

REVIEW ARTICLE

Use Silver nitrate cauterization in the treatment of aphthous stomatitis

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:Abstract

Objectives: To assess the effectiveness of silver nitrate cautery for the treatment of aphthous stomatitis in terms of pain alleviation and recovery time

Material and methods: 130 participants with aphthous stomatitis were selected for the study. They were split into two groups: group B (control group) and group A (silver nitrate). Following those for pain intensity, recovery time, and side effects

Results: Regarding pain, there were statistically significant differences between the two groups after the procedure on the 2nd to the 6th day. On the 6th day, the ulcer was completely epithelialized in 42 patients (60%) in the treatment group and in 20 patients (32%) in the placebo group. The difference was statistically significant ($p < 0.01$). In group A, the mean healing time was 2.5 days after the treatment. In group B, the mean healing time was 5.7 days. The difference was statistically significant ($p < 0.01$). No side effects were recorded in both groups

Conclusion: The use of silver nitrate cautery is a quick and efficient method of treating aphthous stomatitis pain. Additionally, this therapy speeds up the healing process for ulcers

Keyword: Aphthous ulcer, Pain relief, Healing time, silver nitrite

Introduction

A breach in the mucosa and a painful ulcer inside the oral cavity are the typical symptoms of aphthous stomatitis. Aphthous ulcers frequently grow to an open ulcer within a few days of first experiencing a tingling or burning sensation. These ulcers have an oval shape and are white or yellow with an inflammatory red border. The fibrin layers are what give the red boundary's white-yellow color. Aphthous stomatitis is a frequent and potentially recurrent oral ailment. At least 13% of people have experienced it at some point in their lives, and 37% of individuals with recurring ulcers report a familial history. There is no known cause for them, and they are not infectious. 2. Herpes simplex and oral bacterial infections both cause sores that resemble herpes. Herpes simplex and bacterial ulcers can be separated from aphthous stomatitis by their propensity to recur, their multiplicity, and their chronicity. 2. The diameter of the lesion determines the classification of aphthous ulcers: small ulcers (3–10 mm). They could be one or more. Within two weeks, they spontaneously recover. Major ulcers are painful and have a diameter bigger than 10 mm. They frequently leave a scar and typically take longer than a month to recover. The most serious type of ulcerations are herpetiform. It typically occurs more frequently in females and in adults. It is distinguished by clusters of tiny, frequent, 1-3 mm lesions.

Normally, they recover in less than a month without leaving any scars. 3. Extreme pain is characteristic of the ulcer. Steroids, analgesics, topical anesthetics, antiseptics, anti-inflammatory drugs, carbon dioxide lasers, and silver nitrate may be used to manage the pain. 4.

Material and methods:

In This randomized, single-blinded, placebo-controlled study which was conducted at Baghdad Medical City from March 2018 to March 2022. Informed consent was obtained from all participants. We included 130 patients, these divided into two groups: Group A treated with silver nitrite, Group B treated with placebo. In the treatment group, the ulcer was painted with a silver nitrate solution until a colour change to white. In the placebo group, the ulcer was painted with a placebo stick. Then, those followed for pain and healing on days 2, 4, and 6 post-treatment. The severity of pain was rated on a three-category scale (severe, mild, none) with the aid of a visual analogue scale from 0-10 as in Figure One. The lesion size was recorded at the time of the procedure by a periodontal probe.



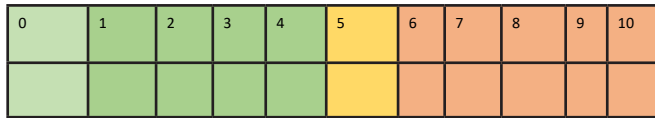


Figure 1 visual analogue scale for pain assessment

Inclusion criteria 1.minor aphthous ulceration

2. presence of pain that made patients seeking medical consultation.

Exclusion criteria were: 1. > 1 cm ulcer diameter

2. multiple ulcerations. 3. Pregnant female. 4.less than ten years age. 5. Patients with history of systemic diseases with oral manifestation. 6. Patients who received topical or systemic steroid recently

Results

One hundred thirty patients were included and completed our study: 70 (40 men and 30 women; age range 18–45 years) in the treatment group(group A) and 60 (34 men and 26 women; age range 19–38 years) in the placebo group(group B). No significant differences were found between the treatment group and placebo group in the demographic variables.

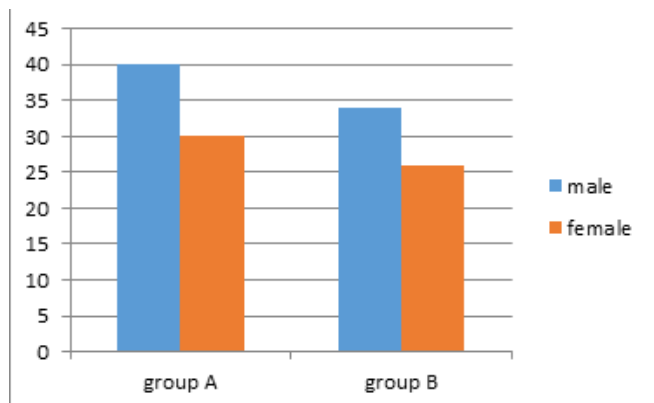


Figure 2 gender distribution

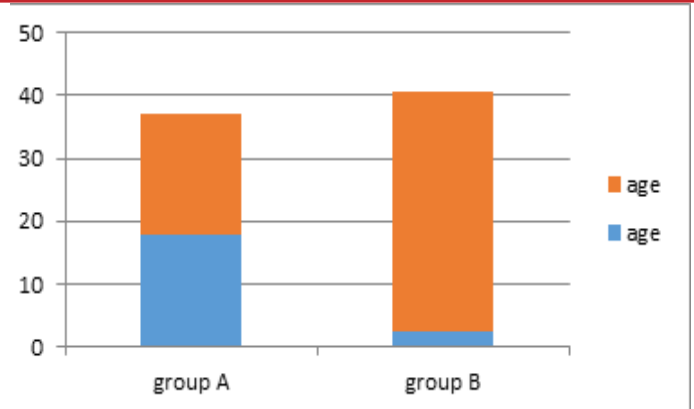


Figure 3 age distribution

	Day 0	Day 2	Day 4	Day 6
Group A	3.5 mm	4.00 mm	2.00 mm	0.00 mm
Group B	4.1 mm	4.15 mm	3.00 mm	0.60 mm
P value	0.387	0.390	<0.01	<0.01

Table one ulcer diameter observation

	Day 0	Day 2	Day 4	Day 6
Group A	9.05 +/- 0.8	6.91 _ 0.9	4 _ 0.8	0.48 _ 0.65
Group B	9.2 _ 0.7	8.5 _ 0.7	5.96 _ 0.87	2.9 _ 0.83
P value	0.397	<0.01	<0.01	<0.01

Table two pain relief follow-up

Regarding pain, which was similar in both groups before treatment, there were statistically significant differences between the two groups after the procedure on the 2nd to the 6th day .

On the 6th day , the ulcers were completely epithelialized in 42 patients (60%) in the treatment group and in 20 patients (32%) in the placebo group. The difference was statistically significant ($p < 0.01$).

In group A , the mean healing time after treatment was 2.5 days . In group B , the mean healing time was 5.7 days . The difference was statistically significant ($p < 0.01$).

No side effects were recorded in both groups.

Discussion:

Since pain is an obvious feature of aphthous ulcers, the goal

of the clinician must be to quickly relieve pain and reduce the length of the ulcers. Topical steroids reduce pain and ulcer frequency.¹ However, they may have some side effects, and their impact on pain doesn't begin for a few days.^{6,7} Topical anesthetics help lessen pain, but they only work temporarily, necessitating frequent reapplication.⁸ Another technique for treating aphthous ulcer discomfort is chemical cauterization. The loss of nerve endings lessens pain, while cauterization deepens the injury. The effect begins quickly and lasts for the entire time that the lesion is there. Few studies have been done on chemical cauterization for aphthous stomatitis. Debacterol was employed in a study for chemical cauterization, and its effectiveness was compared to that of kenalog.

Sulphonated phenolics and sulfuric acid are combined to form debacterol, which is then dissolved in water. Although the size of the ulcer did not differ significantly between any of the groups in this study with a control group, patients in the Debacterol group reported a significantly greater decrease in pain at 3 days (>70%) than did patients in the other groups (20%). In the Debacterol group, 80% of the ulcers had clinically vanished and were no longer causing symptoms by day 6, compared to roughly 30% in the other groups.⁹

In our study, we compared silver nitrate cautery with a placebo and found that from the second to the sixth day, the mean value of pain scores was statistically different between the two groups. Six days following the surgery, 60% of patients in the treatment group and 32% of patients in the placebo group had fully re-epithelialized their ulcers. Statistics showed that the difference was significant. Ulcers' average healing duration was statistically significant. In either group, there were no negative effects noted. The authors contrasted silver nitrate cautery with a placebo in experiments that were similar to this one. One day following the silver nitrate application, the severity of pain decreased for 33 of 47 patients in the treatment group and four of 38 patients (11%) in the placebo group. Statistics showed that the difference was significant. In 39 patients (83%)

in the treatment group and 34 patients (89%) in the placebo group, the ulcers had fully re-epithelialized six days following the surgery. In contrast to Alidaee et al., 2005¹⁰ demonstrated that one treatment of silver nitrate can lessen the intensity of pain in aphthous ulcers without accelerating healing.

In the treatment of aphthous stomatitis and epistaxis, silver nitrate is applied as a cauterizing agent. Its caustic response is employed when the concentration is greater than 5%. Because it is a germicide and astringent, it is applied to burn wounds at a concentration of 0.1 to 0.5% for infection prevention. (Cason et al¹¹; Richards and Mahlangu¹²). Some side effects have been linked to silver nitrate cauterization. In one instance, the ulcer became larger after applying a silver nitrate stick to a tongue ulcer caused by an aphthous ulcer. For roughly 6 days, the ulcer's diameter increased from 5 mm to 3.2 cm. It took 8 weeks to heal. (Frost et al., 1978¹³). Which does not occur in this study.

Conclusion:

The use of silver nitrate cautery is a quick and efficient method of treating aphthous stomatitis pain. Additionally, this therapy speeds up the healing process for ulcers .

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