The Hemorrhoid Foam Study
Efficacy and Safety of Aethoxysklerol® Foam for Sclerotherapy of First Grade Hemorrhoidal Disease

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Introduction

According to the guidelines of the German Society of Coloproctologists, sclerotherapy with liquid polidocanol is the treatment of choice for first grade hemorrhoidal disease. Sclerotherapy provokes a discrete inflammatory reaction, which results in localized sclerosis of the submucosal connective tissue and, consequently, in fixation of the mucosa to the underlying tissue.

In phlebology, sclerotherapy of varicose veins has experienced a renaissance after the introduction of sclerotherapy with polidocanol foam. The foamed sclerosant exhibits a more intense and longer contact with the vascular wall, which results in being more efficacious. The high success rates and the excellent safety profile of foam in the treatment of varicose veins have been demonstrated in numerous phlebological studies. Foam sclerotherapy of varicose veins has even been officially approved in Germany since 2009.

Dr. Moser and his team hypothesized that the treatment of hemorrhoidal disease using polidocanol foam rather than the liquid form might also result in higher success rates comparable to those in phlebology.

This Good Clinical Practice (GCP) compliant, single-blind, randomized, prospective, controlled multicenter study was designed to compare the efficacy and safety of liquid polidocanol (German trade name Aethoxysklerol) with polidocanol foam in the treatment of first grade hemorrhoidal disease with sclerotherapy.

Treatment method

In this study, a total of 130 patients suffering from bleeding first grade hemorrhoidal disease were treated with sclerotherapy. Of these patients, 66 received foamed Aethoxysklerol 3% and 64 liquid Aethoxysklerol 3%.

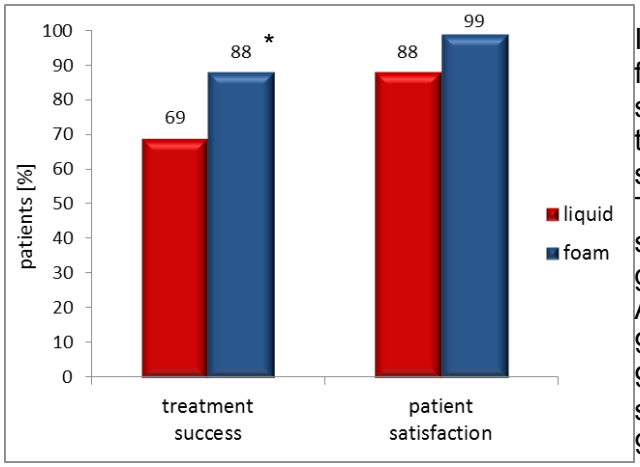
Standardized foam was prepared with 1.6 ml liquid Aethoxysklerol 3% and 7.4 ml sterile room air (1+4) using the EasyFoam Kit syringe system. In the foam group, 2 ml foam was slowly injected in each hemorrhoidal node at 3, 7, and 11 o'clock positions during each sclerotherapy session. In the comparator group, a total of 2 ml Aethoxysklerol 3% liquid was injected per session (0.5 ml when treating the 11 o'clock hemorrhoidal node, 0.75 ml at 3 and 7 o'clock positions).

Following Blanchard, injections were performed using an open-ended proctoscope and strictly administered submucosally into the surrounding tissue of the feeding vessels above the hemorrhoids.

Sclerotherapy sessions were performed on a bi-weekly schedule until patients were free of peranal bleeding. Four treatment sessions per patient were allowed depending on the treatment success.
The trial was conducted as a single-blinded trial. As foam and liquid Aethoxysklerol® 3% can easily be distinguished by their appearance during application, it was not possible to blind the investigators. Therefore, blinding was only possible for the patients who were responsible for the evaluation of the treatment outcome.

Efficacy and safety criteria
The primary efficacy criterion was the cessation of peranal bleeding after the first sclerotherapy session. In order to compare the two methods of application in the most unbiased way possible, the primary efficacy variable was assessed by the patients themselves, who recorded each episode of bleeding in a patient diary for at least 3 months without knowing to which group they had been allocated. Secondary efficacy variables were the number of required treatments, patient satisfaction and safety.

Results: The hemorrhoid foam study shows the excellent efficacy of Aethoxysklerol® 3% foam



In the group treated with Aethoxysklerol® 3% foam, a single sclerotherapy session stopped bleeding in 88% of the patients. In the liquid group, 69% of the patients were successfully treated after the first session. The success rate in the foam group was significantly higher ($p = 0.01$) than in the group treated with liquid.
After the second sclerotherapy session, 98% of the patients in the foam group and 92% in the liquid group were treated successfully.
99% of the patients were satisfied or very satisfied with their treatment in the foam group compared to 88% in the liquid group.
In addition, the number of sclerotherapy sessions necessary to achieve treatment success and the total amount of injected polidocanol were significantly reduced in the foam group.
The study clearly showed that sclerotherapy with both liquid and foamed Aethoxysklerol® 3% was safe and well tolerated. No serious adverse events occurred during the study and there was no difference in safety between the foam and liquid group.

Conclusion
- **In the therapy of first grade hemorrhoidal disease, the treatment success after a single sclerotherapy session was significantly higher with foamed Aethoxysklerol® 3% (88%) than with the liquid form (69%)**
- **Foam sclerotherapy allows reduction of both the number of treatment sessions and the total amount of injected active substance**
- **Liquid sclerotherapy remains a reliable treatment option for hemorrhoidal disease with a 92% success rate after the second session**
- **Patient satisfaction was very high (88% with the liquid and 99% with the foam)**
- **The study confirms the good safety profile of liquid and foamed Aethoxysklerol®**

In summary, the results of this study show that foam sclerotherapy with polidocanol is a new, highly effective and non-surgical method in the treatment of hemorrhoidal disease and is as safe as well-proven liquid sclerotherapy. Both the efficacy of foam sclerotherapy in second and third grade hemorrhoidal disease and long-term data on foam sclerotherapy remain to be evaluated in additional studies.