

# A Prospective Study on Efficacy of Various Dressings in the Management of Diabetic Foot Ulcers

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**Abstract:** Diabetic foot ulcer is a historically important disease which has been managed in myriad ways over the ages. Dressings form an important aspect of the treatment protocol. Here efficacy some of the newer dressings-namely collagen, alginate, topical hydrogel were compared with that of the conventional saline dressing. The study was done over a period of 6 months from March to October 2016 among 100 consenting diabetic foot ulcer patients admitted to Govt.Rajaji Hospital, Madurai. It was found out that patients in the collagen group had faster development of granulation tissue, shorter hospital stay and overall better healing. Even though the search for the ideal dressing material continues, among the materials studied here collagen appears superior.

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## I. Introduction

Chronic Ulcers pose significant and challenging health as well as economic problems, as it needs long term surgical and nursing care whether it is a Burn wound, Diabetic ulcer, Decubitus ulcer, or even otherwise. Ulcers are also susceptible to complications like infection and thus sepsis and limb loss. Management of chronic ulcers require dressing, many times a day. The aim of dressing is to protect from contamination, infection and injury, absorption of drainage from the ulcer, and immobilization of the wound. Many agents have been used according to interest like saline, Betadine, Dakin's Solution, Acriflavin, Bactatin and various antibiotic solutions.

## II. Aims And Objectives

To compare efficacy of following dressings in management of diabetic foot ulcer:

1. collagen dressing
2. alginate dressing
3. topical hydrogels
4. conventional saline dressing

### 2.1 Inclusion Criteria

- 1) All the patients admitted in general surgical ward, aged more than 18 years with diabetic foot ulcer.
- 2) Patients consented for inclusion in the study according to the designated proforma
- 3) Size of the ulcer: 2-50 cm<sup>2</sup>, upto wagner grade 2

### 2.2 Exclusion Criteria

- 1) patients having severe infection (wagner grade 3 and above)
- 2) size of ulcer > 50 cm<sup>2</sup>
- 3) patients not consented for inclusion in the study
- 4) patients with peripheral vascular disease as identified by ABI (ankle-brachial index) measured using hand held doppler

## III. Materials And Methods

### 3.1 Design Of The Study

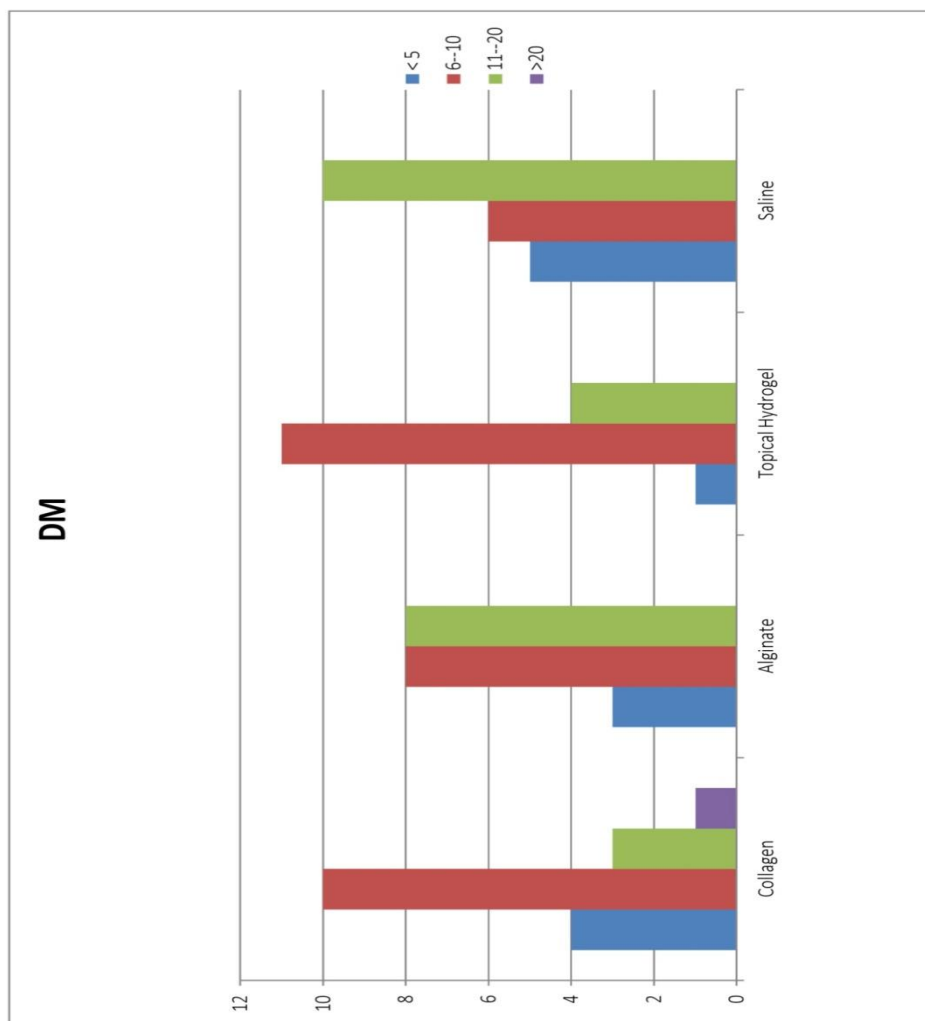
This study is a prospective parallel group and comparative trial among patients admitted with foot ulcer in General Surgery wards in Madurai Medical College, Madurai. The number of patients included in the study was 100, Out of which 25 were in each group. Study duration was 6 months. (March 2016 – October 2016)

### 3.2 Materials Used

Normal Saline, Collagen sheet, Alginate, Topical Hydrogel

**IV. Observation And Results**

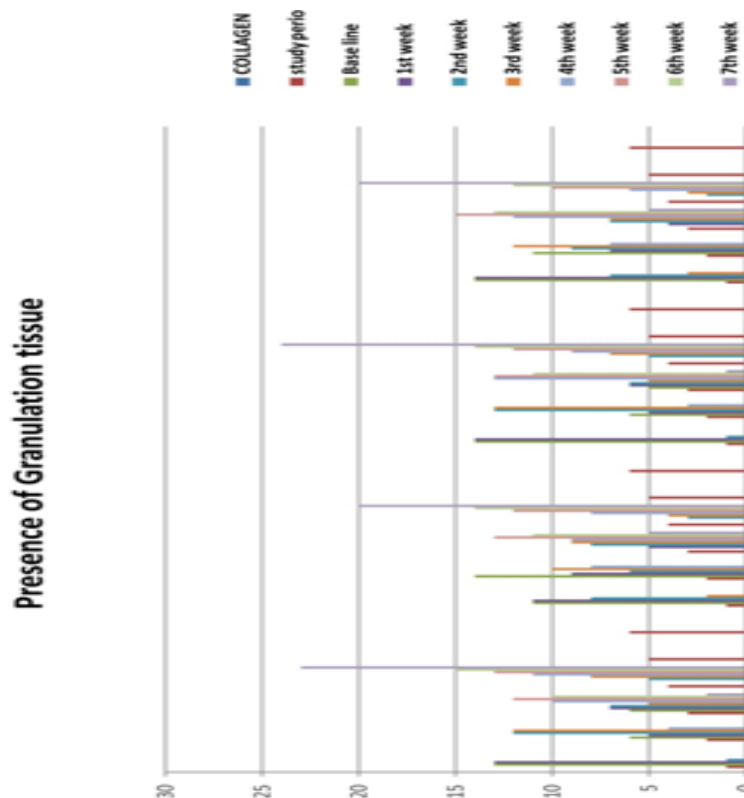
Duration of Diabetes Mellitus It is observed in our study most of the patients presented with Diabetes Mellitus of duration with Mean ± SD of collagen group 7.52 ± 6.734,alginate group 8.80 ± 5.635,hydrogel group 7.64±6.291,saline group 10.28±5.41, thus showing long duration of diabetes mellitus patients are prone for diabetic Foot Ulcers.



**3.3 MPresence of Necrotic Tissue Or Slough**

The number of patients with no necrotic tissue are significantly higher in the test group at 3rd week follow up (P<0.001), at 4th week (P<0.001), at 5th week (P<0.001), at 6th week (P<0.001) and at the 7th week (P<0.01) when compared to control group as per the Chi-square/ Fisher Exact test.

study period	COLLAGEN						ALGINATE						TOPICAL HYDROGEL						SALINE					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Base line	13	6	6	--	--	--	11	9	5	--	--	--	14	6	5	--	--	--	14	7	4	--	--	--
1st week	12	2	4	3	4	--	9	10	4	2	--	--	15	6	4	--	--	--	11	10	2	2	--	--
2nd week	2	10	2	3	3	5	3	8	8	3	1	2	2	11	3	2	2	5	5	8	8	2	--	2
3rd week	2	7	3	2	3	8	1	5	5	4	6	4	1	8	4	3	2	7	2	4	7	6	3	3
4th week	--	--	10	2	2	11	--	1	4	6	4	10	--	--	11	2	3	9	--	2	2	9	6	6
5th week	--	--	4	6	2	13	--	--	--	5	8	12	--	--	3	8	2	12	--	--	--	4	11	10
6th week	--	--	--	4	6	15	--	--	--	1	6	18	--	--	--	3	8	14	--	--	--	2	8	15
7th week	--	--	--	--	4	21	--	--	--	1	4	20	--	--	--	--	3	22	--	--	--	2	2	21



## V. Conclusion

1. The study was done to give an insight to the depth of ulcer foot management, as it has become a foremost problem in recent era.
2. The goal of this study was to enhance the wound / ulcers to be devoid of necrotic tissue and debris and to remove the senescent cells from the wound bed using various dressings and preparing the wound for a healthy bed of granulation tissue to promote a rapid healing.
3. This is achieved best in our study by using collagen dressing for ulcers which is proved to be highly effective in reduction of slough, promoting granulation tissue formation and re epithelisation
4. Collagen dressing proved to be significantly effective in wound bed preparation in comparison with conventional treatment with normal saline.

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