

ORIGINAL ARTICLE

THE EFFECT OF ALOE VERA IN PATIENT WITH CHRONIC PERIODONTITIS

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ABSTRACT

Background: Aloe Vera can be used as adjunct to conventional periodontal therapy in patients with chronic periodontitis. The purpose of this study was to investigate the clinical effectiveness of local application of Aloe Vera gel used as an adjunct to scaling and root planing in the treatment of patients with chronic periodontitis.

Methods: 40 patients were examined and treated by alveolar gel in Periodontology department at Altamash Institute of dental medicine. Periodontal evaluation like Gingival index, Plaque index and pocket depth by periodontal probe followed by scaling and root planing was done.

Results: The mean reduction in gingival index from baseline to 15 and 30 days was (1.98 ± 0.10 , 1.6 ± 0.10 and 1.05 ± 0.10 , respectively). However, for the control group, there was no significant difference in gingival and plaque indexes between after and before treatment measurements. There was significant reduction in Plaque index before and after treatment with Aloe Vera. The plaque index was significantly reduced from 2.15 ± 0.271 to 1.60 ± 0.34 after 30 days.

Conclusion: It has been shown that the sites treated with Aloe Vera gel show significant decrease in periodontitis. Also differences between control and test side were statistically significant in clinical parameter.

KEYWORDS: Aloe Vera, Periodontitis, Gingival Index, Plaque Index, Periodontal pocket.

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INTRODUCTION

Aloe Vera is a medicinal plant with immense properties of therapeutic benefits. It has anti-inflammatory, antiviral, antibacterial and anti-oxidative effects. The Aloe barbadensis plant consists of two different parts, each of which produces substances with completely different compositions and therapeutic properties. Among more than 400 aloe species, Aloe barbadensis Miller and Aloe arborescence are the most accepted species for various medical, cosmetic and pharmaceutical purposes. The antimicrobial effect of a dentifrice containing alveola has been used demonstrated in a vitro study, in which this phytotherapeutic agent inhibited the growth of diverse oral microorganisms such S.mutans, S.sangius, A.viscosus and C.albicans¹. Aloe Vera has gained considerable importance in clinical research. It is one of the most extensively

studied herbs in dental and oral health studies^{2,3}. This clinical study focuses on Aloe Vera and highlights its property when used as a treatment in the periodontal pocket. Aloe Vera is a medicinal plant, which has the greater medicinal value and enormous properties for curing and preventing oral diseases. Aloe Vera has been used as anti-inflammatory, antimicrobial, and cellular regeneration properties. It is especially attractive as a tissue engineering material because alveolar promotes cell migration, proliferation and growth^{4,5,6,7,8,9,10}. Glucomannan, a mannose rich polysaccharide and gibberellin, a growth hormone, interact with growth factor receptor on the fibroblast, thereby stimulating its activity and proliferation which in turn increases collagen synthesis after topical and oral application¹¹. The objective of this study was to find out the effect of Aloe Vera in Periodontitis.

The present study was carried out on 40 patients, 30-60 yrs. old with chronic periodontitis were included. The patients were selected from periodontology department, Altamash Institute of dental medicine. Proper history was taken and clinical examination was done.

METHODS

The clinical observations comprised plaque index score, gingival redness and suppuration, pocket depth and attachment level. Patients who were current smokers, pregnant, had systemic diseases such as diabetes or had periodontal treatment including scaling, root planing and periodontal surgery in the last six months were excluded from the study.

The subjects were divided into two groups. Twenty patients were treated with scaling and root planing (SRP) only and other 20 patients were treated with SRP and Aloe Vera gel. Selected sites were randomly divided into control sites and experimental sites which were treated by split-mouth design. All patients were given strict oral hygiene instructions.

After flushing the area with saline Aloe Vera (1cc) 100 % gel concentrate was applied sub-gingivally using syringe. The gel applied site were covered with periodontal pack to ensure that Aloe Vera gel stayed long enough to be effective in the periodontal pocket. Patients were instructed not to rinse or drink any liquid for at least 30 minutes. For oral hygiene all patients were given toothbrush (Colgate toothbrush) and tooth paste (Sensodyne toothpaste). They were instructed to brush their teeth twice daily for 2 minutes using the Bass technique. Following clinical parameters were recorded.

- Plaque Index
- Gingival Index
- Periodontal pocket depth

Patients of both groups were examined on baseline and follow up days, day 15 and day 30. Clinical examination to assess plaque accumulation and gingivitis was done by using modified Silness and Loe Plaque Index (William et al., 1991) and Gingival Index (Loe and Silness, 1963) at baseline and at follow-up after 15 and 30 days.

TABLE 1. THE EFFECT OF ALOE VERA IN PLAQUE, PERIODONTAL AND GINGIVAL INDEX

	BASE LINE Mean \pm SD	15 DAYS Mean \pm SD	30 DAYS Mean \pm SD
ALOE VERA GROUP (PLAQUE INDEX)	2.15 \pm 0.271	1.85 \pm 0.120	1.60 \pm 0.34
CONTROL GROUP (PLAQUE INDEX)	2.10 \pm 0.22	2.00 \pm 0.32	1.90 \pm 0.24
CONTROL GROUP (PERIODONTAL POCKET)	3.75 \pm 0.27	2.80 \pm 0.12	1.90 \pm 0.11
ALOE VERA GROUP (PERIODONTAL POCKET)	3.45 \pm 0.34	3.26 \pm 0.20	2.96 \pm 0.54
ALOE VERA GROUP (GINGIVAL INDEX)	1.98 \pm 0.10	1.60 \pm 0.10	1.05 \pm 0.10
CONTROL GROUP (GINGIVAL INDEX)	1.78 \pm 0.15	1.70 \pm 0.25	1.68 \pm 0.40

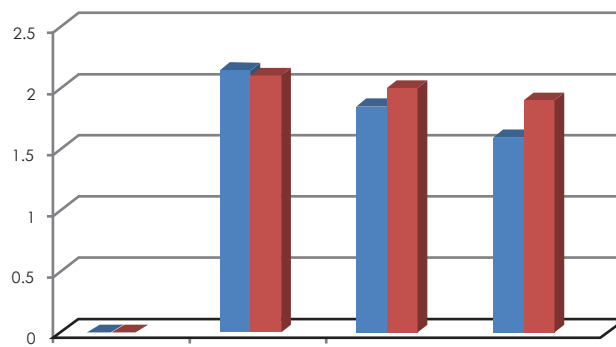


Fig 1: PLAQUE INDEX

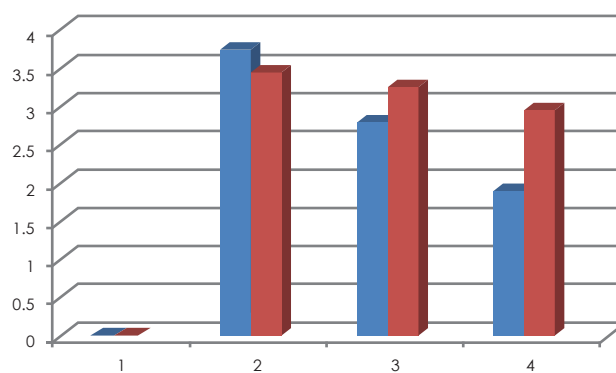


Fig 2: PERIODONTAL POCKET

RESULTS

All subjects showed statistically significant clinical improvement in both gingival and plaque index at follow-up visits when compared with the baseline levels. The mean reduction in gingival index from baseline to 15 and 30 days was (1.98 ± 0.10 , 1.6 ± 0.10 and 1.05 ± 0.10 , respectively). However, for the control group, there was no significant differences in gingival and plaque indexes between after and before treatment measurements.

There was significant reduction in Plaque index before and after treatment with Aloe Vera. The plaque index was significantly reduced from 2.15 ± 0.271 to 1.60 ± 0.34 after 30 days. The mean periodontal pocket depth was measured before and after treatment. The results showed reductions in PPD after 15 and 30 days of treatment with Aloe Vera gel. Table shows the mean changes in PPD after and before treatment. The effects of the treatments were evident in the post treatment recording. At 15 days, PPD was reduced to 3.26 ± 0.20 in the SRP alone group to 2.80 ± 0.12 in the SRP plus Aloe Vera group. After 30 days, PPD was reduced to 2.96 ± 0.54 in the SRP alone group to 1.90 ± 0.11 in the SRP plus Aloe Vera group. The improvements in

PPD were more evident in the groups treated with SRP and the Aloe Vera group.

DISCUSSION

Use of herbs for dental care is very common in indigenous system of medicine and herb like *Terminalia Chebula*, *Aloevera*, *Azadirachta indica*, *piper belt*, *Ocimum sanctum* possess antibacterial, ulcer healing, anti-plaque and anti-halitosis properties¹². The test group showed significant reduction in periodontal pocket, gingival index and plaque index showing that Aloe Vera is considered to have excellent potential as an adjunct to traditional periodontal therapy.

The pharmacological actions of Aloe Vera as studied in vitro and in vivo include anti-inflammatory^{13,14,15,16,17,18}, antibacterial^{19,20}, antioxidant²¹, antiviral^{22,23,24}, anti-fungal²⁵ and hypoglycemic properties²⁶. The decrease in gingival index can also be attributed to presence of sterols as anti-inflammatory agents and lape as antiseptic analgesics²⁷. Reduction in gingival index, periodontal pocket and plaque index was more than in scaling and root planing group which was also reported by

Oliveira et al²⁸. Some of the constituents of Aloe Vera like Vitamin C, hyaluronic acid and dexamethasone sulfate are involved in collagen synthesis, and hence provide relief in swelling and bleeding gums. Carboxypeptidase present in Aloe Vera inactivates bradykinin thereby reduce prostaglandin synthesis and inhibit oxidation of arachidonic acid, which might decrease inflammation and relieves pain²⁹. The current study is in accordance with the Bhat et al. which shows significant reduction of plaque and gingival index with the use of Aloe Vera gel³⁰.

CONCLUSION

The findings of the current study suggest that Aloe Vera gel used as adjunct to scaling and root planing provides beneficial therapeutic effect to reduce inflammation and promote healing of periodontal tissue.

Gingival Index, Plaque Index and Periodontal pocket were significantly reduced when Aloe Vera was used as an adjunct to scaling and root planing, no significant reduction was seen when only scaling and root planing was done.

Though the studies have a positive outcome, elaborate studies are needed to prove the efficacy of Aloe Vera in periodontal pathogens.

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