often the inevitable toll of advancing disease of the elderly. In many cases a minor amputation results in a successful outcome by returning a frail elderly person rapidly to ambulatory function.

## CONCLUSION

Complications of diabetes was the leading indication of amputation in our study. There is a need for increased awareness and training of patients and all health care providers dealing with diabetic patients about proper foot care, provision of appropriate services, such as regular podiatric care.

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