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A Study Of Diabetic Foot And Its Surgical Management At A Tertiary Care Centre

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Abstract

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Introduction

Diabetes is the leading cause of renal disease, adult onset blindness and amputations resulting from atherosclerosis of arteries. It is estimated that 366 million people who have diabetes worldwide in 2011, and this may rise to 552 million by 2030 [(1]

The long–term effects of diabetes mellitus include progressive development of the specific complications of neuropathy with risk of foot ulcers, amputation, Charcot joints, and retinopathy with potential blindness, nephropathy that may lead to renal failure. People with diabetes are at increased risk of cardiovascular, peripheral vascular and cerebro vascular disease. Of individuals with diabetes a substantial number will develop lower extremity disease including peripheral neuropathy, peripheral arterial disease and foot ulcer. Foot ulcers and their complications are an important cause of morbidity and mortality in diabetes. [(2)].Many different lesions of skin, nails, bone and connective tissue in the foot which occur more often in diabetic patients than non diabetic patients such as ulcers, neuropathic fractures, infections, gangrene and amputations. Foot ulcers affect one in ten diabetics during their lifetime [(3)] . Among all diabetics the lifetime risk for developing diabetic foot ulceration is 25% of which the majority will need amputation within four years of initial diagnosis. [(4)] . Since the prevalence of diabetes and its complications is increasing day by day with its increasing burden and cost to the patient and family. The objective of my study was to find out the various presentations of diabetic foot and surgical intervention required in the management of diabetic foot, and how it can be prevented or treated at an early stage to reduce the risk of amputation and psycho social pain to the patient and the family.

Aims And Objectives are to study the magnitude of problem of diabetic foot and to find out the Quantum of patients requiring surgical interventions.

Methods:

This was an Observational Study conducted at a tertiary care institute, recruiting All Patients admitted with Diabetic Foot for a period of one year from jan 2022 to march 2023. Informed consent was taken from all the patients. The Patients with venous ulcers are not included in the study. Those who were not willing to give consent were excluded. The method of collection of data: All patients with known diagnosis of diabetic foot admitted in a tertiary care centre at southern Rajasthan were considered as data source using the clinical proforma. All patients

were evaluated based on the detail history, clinical examination and findings, routine investigations were done and requiring surgical intervention. 100 cases were included in the study during specified schedule of time

Local examination of the foot was done. Evidence of any precipitating factors, like foot wear, cracks and callosities was noticed. Trophic changes in skin nails muscles hairs was looked for. Pathological lesions of foot like cellulitis, abscess, gangrene foot deformity and their site was also looked for.

Investigations required were Complete Haemogram, Renal Function Tests like B.Urea, S.Creatinine, Urine for Sugar / Albumin and microscopy, Sugar examination like RBS,FBS,PPBS, Wound Pus for culture and sensitivity, X-ray of foot, Urine for Ketone bodies, Glycosylated Hb, Arterial Doppler (if indicated)

Results And Discussion

1. In our study, we observed that 94 patients were suffering from type 2 diabetes mellitus and only 6 patients were found to have type 1 diabetes mellitus which was similar to previous reported literature [(5)]
2. In our study it was observed that 73% patients were males and 27% were females, showed that diabetic foot is commoner in males. Other studies also showed male predominance [(6)]
3. Present study showed Ulcer in (77%), Cellulitis (32%), Abscess (41%) and Gangrene (19%). Ulcer was the most common presentation. 11% of the patient presented with foot deformity. Ulcer and cellulitis was the most common presentation in other literature. Other studies showed ulcer as the most common presentation followed by gangrene and abscess. [(7)]
4. In this study it was found that most of the lesion of diabetic foot were confined to fore foot only (48%) and 2nd most common site of lesion was fore foot and mid foot (33%). Whereas other studies proved fore foot and mid foot were the commonest site [(8)]
5. 62% patients had neuropathy. It was diagnosed by weakness of small muscles, foot deformity, loss of sensation, loss of sweating. Similar findings ie. 61% of the patients with diabetic neuropathy was given in other studies[(9)]
6. In our study the commonest mode of treatment given was Debridement (76%) followed by SSG (30%). Whereas other studies showed only 18.5% patients had debridement and SSG. Rest others had to undergo amputation (22%). Out of these 7% patients needed Transmetatarsal amputation and remaining patients needed major amputations like below knee (12%) and above knee amputations (3%).
7. In some latest literatures it was shown that 29.6% patients needed Transmetatarsal amputation and 37% had below knee and 7.4% had above knee amputation.[(10)]

Table 1: Distribution of Callosity according to different variables

variables		Callosity						Chi sq	P value
		Present		Absent		Total			
		N	N %	N	N %	N	N %		
Gender	Female	19	24.7 %	8	34.8 %	27	27.0 %	0.918	0.338
	Male	58	75.3 %	15	65.2 %	73	73.0 %		
Type of DM	Type I	6	7.8%	0	0.0%	6	6.0%	1.907	0.167

Volume 7, Issue 3; May-June 2024; Page No 307-311

	Type II	71	92.2 %	23	100.0 %	94	94.0 %		
Duration of DM	Recent	9	11.7 %	1	4.3%	10	10.0 %	26.958	<0.0001*
	>1 Year	33	42.9 %	2	8.7%	35	35.0 %		
	>5 Year	28	36.4 %	7	30.4 %	35	35.0 %		
	>10 Year	7	9.1%	13	56.5 %	20	20.0 %		
Site Of Lesion	Fore foot	46	59.7 %	2	8.7%	48	48.0 %	29.547	<0.0001*
	Mid Foot	4	5.2%	1	4.3%	5	5.0%		
	Hind foot	4	5.2%	0	0.0%	4	4.0%		
	Fore foot and Mid foot	19	24.7 %	14	60.9 %	33	33.0 %		
	Fore foot and Hind foot	3	3.9%	2	8.7%	5	5.0%		
	Mid foot and Hind foot	1	1.3%	1	4.3%	2	2.0%		
	Fore foot ,Mid foot and Hind foot	0	0.0%	3	13.0 %	3	3.0%		
Total		77	100%	23	100%	100	100 %		

Table 2: Distribution of Callosity according to the types of lesion

		Callosity						Chi Sq	P value
		Present		Absent		Total			
		N	N %	N	N %	N	N %		
Cellulitis	Yes	19	24.7%	13	56.5 %	32	32.0%	8.254	0.004*
	No	58	75.3%	10	43.5 %	68	68.0%		
Gangrene	Yes	6	7.8%	13	56.5 %	19	19.0%	27.325	<0.0001*
	No	71	92.2%	10	43.5 %	81	81.0%		

Volume 7, Issue 3; May-June 2024; Page No 307-311

Abscess	Yes	28	36.4%	13	56.5 %	41	41.0%	2.975	0.085
	No	49	63.6%	10	43.5 %	59	59.0%		
Peripheral Neuropathy	Yes	41	53.2%	21	91.3 %	62	62.0%	10.887	0.001*
	No	36	46.8%	2	8.7%	38	38.0%		
Types Of Surgical Procedures									
Debridement	Yes	64	83.1%	12	52.2 %	76	76.0%	9.296	0.002*
	No	13	16.9%	11	47.8 %	24	24.0%		
SSG	Yes	19	24.7%	11	47.8 %	30	30.0%	4.520	0.034*
	No	58	75.3%	12	52.2 %	70	70.0%		
Amputation	Yes	10	13.0%	12	52.2 %	22	22.0%	15.848	<0.0001*
	No	67	87.0%	11	47.8 %	78	78.0%		
Total		77	100%	23	100 %	100	100%		

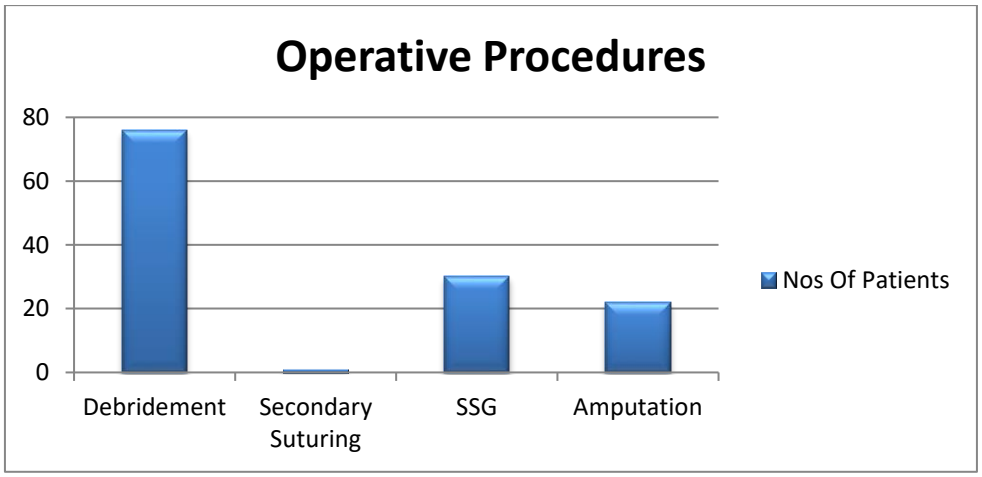

Figure no.1: Showing the no. of patients undergoing different surgical interventions.

Volume 7, Issue 3; May-June 2024; Page No 307-311

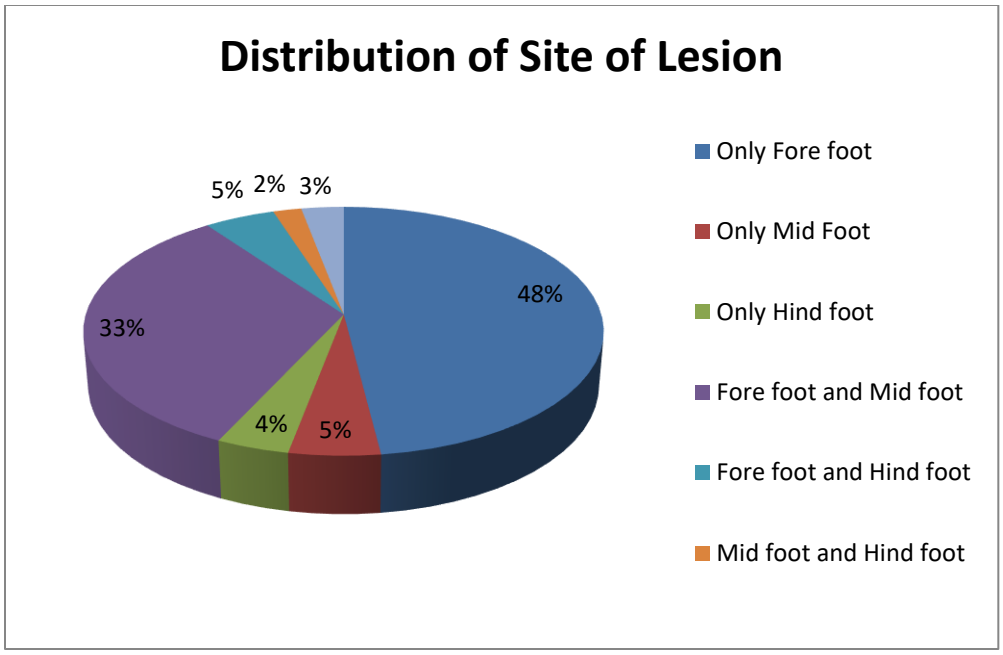

Figure no.2: Showing the site of lesion in diabetic foot patients

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Volume 7, Issue 3; May-June 2024; Page No 307-311