A Conservative Approach to Diabetic Foot – An Experience with 40 Cases

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ABSTRACT

Background: Foot complication is a common problem in diabetics.

Methods: Our experience with conservative approach on 40 cases of Diabetic foot is presented herewith. 27 of the 40 cases were treated conservatively and 13 cases required split skin grafts.

Results: The outcome of the conservative approach was excellent. No amputation was performed.

Conclusion: Diabetic foot can be managed effectively with conservative measures alone.

INTRODUCTION

A relatively frequent cause of disablement in diabetic patients is foot complication. More hospital beds are occupied by diabetic patients with such complications than for all other causes associated with the disease. Diabetics are prone to ulceration and gangrene of the feet often leading to amputation. Peripheral vascular disease and neuropathy are the essential underlying causes of the foot lesions in diabetes. The ulcers are usually precipitated by a trivial injury such as pin prick, friction by tight shoes or scratching. The sensory impairment is a single most important factor leading to the formation of a neuropathic ulcer and the arterial disease is often a contributing factor. Our study highlights the treatment of diabetic foot by a conservative approach.

MATERIAL AND METHODS

Our study included 40 cases of diabetics suffering from foot problems studied prospectively. All the patients were thoroughly examined and investigated. Pus cultures were taken from all the ulcers. The size of the ulcers were measured. Vibration sense was measured by using a tuning fork and a vibrometer, an instrument, a model of which has been indigenously fabricated at our hospital and has been found to be sensitive. The degree of vascular insufficiency was estimated by the nature of the pulse and the ankle/brachial pressure index.

Three methods of debridement – mechanical, chemical and enzymatic were followed. Initially all patients were treated by washing the wound and removing the slough and necrotic tissue using normal saline. The mechanical debridement was coupled with enzymatic debridement using trypsin solution. Chemical debridement was done if necessary using hypertonic urea which was used mainly as an antibacterial agent. Eusol was used only in a few resistant cases. If there was dependent oedema, it was reduced by limb elevation and diuretics. Insulin was used for control of diabetes. Space decompression incisions were also used wherever needed. Appropriate antibiotics were used which were modified after sensitivity studies.

RESULTS

In our study of 40 cases of diabetic foot, mean age of patients was 55 years and age varied between 40 to 70 years. 25 patients (62.5%) were on oral antidiabetic agents and remaining were on insulin at the time of admission. 30 patients (75%) gave history of some form of trivial injury at the starting point. The size of the lesions varied between 1 to 12.5 cm. The pus cultures from the lesions yielded a wide variety of organisms, mixed infection was common (Table 1). Various modalities of treatment used in our study are shown in (Table 2)

Table 1

Showing types of organisms isolated

Types of Organisms	No. of Cases	Percentage of cases
Staphylococcus Aureus	6	15
E. Coli	3	7.5
Proteus	1	2.5
Streptococcus Viridans	2	5
Pseudomonas	1	2.5
Fungus	1	2.5
Staphylococcus Epidermis	1	2.5
Mixed Infection	25	62.5

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Table 2

Showing various modalities of treatment given

Types of treatment	No. of cases	Percentage of cases	Duration of treatment in days; Mean(Range)
Daily dressing by Betadine (5% providone iodine solution) and Eusol (Hypochlorite solution)	24	60	31.5 (20-50)
Dermaquine dressing	1	2.5	14
Split skin grafting	13	32.5	46 (25-90)
Incision of cellulites and dressing	2	5	27 (22-32)
Amputation	Nil	Nil	Nil

DISCUSSION

The long term conservative management of a diabetic foot with proper wound toileting, use of proper antibiotics and use of split skin grafts in large sized ulcers has been described by many authors (1, 2). Our conservative management of the diabetic foot included mechanical, chemical and or enzymatic debridement of the wound. In addition split skin grafting was done in cases with extensive lesions. To these were added appropriate antibiotics modified after sensitivity reports. Strict control blood glucose was achieved by using monocomponent insulin.

With these conservative measures alone, 67.5% of the ulcers healed completely, and 32.5% of cases required split skin grafting. None of our cases required amputation even at the level of the toes. Effective management of diabetic foot with conservative measures and watchful expectancy is strongly recommended.

The conservative approach to the problem of diabetic foot in the form of proper wound toileting and split skin grafting if required, is perhaps the best form of treatment for the diabetic foot.

REFERENCES

1. L. Delbridge, G. Ctercteko, C. Fowler. T.S. Reeve, L.P. Le Quesne. The aetiology of diabetic neuropathic ulceration of the foot. British Journal Of Surgery. 1985; 75: 1-6

2. Sriprasad S. Rattan Paul, Paul Korath, K. Jagadeesan. Diabetic foot management – A conservative approach. Antiseptic, 1992; 89: 343-7