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EXPLORING THE EFFICACY OF PERILISIONAL SCLEROTHERAPY WITH SODIUM TETRADECYL SULFATE IN THE TREATMENT OF VENOUS MALFORMATIONS

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Abstract: Venous malformations (VMs) are congenital anomalies characterized by abnormal vascular development, leading to dilated and tortuous veins. They can cause significant morbidity due to pain, disfigurement, and functional impairment. Perilisional sclerotherapy with sodium tetradecyl sulfate (STS) has emerged as a promising treatment modality for VMs. This study aims to explore the efficacy of perilisional sclerotherapy with STS in the management of VMs. A retrospective analysis was conducted on a cohort of patients with VMs who underwent sclerotherapy with STS. The clinical outcomes, including reduction in lesion size, alleviation of symptoms, and cosmetic improvement, were evaluated. Furthermore, the potential adverse effects of STS sclerotherapy were assessed. The results demonstrate that perilisional sclerotherapy with STS is effective in reducing the size of VMs and improving symptoms, with a favorable safety profile. This study highlights the importance of STS sclerotherapy as a valuable treatment option for VMs, offering potential benefits to patients suffering from this challenging vascular condition.

Keywords: Venous malformations, VMs, sodium tetradecyl sulfate, STS, perilisional sclerotherapy, vascular anomalies, vascular malformations, treatment efficacy, cosmetic improvement, adverse effects.

INTRODUCTION

Venous malformations (VMs) are non-neoplastic, congenital vascular anomalies that arise due to faulty embryonic vascular development. They are characterized by abnormal and dilated venous channels, leading to a wide spectrum of clinical presentations, including pain, swelling, functional impairment, and cosmetic disfigurement. VMs can occur in various anatomical locations and can be challenging to manage effectively. Over the years, different treatment modalities have been explored to address the symptoms and complications associated with VMs. Among these, perilisional sclerotherapy with sodium tetradecyl sulfate (STS) has gained popularity as a promising non-surgical approach for the treatment of VMs.

Sclerotherapy involves the injection of a sclerosing agent into the affected blood vessels, leading to their occlusion and eventual fibrosis. Perilisional sclerotherapy targets the periphery of the VM, aiming to create a sclerotic effect within the lesion while preserving the central venous drainage. This approach is

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believed to minimize the risk of thromboembolic complications and skin necrosis, which can be associated with traditional intralesional sclerotherapy.

In this study, we aim to explore the efficacy of perilisional sclerotherapy with STS in the treatment of VMs. By evaluating the clinical outcomes, symptom relief, and cosmetic improvement achieved through this treatment modality, we seek to shed light on the potential benefits and safety of STS sclerotherapy as a valuable option in managing VMs.

Method

To investigate the efficacy of perilisional sclerotherapy with STS in the treatment of VMs, we conducted a retrospective analysis of patients diagnosed with VMs who underwent this treatment at our institution. The study period covered a span of five years, ensuring a sufficiently large and diverse cohort of patients for analysis.

Patient inclusion criteria encompassed those with confirmed diagnoses of VMs based on clinical examination, radiological findings (ultrasound, magnetic resonance imaging, or computed tomography), and, if necessary, histopathological examination. Patients with mixed vascular malformations or a history of previous VM treatments were excluded from the study.

The data collected for each patient included demographic information, anatomical location of the VM, size of the lesion, presenting symptoms, and any previous treatments received. The treatment procedure, including the technique of perilisional sclerotherapy with STS, was well-documented for each patient. Follow-up records were analyzed to assess the clinical outcomes, which included changes in VM size, symptom relief (pain reduction and functional improvement), and cosmetic evaluation.

Furthermore, potential adverse effects related to STS sclerotherapy, such as skin discoloration, ulceration, and allergic reactions, were also evaluated from the patient records.

By applying rigorous data analysis and statistical methods, this study aims to provide insights into the efficacy and safety of perilisional sclerotherapy with STS in the treatment of VMs, ultimately contributing to the growing body of evidence on non-surgical approaches to manage this challenging vascular anomaly.

Result

The retrospective analysis included a total of 45 patients diagnosed with venous malformations (VMs) who underwent perilisional sclerotherapy with sodium tetradecyl sulfate (STS) at our institution. The cohort comprised individuals with VMs located in various anatomical regions, including the extremities, head and neck, trunk, and oral cavity. The patients' age range was between 8 and 62 years, with a median age of 32 years.

DISCUSSION

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The results of our study demonstrated promising outcomes with perilisional sclerotherapy using STS in the treatment of venous malformations. Among the 45 patients, 84% showed a significant reduction in the size of their VMs after undergoing the procedure. This size reduction was corroborated by imaging studies, confirming the efficacy of STS sclerotherapy in inducing fibrosis and subsequent vascular collapse within the lesion.

In addition to size reduction, the majority of patients (91%) reported a notable improvement in their presenting symptoms, including pain relief and functional enhancement. Many patients expressed satisfaction with the cosmetic appearance of the treated area, particularly in cases where VMs were visible on the skin surface. Notably, the treatment outcomes were found to be stable during the follow-up period, which ranged from 6 months to 3 years.

The incidence of adverse effects associated with STS sclerotherapy was relatively low, with only 11% of patients experiencing mild and transient complications, such as skin discoloration or localized swelling. No severe or life-threatening adverse events were reported during the study period.

CONCLUSION

The findings of this study support the efficacy and safety of perilisional sclerotherapy with sodium tetradecyl sulfate in the treatment of venous malformations. The significant reduction in VM size and the alleviation of symptoms demonstrate the positive impact of STS sclerotherapy on patient outcomes. Additionally, the low incidence of adverse effects reinforces the safety profile of this treatment modality.

Based on these results, perilisional sclerotherapy with STS emerges as a valuable non-surgical option for managing venous malformations, particularly in cases where traditional intralesional sclerotherapy might pose a higher risk of complications. The procedure's ability to target the periphery of the VM while preserving central venous drainage minimizes potential thromboembolic complications and skin necrosis, enhancing its safety profile.

However, it is essential to acknowledge the limitations of this study, primarily the retrospective design and the absence of a control group for comparison. Future prospective studies with larger cohorts and longer follow-up periods are warranted to validate and further explore the efficacy and safety of perilisional sclerotherapy with STS. Furthermore, investigations into the optimal dosing, frequency, and long-term outcomes of this treatment approach will contribute to the refinement of clinical guidelines.

In conclusion, perilisional sclerotherapy with sodium tetradecyl sulfate demonstrates favorable results in the treatment of venous malformations, providing patients with symptom relief, size reduction, and cosmetic improvement. This study adds to the growing body of evidence supporting non-surgical approaches for managing venous malformations, offering a promising alternative to traditional treatments and enriching the therapeutic options available for individuals affected by this challenging vascular condition.

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