

Case Report

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Physiotherapy Treatment of Subcutaneous Facial Hematomas Larger than 2 cm in Diameter: Case Report

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ABSTRACT

This case presents a rare example of successful non-surgical management of large facial hematomas in an elderly patient. While midfacial trauma is well-documented, particularly in younger male populations, its conservative treatment in geriatric patients is scarcely reported. This case contributes to the literature by demonstrating the potential of kinesiological therapy as an alternative to surgical drainage, especially when aesthetic and functional preservation is a priority. An 80-year-old female patient with a history of Parkinson's disease experienced a ground-level fall resulting in two subcutaneous hematomas: one in the supraciliary region (34 mm × 20 mm) and another in the right zygomatic-maxillary area (47 mm × 39 mm). She presented five days post-trauma with significant facial swelling, but no bone injuries were identified through imaging. Despite recommendations for surgical drainage due to lesion size and skin tension, the patient opted for a non-invasive approach. Kinesiological therapy—including manual lymphatic drainage, massage, ultrasound, and radiofrequency—was initiated one week after trauma. After 20 sessions over two months, the zygomatic hematoma reduced by 85% and the supraciliary hematoma by 95%, avoiding surgery and its associated risks. This case highlights that in selected patients, even large facial hematomas may be effectively managed through conservative kinesiotherapy. The main takeaway is that interdisciplinary collaboration and patient-centered decision-making can yield successful outcomes, particularly when surgical risks or cosmetic concerns are relevant.

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Received: September 08, 2025; **Accepted:** September 15, 2025; **Published:** September 20, 2025

Keywords: Hematoma, Subcutaneous Tissue, Conservative Therapy, Case Report

Introduction

Facial trauma is a frequent condition in oral and maxillofacial practice, often involving both hard and soft tissues. While it predominantly affects young men due to causes like traffic accidents and assaults, the risk of soft tissue injury—particularly hematomas—increases with age [1-4]. These hematomas, especially when large, can lead to complications such as infection, necrosis, delayed healing, and permanent skin changes. Early surgical drainage is commonly recommended within 72 hours to avoid these outcomes; however, this approach may require operating room access and leaves aesthetic and functional consequences, particularly in elderly or high-risk patients [5-7].

This case gains relevance by presenting a rare example of successful conservative management of large facial hematomas in an elderly patient. Instead of surgery, the patient underwent a structured kinesiotherapy protocol using physical agents such as radiofrequency and ultrasound therapy, which have demonstrated

efficacy in promoting tissue healing, improving circulation, and reducing inflammation. The outcome—significant hematoma reduction without invasive procedures—highlights the potential of non-surgical interventions in select cases, challenging the traditional management paradigm and offering an alternative approach that prioritizes both safety and cosmetic outcomes.

Case Report

An 80-year-old female patient with a history of Parkinson's disease sustained a ground-level fall. The patient sought delayed maxillofacial consultation five days post-accident. Upon extraoral examination there was swelling on the upper and middle part of the right side of the face, two subcutaneous hematomas: one in the supraciliary region and another in the right zygomatic-maxillary area. On palpation it was tender, non-fluctuant. The skin over the swelling is normal, with coloration consistent with a hematoma of 5 days evolution.

Clinical and imaging analyses ruled out bone injury but confirmed hematoma volumes (Figure 1). Despite surgical recommendations due to hematoma size (>2 cm diameter) and skin tension exerted

by the collections, the patient requested a non-conventional kinesiological treatment to avoid surgical drainage procedures on her face. It had reserved prognosis, because of the size of the hematoma, it could not resolve.

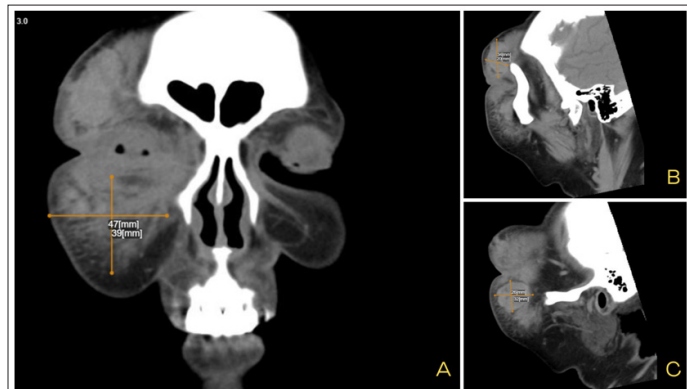


Figure 1: (A) Coronal Section, Right Buccal Hematoma Measuring 47x39mm in Diameter, (B) Sagittal Section, Right Supraciliary Hematoma Measuring 34x20mm in Diameter, (C) Sagittal Plane Dimensions of Right Buccal Hematoma Measuring 26x32mm.

One-week post-trauma, the patient began kinesiotherapy sessions. Initially, five sessions over one week resulted in a significant reduction in collection sizes. After seven days of initial treatment, the maxillofacial surgeon verified approximately a 50% reduction in both lesions' sizes. Interdisciplinary consensus led to an additional 15 kinesiotherapy sessions over two months involving massage therapy techniques, manual lymphatic drainage, ultrasound therapy, and radiofrequency treatments (Figure 2). In this case, Triatherm CEC® (Tripolar Radiofrequency) and RU-628 ultrasound were used. Twenty sessions of 40 minutes each were performed. The first five sessions were conducted consecutively, followed by three sessions per week for two weeks, and then two sessions per week until the 20-session course was completed. These treatments require multiple sessions to achieve optimal results, emphasizing the need for close follow-up and patient adherence.



Figure 2: (A) Facial Profile 7 days Post-Trauma, (B) Frontal Photograph 7 Days Post-Trauma, (C) Facial Profile 60 Days Post-Trauma, (D) Frontal Photograph 60 Days Post-Trauma.

At the 3-month follow-up after treatment, Doppler ultrasound revealed thinning of the subcutaneous layer in the supraciliary and zygomatic regions, without structural loss or fluid collections. In the right malar area, at the junction between the superficial and deep subcutaneous planes, a hypoechoic image suggestive of residual fibrosis measuring 17x5x15 mm was observed, with no vascularization on color Doppler and no extension into deeper

planes. An 85% reduction in the size of the zygomatic hematoma and a 95% reduction in the fronto-malar hematoma were achieved, avoiding drainage surgeries, which carry cosmetic implications and associated surgical risks. (Figure. 3)

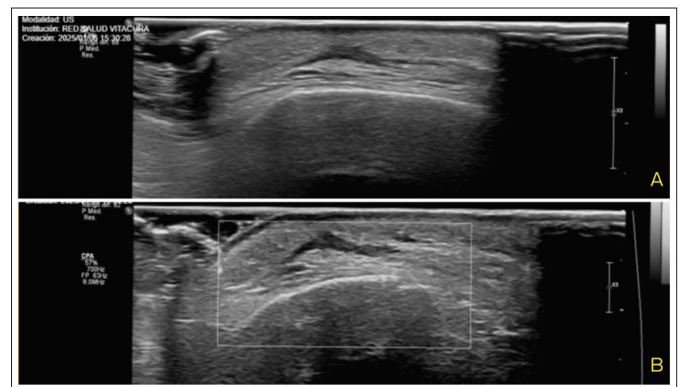


Figure 3: Doppler Ultrasound 3 Months Post-Trauma, Showing Residual Fibrosis In, (A) Right Supraciliary Region, (B) Right Zygomatic Region.

Discussion

A hematoma is a collection of blood within the tissues resulting from blood extravasation. When hematomas continue to increase in size, they can form firm masses beneath the skin's surface, further restricting blood flow in anatomical spaces such as the subcutaneous tissue or within muscles, which are in turn enclosed by aponeurotic fasciae. This anatomical feature can prevent massive blood loss in such injuries; however, in other cases, it may allow the migration of blood collections to other anatomically critical areas. In most cases, the hematoma eventually resolves; however, they may continue to enlarge [8-11].

If a hematoma is not treated and the pressure inside it exceeds the blood pressure in the dermal and subdermal capillaries, it can lead to large areas of skin and tissue necrosis. Therefore, urgent evacuation is necessary to relieve skin tension. Two primary methods are described for hematoma evacuation: needle aspiration, which remains widely used, is no longer recommended due to the high risk of recurrence. Aspiration is often inadequate and requires additional management. The second method is incision and drainage; if the skin over the center of the hematoma is thin, tense, and shows signs of necrosis, the incision should not be made at that point. Instead, it should be performed on the periphery of the hematoma, preferably caudal, where the skin appears normal [11]. The incision must be clean, precise, and traverse the full thickness of the skin in a single motion, maintaining uniform depth throughout. It should also be performed at a right angle to the skin surface so that the wound edges heal perpendicularly [12].

Non-surgical treatment options have been explored [13-23]. Marquez-Gil et al. reported the benefits of medicinal leeches due to their healing properties, such as hyaluronidase and collagenase during tissue remodeling, and the presence of vasodilators like acetylcholine and histamine-like substances, which enhance blood flow and promote healing. In their case, the patient underwent a 45-minute leech therapy session, resulting in improvement of the hematoma over two weeks, during which the patient was diagnosed with von Willebrand disease [13]. Similarly, Badole et al. used leeches for a buccal hematoma, applying them for three minutes over three sessions across 25 days, in combination with herbal supplements three times daily. Symptoms such as discoloration, pain, and swelling progressively resolved without residual scarring [14].

The use of hyaluronidase has been documented in studies such as Chuang, who administered 150–300 units in the hematoma area following arterial catheterizations to enhance fluid dispersion and absorption through enzymatic action on hyaluronic acid, a viscous component of intestinal tissue [15]. The diffusion rate is proportional to the enzyme dose, and the diffusion extent depends on solution volume. Thus, in two patients with chronic hematomas (>3 weeks), the response was minimal, unlike in eight patients who showed a volume reduction within one hour.

Another injectable option is Tranilast, an anthranilic acid analog that inhibits VEGF-induced angiogenesis and vascular permeability factor, as well as collagen synthesis. Administered at 60–150 mg/day, it led to complete lesion resolution within four months [16].

Hasselholt-Søgaard et al. proposed the use of Kinesio-Tape, a latex-free cotton tape used in sports medicine and lymphedema management, which has demonstrated efficacy in reducing postoperative edema and enhancing recovery [17]. In their study, a significant reduction of an abdominal hematoma was observed after 11 days. Moreover, Temple et al. reported using a hybrid-scale synthetic fiber matrix following surgical hematoma evacuation [18]. This biomaterial facilitated complete healing after two to three applications over 6 to 16 weeks without adverse effects, suggesting its potential in the non-surgical management of subcutaneous hematomas.

Some studies advocate for conservative management with imaging follow-up [19–23]. Mellick described a case where a CT scan confirmed the absence of fractures and identified both subcutaneous and subgaleal hematomas without orbital involvement [19]. The patient was discharged with outpatient monitoring. Other studies also recommend observation with imaging follow-up [20–23]. In cases involving patients on anticoagulants, treatment included switching from warfarin to antiplatelet agents, achieving resolution within 10 days [22,23].

These conservative treatments offer advantages such as avoiding scarring, shortening hospital stays, and eliminating the need for general anesthesia. However, the hematoma's location should guide treatment choice. In low-risk areas, as in the cases reviewed, non-surgical treatments may suffice. Although hematoma size is often associated with advanced age due to capillary fragility the average patient age in the reviewed studies was 49.8 years, suggesting that Subcutaneous Hematomas (SH) can occur across a wide age range, regardless of cause [1,4].

Etiology is also relevant: in most cases, SH results from surgical interventions, followed by direct trauma or as a side effect of treatment. In patients on warfarin, SH may occur spontaneously. SH most frequently occurs in the facial region, followed by the lower limbs, making non-invasive treatments preferable for the face. Other influencing factors include bleeding disorders, smoking, drug use, and patient adherence, which may affect both treatment selection and recovery. Due to the considerations above—and the patient's preference to avoid surgical intervention—a conservative treatment plan was chosen, including ultrasound therapy, radiofrequency, and lymphatic massage.

Ultrasound has been shown to trigger a wound-healing cascade and collagen remodeling in injured tissue via the thermal coagulation point, generating heat sufficient to denature collagen and stimulate neocollagenesis [24]. Radiofrequency promotes cellular remodeling, resulting in thickening of the subcutaneous layer,

while preventing necrosis, fibrosis, and vascular or annex structure damage [8,25,26]. Regarding lymphatic massage, evidence is contradictory due to study heterogeneity [19].

There is a scarcity of literature reporting specific treatments for subcutaneous hematomas. Only 11 case reports on non-surgical treatment exist, with no reports of kinesiological therapy in the facial region, limiting extrapolation of findings. Future research with more controlled study designs is essential to establish standardized protocols for managing subcutaneous hematomas and optimizing the use and efficacy of non-surgical treatments compared to conventional approaches in the facial region.

Conservative treatments offer significant benefits to patients by minimizing aesthetic damage from scarring and reducing intraoperative risks, particularly in elderly patients. The treatment described in this case proved to be safe, with no associated complications, as long as the hematoma was located outside of critical areas.

Conclusion

The gold standard for the treatment of extensive hematomas remains open surgical drainage. However, physiotherapeutic approaches are emerging as viable options for managing various conditions, including soft tissue injuries. There is a lack of literature supporting conservative therapies, which must be considered in the context of reduced invasiveness—especially in elderly patients, where excellent outcomes can be achieved when cases are properly assessed through a multidisciplinary approach.

Acknowledgements: None

Financial Support: No funding

Conflict of Interests: None

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