

# Assessment of surgical management of diabetic limb complications among patients

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## Abstract

**Background:** Diabetes has proved itself to be a silent killer disease. It has been estimated that there are more than two hundred million diabetics in the world. The present study was conducted to assess surgical management of diabetic limb complications among patients.

**Materials & Methods:** 62 cases of diabetic limb of both genders were enrolled. Parameters such as causes of diabetic limb, family history, type of bone involvement, type of lesions, and treatment modalities were recorded.

**Results:** Out of 62 patients, males were 38 and females were 24. Precipitating causes were trauma in 18, infected nail bed/Fissure in 8, spontaneous in 36. In 22 cases, there was bone involvement, type of lesions was septic in 46 and ischaemic in 16. Site was leg in 20, thigh in 10 and foot in 32. Appearance was ulcer in 30, abscess in 14, cellulitis in 8 and gangrene in 10 cases. The difference was significant ( $P < 0.05$ ). Treatment modality used was incision & drainage in 12, debridement in 26, above knee amputation in 5, below knee amputation in 4, disarticulation of the toes in 6 and grafting in 9 cases. The difference was significant ( $P < 0.05$ ).

**Conclusion:** Most common appearance of diabetic limb was ulcer and the most commonly involved site was foot. Precipitating causes were trauma, infected nail bed/Fissure and spontaneous.

**Keywords:** diabetic limb, trauma, infected nail bed.

## INTRODUCTION

Diabetes has proved itself to be a silent killer disease. It has been estimated that there are more than two hundred million diabetics in the world.<sup>1</sup> Today in the world, maximum numbers of patients are suffering from this disease, and moreover they are associated with complication secondary to diabetes. According to WHO, diabetes is a chronic disease that occurs when the pancreas don't produce enough insulin or when body cannot effectively use the insulin when it produces.<sup>2</sup>

Chronic wounds, especially non-healing types, are one of the most common surgical conditions a surgeon comes across among patients with diabetes. From time immemorial, doctors have been trying many methods to treat these types of wounds.<sup>3</sup>

Diabetic limbs are a growing problem in the diabetic community. Globally, diabetes mellitus has grown to pandemic proportions, affecting 194 million people worldwide and is expected to increase in prevalence to 344 million by the year 2030.<sup>4</sup> Of these patients, between 2 and 6% will develop a diabetic limb yearly. The onset often precipitates a complex chain of events that may lead to limb loss. The long-term outcome for a diabetic patient after a major limb amputation is grave, with 50% of these patients deceased at 5 years.<sup>5</sup> The present study was conducted to assess surgical management of diabetic limb complications among patients.

## Materials & Methods

The present study comprised of 62 cases of diabetic limb of both genders. All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. A thorough physical examination was carried out. All patients underwent fasting and random blood glucose evaluation. Parameters such as causes of diabetic limb, family history, type of bone involvement, type of lesions, and treatment modalities were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## Results

Table I Distribution of patients

Total- 62		
Gender	Males	Females
Number	38	24

Table I shows that out of 62 patients, males were 38 and females were 24.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Precipitating causes	Trauma	18	0.02
	Infected nail bed/Fissure	8	
	Spontaneous	36	
Bone involvement	Yes	22	0.01
	No	40	
Type of lesions	Septic	46	0.01
	Ischaemic	16	
Site	Leg	20	0.05
	Thigh	10	
	Foot	32	
Appearance	Ulcer	30	0.05
	Abscess	14	
	Cellulitis	8	
	Gangrene	10	

Table II, graph I shows that precipitating causes were trauma in 18, infected nail bed/Fissure in 8, spontaneous in 36. In 22 cases, there was bone involvement, type of lesions was septic in 46 and ischaemic in 16. Site was leg in 20, thigh in 10 and foot in 32. Appearance was ulcer in 30, abscess in 14, cellulitis in 8 and gangrene in 10 cases. The difference was significant (P < 0.05).

Graph I Assessment of parameters

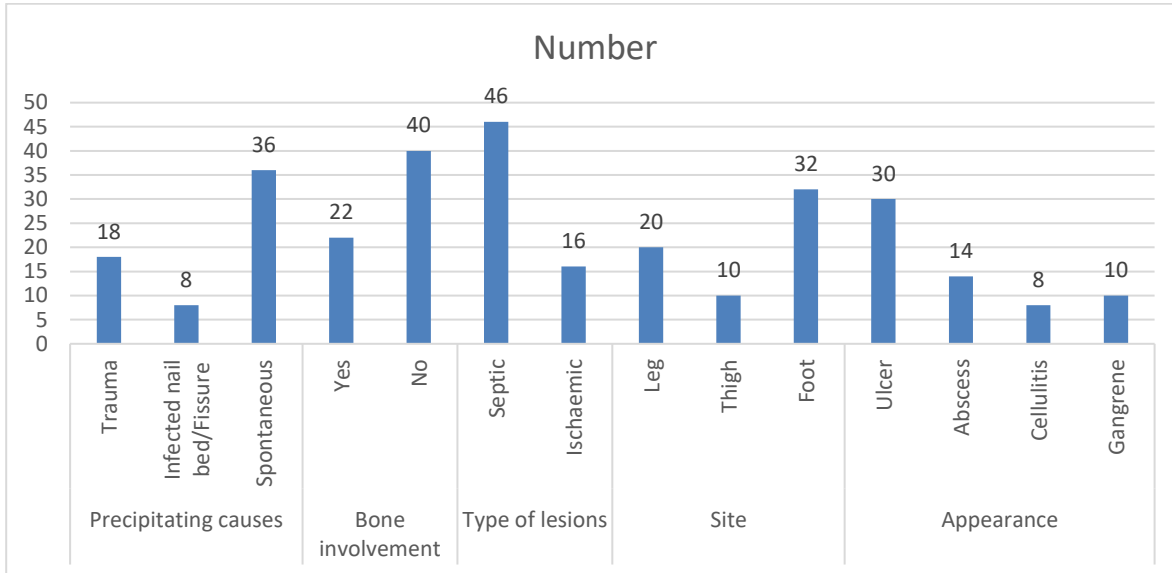


Table III Treatment modality

Treatment	Number	P value
Incision & Drainage	12	0.01
Debridement	26	
Above knee amputation	5	
Below knee amputation	4	
Disarticulation of the toes	6	
Grafting	9	

Table III shows that treatment modality used was incision & drainage in 12, debridement in 26, above knee amputation in 5, below knee amputation in 4, disarticulation of the toes in 6 and grafting in 9 cases. The difference was significant ( $P < 0.05$ ).

## Discussion

Foot problems in diabetes are common and costly, and people with diabetes make up about half of all hospital admissions for amputations. In the United Kingdom, people with diabetes account for more than 40% of hospitalizations for major amputations and 73% of emergency room admissions for minor amputations.<sup>6</sup> Because most amputations in diabetes are preceded by foot ulceration, a thorough understanding of the causes and management of ulceration is essential.<sup>7</sup> The present study was conducted to assess surgical management of diabetic limb complications among patients.

We found that out of 62 patients, males were 38 and females were 24. Ravitheja et al<sup>8</sup> analyzed the risk factors leading to complication in diabetic foot infection and to study the outcome of treatment modalities and suggest a patient friendly hospital management strategy for diabetic foot. This study was conducted in 100 patients of diabetic foot. Commonest presenting lesion was ulcers (64%), followed by cellulitis (20%), and gangrene (16%). Trauma is the initiating factor in most of the cases. Out of which 82% of patients had infection. Most common microorganism grown from wound discharge culture was staphylococcus aureus (56%), 86% of patients were treated with wound debridement, 14% of patients underwent amputation. Prognosis was good in all patients.

We found that precipitating causes were trauma in 18, infected nail bed/Fissure in 8, spontaneous in 36. In 22 cases, there was bone involvement, type of lesions was septic in 46 and ischaemic in 16. Site was leg in 20, thigh in 10 and foot in 32. Appearance was ulcer in 30, abscess in 14, cellulitis in 8 and gangrene in 10 cases. Madan et al<sup>9</sup> undertook the study to evaluate

patients with respect to age, sex, presentation and to do other specific investigations. The patients were treated by conservative or surgical methods, and the outcome was monitored. The majority of the patients were males with peak age group in the sixth decade. Septic lesions were more than the neuropathic or the ischaemic lesions

We found that treatment modality used was incision & drainage in 12, debridement in 26, above knee amputation in 5, below knee amputation in 4, disarticulation of the toes in 6 and grafting in 9 cases. To prevent diabetes complications in the other limb, educate the patient to make a commitment to managing their diabetes, eat healthy foods, include physical activity in their daily routine and keep their blood sugar under control. Then put best foot forward with these simple foot-care tips: & wash your feet daily. Wash your feet in lukewarm water once a day. Dry them gently, especially between the toes.<sup>10</sup> Sprinkle talcum powder or cornstarch between your toes to keep the skin dry. Use a moisturizing cream or lotion on the tops and bottoms of your feet to keep the skin soft. & inspect your feet daily. Check your feet for blisters, cuts, sores, redness or swelling once a day. If you have trouble bending over, use a hand mirror to see the bottoms of your feet or ask someone to help you. & Trim your toenails carefully. Trim your nails straight across. If you have any nail problems or poor feeling in your feet, ask your doctor about professional nail trimming. & Don't go barefoot.<sup>11</sup> Protect your feet with comfortable socks and shoes, even indoors. Make sure new shoes fit well, too. Even a single blister can lead to an infection that will not heal. A randomized control trial compared the efficacy of a TCC and removable cast walker and half-shoe in patients with Diabetic foot ulcers, it is found that TCC to be the most effective modality.<sup>12</sup>

The limitation the study is small sample size.

## Conclusion

Authors found that most common appearance of diabetic limb was ulcer and the most commonly involved site was foot. Precipitating causes were trauma, infected nail bed/Fissure and spontaneous.

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