

A Clinical Study and Surgical Management Of Foot Lesions In Diabetic Patients

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Abstracts: Background & Objectives: The surgical complication of diabetes mellitus has been a common clinical problem. The present study was undertaken to evaluate patients clinically with respect to age, sex, presentation and to do other specific investigations. The patients were treated by surgical methods, and the outcome was monitored. The ulcer is most common presentation of diabetic foot. Majority of patient comes under Wagner's grade 3. Only 26 patients came for follow up out of 50 patients. Objective is to study various presentations of foot ulcers in case of diabetic foot, to study the grades of lesions in diabetic foot, to evaluate methods of surgical management in diabetic foot ulcers. [Magadam S et al NJIRM 2015; 6(3):36-39]

Key Words: Diabetic foot, cellulitis, gangrene.

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Introduction: The term "Diabetic foot" implies that the patho-physiological processes of diabetes mellitus do something to foot, that puts at increased risk of tissue damage. Foot disorders such as ulceration, infection and gangrene are one of the leading causes of hospitalization in patients with diabetes mellitus¹. Now days the diabetic foot care and management of problems related to foot are gaining more emphasis, the motto set for the diabetes day 2005 was the same and it was regarding the emphasis on diabetic foot care.

Material and Methods: A prospective study was carried out on 50 cases of diabetes with foot lesions admitted to C.P.R. General Hospital, Kolhapur between Jun 2010 – July 2011. Ethical committee clearance for the study and individual patient consent was taken. In this, Group of patients studied, the clinical observation, statistical analysis and the outcome of benefits by the conservative and operative treatment are very well shown.

Results:

Age and Sex Incidence: In the present study the youngest patient was 23 yrs. old and the oldest was 80 yrs. Old. The average age of patients was 54.12 yrs. The number of males in the present study was 34 and that of females' was 16. The incidence of foot lesions was maximum in 51 – 60 age groups in males and females.

Education: In the present study only 19 patients were educated while the remaining 31 patients were uneducated.

Types of symptoms: The patients of diabetes with foot lesions usually present with symptoms of swelling, pain wound, discharge, numbness, discoloration. Most of the patients in the present series presented with more than one symptom. The commonest symptom in the present series was wound seen in 39 patients.

Diabetic Status: In the present study of 50 patients, 43 patients were known diabetics at the time of admission. In the present series 7 patients were detected as diabetic at the time of admission.

Type of foot lesions: The different type of lesions seen including cellulites, abscess, ulcer and gangrene. Most of the patients present with more than one lesion. Ulcer was the major lesion seen in present series being present in 39 patients. While abscess seen in 7 patients, was the least common lesion.

Causative Organisms: In the present series, pus either from abscess or from the floor of ulcer was sent for culture and sensitivity in 48 patients. Staphylococci (28) were the commonest organism grown, while streptococci were the (1) least commonly grown organisms.

Antibiotic sensitivity: In our study, Pus either from abscess or from the floor of ulcer was sent for culture and sensitivity in 48 patients.

Wagners Grading: Grading of disease was done by using Wagner's staging. Majority of patients (18) were seen to be suffering from Grade III, disease.

Treatment Modalities: Surgical Management included procedures like incision and drainage, debridement, skin grafting and amputation. 2 patients were treated conservatively. Commonest surgical intervention was debridement which was carried out in about 35 patients.

Discussion: Total 50 cases of diabetic foot were included in this study. Following is the result of my study conducted in our hospital. The results are compared with the literature available

Age: In our study of 50 patients age was ranging from 23 years to 80 years. It was found that age group 51-60 years, had the highest number of (19) patients. A.K. Ramani et al² 51 – 60 years.

Sex: Most of the diseases have the male predominance; this is same with the diabetic foot also. In our series 68% (34) patients were males and 32% (16) patients were females. Oyibo, Jude and Armstrong³ found predominance of male sex in diabetic foot lesions (77%).

Diabetic Status: In our study 86% (43) patients were known diabetics. Other 14%(7) patients we diagnosed after admission to the hospital. In study done by Boston⁴ - known diabetics were 92 % and unknown are 8 %.

It is shown that the unknown diabetics in our study are more, May be because of illiteracy and lack of knowledge about health care.

Type Of Lesions: In our study of foot lesions ulcer was the commonest presentation.

Different types of lesions compared with other study-

Type of Lesion	Pennsylvania hospital report ⁵	Present Study
Cellulites	58.3%	50.0%
Gangrene	44.78 %	26.0%

Cellulites presentation is less compared to the other study because mild cellulites may be missed because of the thick and dark skin in our peoples.

Causative Organisms: In our study Staphylococcus aureus (56%), E.Coli (32%). Klebsiella pneumonia

(18%), Protues Species (16%) pseudomonas species (14%) were the commonly isolated organisms.

In a study conducted at department of dermatology, Adan teaching hospital, Ministry of Health Kuwait, by Abdul Razak A, Bitar Z I, Al-Shamali A A, Mobasher L A, and Staphylococcus aureus was the most common isolate, being recovered from 38.4% of cases. Other organisms were Pseudomonas Aeruginosa (17.5%) and Proteus mirabilis (18%), anaerobic gram-negative organisms (10.5%), mainly Bacteroides fragilis.

Imipenem, Meropenem, and Cefepime were the most effective agents against gram-negative organisms. Vancomycin was the most effective against gram-positive organisms⁶.

WAGNER GRADES COMPARED WITH THE OTHER STUDY.

Grades	Calhoun JH el al ⁷	Present Series
"0"	(5.35%)	(0.0%)
"1"	(21.12%)	(12.0%)
"2"	(8.78%)	(28.0%)
"3"	(34.43%)	(36.0%)
"4"	(25.93%)	(18.0%)
"5"	(4.39%)	(6.0%)

In above studies, commonest presentation is of Grade 3 because in this group we get abscess, tendon infection which are commonest lesions in diabetic foot.

In our study there was less percentage of patients in Grade "0" and "1" this is because of lack of knowledge about foot care and diabetic control, negligence, and poor socioeconomic status, taking treatment with quacks in the earlier stages.

Surgical Management

Debridement: It is the important surgical procedure considered repeatedly in many patients. In our study 70% patients were considered for this procedure.

Amputations : In our study 44% patients needed amputations. Out of these 14% patients needed minor amputations like Ray/toes, Transmetatarsal, and Symes amputation. 30% patients needed major amputations like B. K. and A.K. amputations.

Dressing: Dressing material used in our study were Eusol, Betadine, Local antimicrobials like metronidazole, soframycin cream.

Whenever there was foci of infection like abscess and necrosed tissue the systemic antibiotics had less role unless otherwise the infected or dead tissue was removed by surgical procedures⁸. Whereas topical antibiotics had role only in cases of contaminated wounds, these directly or epithelialisation⁹.

Duration Of Hospital Stay: Duration of hospital stay is important in cumulative cost effect to the patient and if patient is the earning member of the family it affects much on Socio-Economic status of the family. So considering these points reducing the hospital stay helped in improvement of the quality of life.

Study	Mean duration of hospital stay
Bouter K.P. et al ^[9] (1988)	40.0 days.
(1989)	38.3 days.
Present study	40.24 days

Follow – Up: During discharge from the hospital health education was given regarding the foot care and diabetic control. All the patients were asked for follow – up after one week. During the follow up, diabetic status was checked and detailed general and local examination was done.

Only 26 patients came for follow - up. Out of these, 12 patients came for follow-up – up to 1 year, 14 patients up to 1^{1/2} years and remaining were without recurrence of any foot lesion.

Instructions Given To Patient For Care Of Diabetic Foot^[10]: Educating patients at risk for diabetic foot ulceration have been shown to be beneficial. Health education and satisfactory rehabilitation are important in avoiding the recurrence of foot lesions.

Conclusion: To conclude, Foot ulcers were the commonest type of presentation, where infections were present in all cases. Patients present to us in the late stage of the disease may be because of

illiteracy, poor knowledge about diabetic foot complications and taking treatment from quacks in the earlier stages of the disease.

Majority of patient are with uncontrolled diabetes. Insulin requirement was high initially, because of the presence of infection. After the control of infection dosage of insulin was reduced. Trauma was the most common precipitating factor. Staphylococcus aureus was the commonest organism grown on culture, most or the cultures had multiple organisms.

Good diabetic control, improving nutritional status, meticulous Debridement and broad spectrum antibiotics to control infection are the main steps in reducing the major amputations. Health education and satisfactory rehabilitation are important in avoiding the recurrence of foot lesions. Both major and minor amputations can be avoided still further by educating the diabetics about proper foot care and by practicing the offloading techniques. Poor follow up of patients, may be because of Illiteracy. Poor knowledge about complication and progress of disease. Poor socio-economic status and Poor facilities for communication.

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