



A STUDY OF 50 CASES OF DIABETIC FOOT AT TERTIARY CARE HOSPITAL

Surgery

Dr. Deep N. Patel*	Second year Resident doctor, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad. *Corresponding Author
Dr. Rajnish R. Patel	Professor & Head of unit, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad.
Dr. Hitendra K. Desai	Assistant Professor, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad.
Dr. Rajesh K. Patel	Assistant Professor, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad.
Dr. Haresh Memariya	Second year Resident doctor, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad.
Dr. Anand M	Second year Resident doctor, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad.
Dr. T Srinivas	Second year Resident doctor, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad.
Dr. Ankeet Shah	First year Resident doctor, Department of General Surgery, B.J.M.C and Civil Hospital, Ahmedabad.

ABSTRACT

BACKGROUND AND OBJECTIVES :-

The present study was attempted to find out the role of conventional and newer modalities for the treatment and rehabilitation and prevention of complication of diabetic foot patients.

MATERIAL AND METHOD:-

50 patients of diabetic foot admitted in civil Hospital, Ahmedabad were studied within two years from 2018 to 2020 and careful assessment of history, clinical findings, investigation, management and follow-up of these patients done.

RESULT:- According to my study, Diabetic foot is common in males & 51-60 years of age group, in smokers, in lower socio-economic class, with average duration of 8 to 10 years of diabetes melitus, most common type of lesion was abscess, most common site was forefoot, mostly was of neuropathic in nature & mostly managed by debridement. Mean hospital stay was 1 week to 1 month.

CONCLUSION:-

Patient education and awareness regarding good sugar control of diabetes, use of proper antibiotics, adequate debridement and proper dressing; with eusol, betadine hydrogen peroxide along with newer dressing methods like vacuum dressing found to be effective. Amputation done only for gangrene and proper rehabilitation method carried out for these patients.

KEYWORDS

Dressing, sugar control, debridement, Amputation.

INTRODUCTION

Diabetic foot is commonest complication of Diabetes Mellitus. Here is the discussion regarding diabetes mellitus and its complications in short and newer management of Diabetic foot.

• Definition:

Diabetes mellitus is a group of metabolic disorder that share the phenotype of hyperglycemia.

• Classification:

Broadly classified in two groups:

A) Primary (implies that no associated disease present)

Type-I: β cell destruction usually leading to absolute insulin Deficiency.

- (a) Immune mediated
- (b) Idiopathic

Type-II May varies from predominantly insulin resistance with Relative insulin deficiency to predominantly insulin secretory defect with relative insulin resistance.

(B) Secondary:

- Diabetes caused by pancreatic disease.
- Diabetes by hormonal abnormalities.
- Gestational Diabetes mellitus
- Diabetes associated with genetic syndromes
- Drug or chemical induced Diabetes mellitus.

Complications:

- **Acute:** Diabetic ketoacidosis
Nonketotic Hyperglycemia state
Hypoglycemia.

• Chronic:

1. Vascular

- a. Macrovascular
 - Coronary
 - Peripheral vascular
- b. Microvascular
 - Diabetic Retinopathy
 - Diabetic Nephropathy
 - Diabetic Neuropathy
 - Diabetic foot

2. Non vascular:

- Gastrointestinal
 - Gastroparesis, Diarrhoea
 - Constipation, Anorexia
 - Early Satiety, Nausea
 - Vomiting, Bloating
- Cerebrovascular accident
- Genito Urinary
 - Sexual Dysfunction

- Dermatological:
 - Delayed wound healing
 - Diabetic skin spots.
- Diabetic foot is one of the commonest complication of diabetes.
- Association between Diabetes and symptoms in limb was first recognized by John Rollo (1789) whereas the association between diabetic foot ulceration, neuropathy and vascular disease was first recognized by Pryce (1887).
- It is not totally curable or preventable but with positive approach mortality and morbidity due to diabetic foot can be reduced.

AIMS AND OBJECTIVES:

- The aims and the objectives of my dissertation are To find out the role of conventional and newer modalities in the treatment of diabetic foot.
- To salvage the limb in diabetic patient with the help of various treatment modalities available to our hospitals.
- To prevent the recurrence of such lesion by careful follow up, by educating the patient about foot care and prescribing pressure distributing footwear.
- Rehabilitation of patient once the ulcer has healed and after major and minor amputation.

MATERIAL AND METHOD:

A total of 50 patients having diabetic foot were included in my study over June 2018 to November 2020. The study was conducted in the Department of General surgery, Civil Hospital, Ahmedabad.

Clinical assessment was done all this patients after admitting them. History and clinical findings were written as per preformed proforma. All patients were sent to footwear specialists.

Following investigations were carried out in those patients of diabetic foot;

- Routine blood investigations
- Xray local part
- Arterial colour Doppler
- Swab culture sensitivity

All these patients initially underwent debridement or removal of necrotic patch, according to the presenting feature. Depending on the condition of the ulcer (size or slough) they were dressed.

The ulcers were dressed both conventionally as well as using the newer techniques of dressing including vac dressing, hydrogel, hydrocolloid, silver alginate, papaya dressing, collagen, cerdac granules as well as collagen. In this study type of material, Number of times material used, and the cost of effectiveness of the material was taken into consideration.

Depending upon the viability of the limb patients under went Split thickness Grafting (STG) or were amputated. These patients were prescribed diabetic insoles and were followed up for 3 months and 6 months to see for recurrence and new lesions.

RESULT

Table – 1 age

AGE GROUP (IN YRS)	NO. OF PATIENTS
<40	3
41-50	15
51-60	26
61-70	4
>70	2

Table : 2 Sex

SEX	NO. OF PATIENTS	MY STUDY	GARETH D. GRIFFITH
MALE	38	76%	60%
FEMALE	12	24%	40%

Table – 3

	MY STUDY %	GARETH D GRIFFITH %
SMOKING	75%	65%
NON SMOKING	25%	35%

Table – 4 Socio Economic Status

SOCIOECONOMIC STSTUS	MY STUDY %	ROOH-UI-MUQIM, SAMSON GRIFFIN, MUKHTAR AHMED STUDY%
LOVER	58	14
MIDDLE	28	60
UPPER CLASS	14	26

Table – 5 Duration Of Diabetes Mellitus

DURATIONS	NO. OF PATIENTS
NEWLY DETECTED	3
5 YEARS OR LESS	5
6-10 YEARS	17
11-20 YEARS	20
MORE THAN 20 YEARS	5

Table – 6

	IN MY STUDY	GRIFFIN AND JEFFERY
AVERAGE DURATION OF DIABETES MELLITUS	8– 10 YEARS	12 YEARS

Table – 7

PRESENTING FEATURE	NO. OF PATIENTS
CELLULITIS	12
ULCER	6
ABSCCESS	18
GANGRENE	14

Table – 8 Site Of Lesion

SITE OF LESION	NO. OF PATIENTS
FORE FOOT	15
MID FOOT	12
HEEL OF FOOT	10
DORSUM OF THE FOOT	6
LEG	7

Table – 9 Type Of Lesion

TYPE OF LESION	TOTAL NO. PATIENTS	PERCENTAGE
NEUROPATHIC	24	48%
TRAUMATIC	18	36%
ISCHEMIC	8	16%

Table – 10 Organism

ORGANISM	NO. OF PATIENTS
Staphylococcus Aureus	12
Pseudomonas	7
Klebsiella	5
E.coli	5
Streptococci	4
No Organism	17

Table -12 Management

Management	No. of Patients	Percentage
Conservative	8	16%
Debridement	28	56%
Minor Amputation (toe)	10	20%
Major Amputation	4	8%
STG	13	26%

Table : 13 Hospital Stay

Period	No. of Patients
Less than a week	6
One week to one Month	36
One Month to two Month	4
More than two Month	4

DISCUSSION

In my study the average age of presentation is found to be 53.86 years. According to Gareth D. Griffith and T. Jeffery study the average age of presentation was 56 years. In Sami K Asfar, munita and Abdullah study it was found to be 59.84 years.

The higher incidence in male could be due to more proneness to trauma.

Smoking predisposes to micro as well as macro vascular angiopathy which in turn predisposes to diabetic foot lesions and hampers healing in diabetic foot.

In my study the average duration diabetes in 8 -10 years. In contrast to my study Griffith and Jeffery's study was 12 years.

This difference may be due to late detection of diabetes in our country. Severity of lesion correlated with severity and duration of diabetes. In my study the commonest presenting features is abscess, irrespective of the type of lesion and duration of diabetes.

According to Sayd Fahd Shah study most of the patients presented with abscess and gangrene.

Majority of the patients had lesion in forefoot due to ulcer at high pressure point at the first metatarsal due to lack of local hygiene, attention and trauma.

From my study majority of diabetic patients were having neuropathic and traumatic type of lesions. Sensory losses commonly found in diabetic patients leading to repeated trauma to foot and finally impaired healing leading to cellulitis.

According to my study staphylococcus aureus is the most common organism isolated from diabetic foot and study conducted by Rooh- Ul – Muqim, Samson Griffin and Mukhtar Ahmed shows that 81% of the patients had Staphylococcus Aureus.

In this study 8 patients were treated conservatively and 28 patients were debrided. The patients were dressed daily with providone iodine, hydrogen peroxide and Eusol. Newer dressing were also used depending upon the characteristics of the wound. The newer dressing included negative suction dressing, hydrogels, hydrocolloid silver alginate, collagen and debridase ointment. Of all the dressings negative suction was found to be more effective considering the efficiency, the availability, number of application and the cost effectiveness of the dressing.

Out of this patients minor amputation was done in 10 patients. 4 patients underwent major amputation of which 2 above knee and 2 below knee amputation were done. The reason for carrying out amputation was uncontrolled Spreading infection and gangrene.

Small ulcers were allowed to heal by epithelisation whereas large lesion were had STG done after appearance of healthy granulation tissue

In my study the average hospital stay of the patient was 22 – 25 days. According to Catherine and Harriet study the average study was found to be 20-25 days.

Mortality :

Of the 50 patients there was mortality of 3 patients due late presentation and poor cardiac condition.

In the study conducted by Sayd Fahd Shah 6 patients died of which 3 died of cardiac failure one due renal failure and one of diabetic ketoacidosis.

Follow up :

The patients were discharged with healed ulcers of healing ulcers and were called up for follow up every week. The healing ulcers healed within 20-30 days. The patients with healed ulcers were followed up for 2 months.

The patients with amputation were discharged with prosthesis.

CONCLUSION

50 Cases of diabetic foot had been studied. They were admitted and investigated in our hospital. They were investigated according to the facilities available. Most of the patients were put on insulin for better glycemic control along with anti diabetic diet and had been treated conservatively or surgically according to the presentation.

- Diabetes cannot prevented or reversed.
- Both the feet are equally affected .
- Functional and non painful extremity should be the goal.
- Diabetes Mellitus is a chronic disorder, manifested as broad spectrum disease, microangiopathic and macroangiopathic

lesions being the main causative factor of diabetic foot.

- Better glycemic control and proper foot care can avoid this complication.
- Middle aged male of low socioeconomic status are more affected mainly because of increased susceptibility to trauma and unhygienic living.
- Abscess formation is the most common presenting feature Highest number of lesions were Neuropathic and Traumatic.
- Duration of diabetes correlated with the severity of disease.
- Forefoot lesions were found to be more common owing to neuropathy and trauma
- Staphylococcus Aureus was the most common organism isolated in our set up.
- Vasodilator drugs and vascular reconstructive surgery did not seem to be effective in my study because of multisegmental occlusive benefit in characteristics of diabetic atherosclerosis
- Good control of diabetes, use of proper antibiotics, adequate debridement and proper dressing saves the limb.
- Eusol, povidone iodine, hydrogen peroxide dressing along with newer dressings which include vacuum dressing, hydrocolloid, hydrogel, silver alginate, collagen dressing were found to be effective.
- Amputation was done only for gangrene and uncontrolled spreading of infection.
- Education regarding foot care and control of diabetes should be given to each patient
- Amputated patients should be given education regarding prosthesis and rehabilitation. For rehabilitation all the efforts should be made to save the knee joint.

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