

Polidocanol Sclerotherapy for Treatment of a Hard Palatal Hemangioma: A Case Report

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Abstract

Case Report

Background: Vascular lesions of the oral cavity are uncommon and may present therapeutic challenges, particularly when located in anatomically sensitive areas such as the palate. Sclerotherapy represents a minimally invasive treatment option, and polidocanol has been increasingly used because of its efficacy and favorable safety profile. **Case Presentation:** A patient presented with a localized palatal vascular lesion. Clinical examination revealed a well-circumscribed nodular lesion of the palate. Ultrasonography with color Doppler demonstrated a homogeneous hypoechoic lesion measuring $19 \times 18 \times 14$ mm, with marked vascularization and an arterial waveform on pulsed Doppler. Based on the clinical and imaging findings, a minimally invasive therapeutic approach was selected. Intralesional sclerotherapy was performed using 1% polidocanol (Trombovar®). Two injections were administered at a 15-day interval. Progressive regression of the lesion was observed following treatment, with no significant complications. **Conclusion:** Intralesional sclerotherapy with 1% polidocanol resulted in favorable regression of a localized palatal vascular lesion with good clinical tolerance. This case supports the potential role of polidocanol sclerotherapy as a minimally invasive, tissue-preserving treatment option for selected small intraoral vascular lesions. Further studies with larger patient populations and longer follow-up are needed to establish standardized treatment protocols.

Keywords: Palatal vascular lesion, Hemangioma, sclerotherapy, oral vascular lesion, polidocanol, Doppler ultrasonography.

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INTRODUCTION

Vascular anomalies predominantly affect the head and neck region, with approximately 60% of these lesions occurring in the craniofacial area [1]. They most frequently involve the lips, tongue, buccal mucosa, and palate [2]. The classification of vascular anomalies has evolved considerably, as their diagnosis requires consideration of various clinical, histopathological, and biological characteristics. They are currently broadly categorized into two major groups: vascular tumors and vascular malformations [3].

Hemangiomas are benign vascular tumors characterized by abnormal endothelial cell proliferation. They are among the most common vascular lesions of infancy and childhood, although they may occasionally persist into adulthood or present later in life. In the oral cavity, hemangiomas are relatively uncommon, accounting for a small proportion of vascular anomalies. Although generally asymptomatic, oral hemangiomas may cause pain, recurrent bleeding, ulceration,

functional impairment, or esthetic concerns depending on their size and anatomical location. Their sizes can go from a few millimeters to several centimeters. They can present as flat or elevated lesions, with either a sessile or pedunculated appearance, and are typically soft on palpation. Their color varies from red to bluish-purple [1,4].

The diagnosis of oral vascular lesions is primarily based on clinical examination and is supported by imaging techniques. Ultrasonography combined with color Doppler is a valuable, non-invasive tool for assessing lesion size, vascularity, and blood-flow characteristics, thereby facilitating diagnosis and therapeutic planning. Additional imaging modalities, such as magnetic resonance imaging (MRI), may be indicated for extensive or deep lesions to determine their exact extent and relationship to adjacent anatomical structures.

Among people suffering from vascular conditions, Esthetic issues tend to be the main complaint.

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[3,5,6] Several treatment modalities have been proposed for oral hemangiomas, including surgical excision, high power laser, cryotherapy, embolization, systematic corticosteroids and sclerotherapy. The choice of treatment depends on several factors, such as lesion size, anatomical location, hemodynamic characteristics, symptoms, and the risk of intraoperative bleeding. [1,7,8]

Among these options, intralesional sclerotherapy has gained increasing acceptance as a minimally invasive approach (High curative efficacy: 70-100%) because it induces endothelial damage followed by thrombosis and fibrosis, leading to gradual regression of the vascular lesion while preserving surrounding tissues. Polidocanol is a widely used sclerosant due to its efficacy, favorable safety profile, and low incidence of adverse effects. [9-14]

The present report describes the successful management of a palatal hemangioma using intralesional polidocanol (Trombovar®) sclerotherapy. The clinical presentation, therapeutic protocol, and outcome are presented, followed by a review of the relevant literature highlighting the role of sclerotherapy as an effective and minimally invasive treatment modality for oral vascular lesions.

CASE REPORT

A 56-year-old female, with no history of systemic conditions, was referred to the department of Oral Medicine and Oral Surgery for a palatal nodule that first been noticed approximately 6 months earlier. The

lesion had progressively increased in size during this period. Extraoral examination revealed no significant abnormalities. Intraoral examination showed a 2 cm painless well-defined purple-colored lesion located on the third posterior hard palate. The lesion was sessile, appeared to contain blood and was soft on palpation (Figure 1). The patient was partially dentate with absence of the 11, 12 and 26.



Figure 1: Intraoral view: purple lesion of the hard palate

Panoramic radiograph showed no particularities. Ultrasonography of the soft tissues revealed a well-circumscribed, homogeneous, hypoechoic nodular lesion measuring 19 × 18 × 14 mm. Color Doppler examination demonstrated marked vascularity within the lesion, while pulsed-wave Doppler revealed intralesional arterial-type flow spectra (Figure 2). Contrast-enhanced CT scan (CT) of the maxillofacial region was also performed and demonstrated a well-defined soft-tissue lesion involving the palatal region, without obvious osseous destruction on the available images (Figure 3).

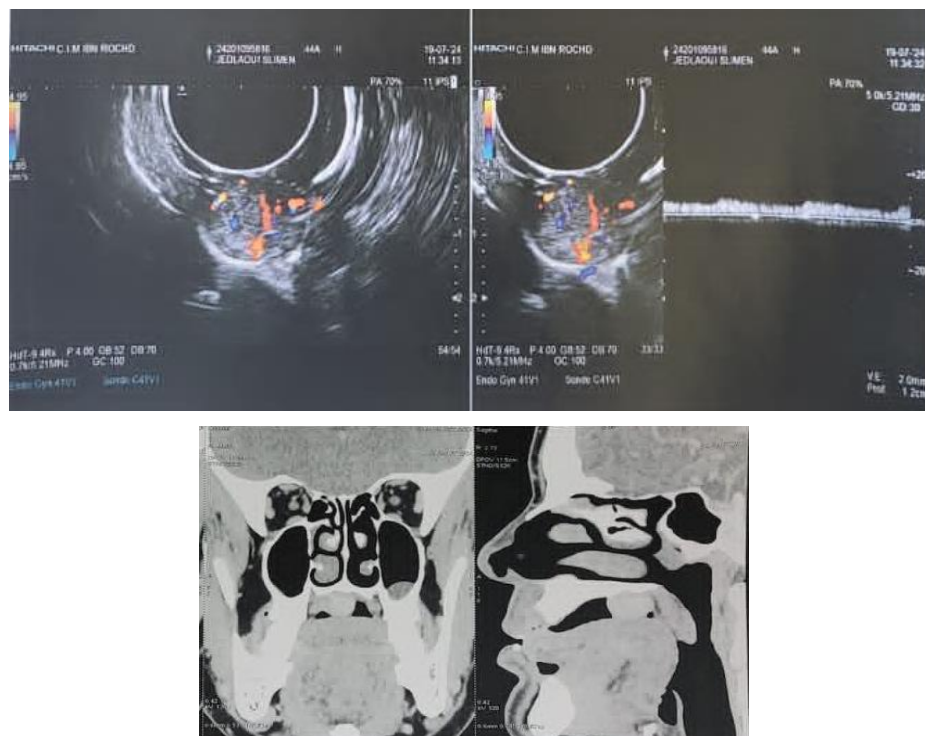


Figure 2: Ultrasonography of the soft tissues



Figure 3: A) Coronal B) Sagittal C) Axial computed tomography scan obtained with contrast material shows dilated vessels in hard palatal region

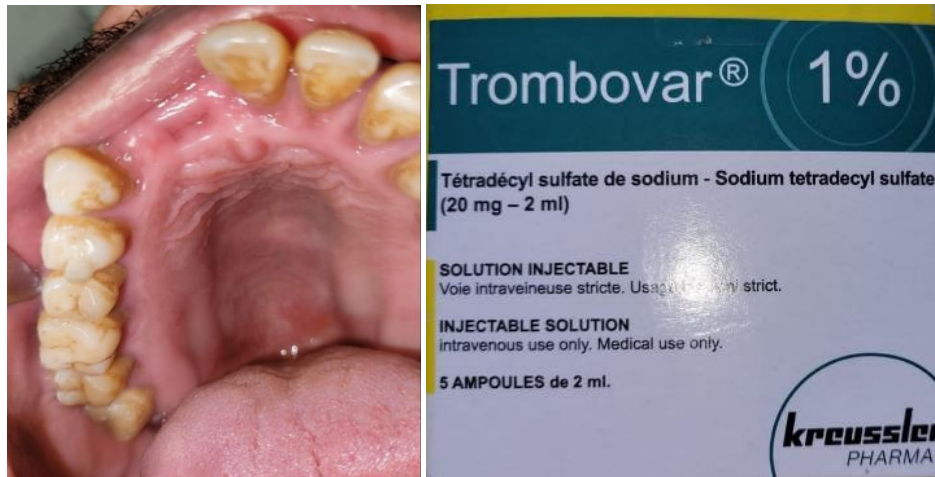


Figure 4: 15 days postoperative appearance

Based on the clinical and imaging findings, a diagnosis of palatal hemangioma was made. Intralesional sclerotherapy was performed using 1% polidocanol (Trombovar®). The injection was repeated twice at 15-day intervals, for a total of two treatment sessions. An antipalatelet agent (Aspegic(100mg)) once a day per 7 days was also prescribed. Two weeks after the second injection, total regression was observed. The lesion faded and the affected sites almost healed and got flattened. The color of mucosa becomes similar to adjacent tissue (Figure 4). There were no complications reported in this case. The patient is in outpatient's follow-up.

DISCUSSION

Vascular lesions of the oral cavity are relatively uncommon and may represent a diagnostic and therapeutic challenge because of their potential for bleeding and their proximity to functionally important anatomical structures. The palate is a particularly sensitive site, where surgical intervention may be associated with intraoperative bleeding, postoperative discomfort, and tissue defects. Therefore, the accurate characterization of the lesion is essential for treatment planning. Imaging plays a key role in this assessment. Although magnetic resonance imaging is particularly valuable for evaluating the extent and anatomical relationships of larger or deeper vascular malformations,

ultrasonography with color Doppler offers a non-invasive, readily available method for assessing the morphology and vascularity of small, superficial lesions. In the present case, ultrasonography revealed a well-circumscribed, homogeneous, hypoechoic nodular lesion measuring $19 \times 18 \times 14$ mm, with marked vascularization and an arterial waveform on pulsed Doppler. These findings confirmed the vascular nature of the lesion and provided sufficient information to support a minimally invasive treatment strategy. In addition, Doppler ultrasonography may be useful during follow-up to monitor changes in lesion size and vascularity.

The management of oral vascular lesions depends on their clinical and hemodynamic characteristics, size, anatomical location, and relationship with adjacent structures. Available therapeutic options include surgical excision, laser therapy, embolization, and sclerotherapy. Although surgical excision may be appropriate for selected localized lesions, it can be associated with significant bleeding and tissue loss in the oral cavity. Choi *et al.*, reported three cases of benign oral vascular lesions treated with intralesional injection of 3% sodium tetradecyl sulfate (STS), with gradual diminution of the lesions and satisfactory clinical outcomes. The authors emphasized that surgical treatment of oral vascular lesions may be limited by the risk of hemorrhage and

esthetic considerations, supporting sclerotherapy as a minimally invasive therapeutic alternative. [12]

The particular anatomical location of the palate further supports the use of a conservative approach. El-Hakim and Alyamani described a palatal vascular malformation treated with direct injection of absolute ethanol. The authors considered sclerotherapy an effective and conservative alternative to surgery for a deeply situated vascular lesion in an anatomically difficult location. [14] Although a favorable therapeutic response was obtained, local tissue injury, including palatal ulceration, was observed during follow-up, illustrating the potential for tissue damage associated with potent sclerosants such as absolute ethanol.

Several sclerosant agents have been used for vascular lesions, including absolute ethanol, STS, monoethanolamine oleate, and polidocanol. Absolute ethanol is a potent sclerosant that produces endothelial injury and subsequent thrombosis and fibrosis, but its use may be associated with significant local and systemic complications. In contrast, polidocanol has attracted interest because of its effectiveness combined with a generally favorable safety profile. Its action is primarily related to endothelial injury, followed by thrombosis and progressive fibrosis of the treated vascular channels, ultimately resulting in vascular obliteration.[15,16]

Evidence specifically concerning polidocanol in oral vascular lesions remains relatively limited. Of particular relevance to the present case, Fukuzawa *et al.*, retrospectively evaluated the therapeutic effect of 1% polidocanol sclerotherapy in 17 sites of oral vascular malformations in nine patients [16]. A therapeutic response was obtained in 15 of 17 treated sites, corresponding to an 88% response rate. The mean number of treatment sessions was 1.6, and no serious adverse events were reported. The median pain score was 2/10, while swelling at the injection site was observed in 88% of patients on the day following treatment and resolved within one week [16]. These findings are particularly relevant because the same sclerosant concentration, 1% polidocanol, was used in the present case.

In our patient, 1% polidocanol (Trombovar®) was administered by direct intralesional injection in two sessions separated by 15 days. This treatment resulted in marked regression of the palatal lesion without significant complications. The need for two treatment sessions depends on the evolution after the first injection; which is consistent with the findings of Fukuzawa *et al.*, who reported a mean of 1.6 sessions per treated site [16]. Furthermore, the favorable clinical response observed in our patient is consistent with the high therapeutic response reported in their series. Although direct comparison between the two cases is not possible because of differences in lesion characteristics and treatment protocols, the concordance of these findings

supports the potential effectiveness of 1% polidocanol for selected oral vascular lesions.

The present case also differs from some previously reported cases by the relatively small size and localized nature of the lesion. Fukuzawa *et al.*, proposed a relationship between lesion volume and the total amount of 1% polidocanol required for successful treatment, based on a regression analysis of their [17] treated sites [16]. However, the authors emphasized that the proposed relationship should be interpreted cautiously because of the small sample size and the influence of other factors that were not incorporated into the statistical model. Therefore, although lesion volume may assist in treatment planning, the optimal dose of polidocanol for small intraoral vascular lesions remains insufficiently standardized. In the present case, the favorable response following two injections suggests that a staged treatment approach may be effective for a small localized palatal lesion while limiting the amount of sclerosant administered at each session.

Foam sclerotherapy represents another approach that has been investigated for vascular malformations. Compared with liquid sclerosants, foam may increase the contact between the sclerosant and the vascular endothelium while allowing a lower total amount of sclerosant to be used. Yamaki *et al.*, reported greater efficacy with foam sclerotherapy than with liquid sclerotherapy in symptomatic venous malformations [17]. Nevertheless, the advantages of foam therapy may be more relevant to larger or deeper lesions. For a small, superficial intraoral lesion, direct injection of liquid polidocanol may offer a simpler and more controlled method of administration. In addition, the limited anatomical space of the oral cavity may make the administration of small volumes of foam technically less convenient.

An important limitation of the present case is the absence of histopathological confirmation. Because the lesion was treated conservatively by sclerotherapy and demonstrated a favorable response, biopsy or surgical excision was not performed. Therefore, the lesion should be interpreted according to its clinical and imaging characteristics rather than assigned a definitive histopathological diagnosis. In addition, the arterial waveform observed on pulsed Doppler should be interpreted cautiously, as Doppler findings alone do not necessarily establish a specific vascular anomaly subtype. Further characterization with appropriate imaging and, when clinically indicated, multidisciplinary vascular assessment may be necessary for definitive classification.

Other limitations include the single-case design and the limited duration of follow-up. The favorable response observed in this patient cannot be generalized to all palatal vascular lesions, and longer follow-up is necessary to assess the stability of the regression and the

possibility of recurrence. Nevertheless, the clinical response obtained after two sessions, together with the absence of significant complications, is noteworthy given the challenging palatal location.

In conclusion, this case highlights the potential role of 1% polidocanol sclerotherapy as a minimally invasive treatment option for a small, localized palatal vascular lesion. Previous reports have demonstrated the usefulness of sclerotherapy for oral vascular lesions using different sclerosants, including STS and absolute ethanol [12,14], while the study by Fukuzawa *et al.*, provides more specific evidence supporting the use of 1% polidocanol in oral vascular malformations [16]. The favorable regression observed in the present case after two intralesional injections, without significant complications, is consistent with these previous findings. Further studies with larger cohorts, standardized treatment protocols, and longer follow-up are needed to determine the optimal concentration, dose, and treatment interval for polidocanol in small intraoral vascular lesions.

CONCLUSION

This case highlights the potential of 1% polidocanol sclerotherapy as a minimally invasive treatment option for a small, localized palatal vascular lesion. Two intralesional injections administered 15 days apart resulted in marked regression of the lesion without significant complications. Given the challenging anatomical location of palatal vascular lesions, sclerotherapy may offer an effective tissue-preserving alternative to surgical excision in selected cases. However, larger studies with longer follow-up are needed to further establish the optimal dose, treatment protocol, and long-term efficacy of polidocanol for intraoral vascular lesions.

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