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Successful Treatment of a Chronic Recurrent Expanding Hematoma of the Thigh

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Summary: Chronic expanding hematoma (CEH) is a rare entity that poses diagnostic and therapeutic challenges due to persistent growth, risk of recurrence, and potential for blood loss anemia. The most common etiologies of CEH are trauma or surgery. It is thought to occur due to irritant effects of blood breakdown products, causing bleeding from capillaries in chronic granulation tissue. Although treatment of CEH is variable, complete surgical excision of the hematoma and its pseudocapsule is the gold standard. We present a case of a 15-year CEH that was initially treated with limited evacuation of the hematoma and cavity decortication, resulting in recurrence. Ultimately, the patient was managed with complete excision of the pseudocapsule, closure of the cavity with quilting sutures, application of an absorbable hemostatic agent, and placement of a large drain, resulting in a successful outcome. This case highlights the efficacy of a comprehensive surgical plan in addressing CEH, emphasizing the importance of pseudocapsule excision in its entirety to prevent recurrence. (*Plast Reconstr Surg Glob Open* 2024; 12:e6133; doi: [10.1097/GOX.0000000000006133](https://doi.org/10.1097/GOX.0000000000006133); Published online 4 September 2024.)

In 1980, chronic expanding hematoma (CEH) was defined as a hematoma that enlarges slowly over more than 1 month after onset.¹ The large fluid collection is surrounded by a pseudocapsule and fibrous tissue and can be present for months or years after the original insult.² The most common etiologies of CEH are trauma or surgery. The self-perpetuating expanding nature of the lesion seems to be due to irritant effects of blood and its breakdown products, causing bleeding from capillaries in the granulation tissue.¹ Although computed tomography (CT) can be used to diagnose CEH, the best imaging modality is magnetic resonance imaging due to its increased accuracy.³ Currently, the best treatment of CEH is complete removal of the hematoma including its pseudocapsule.⁴

We present a case of a 15-year CEH successfully treated through complete removal of the pseudocapsule. Our surgical approach involved closure of the cavity using quilting sutures, application of an absorbable hemostatic agent to prevent venous bleeding, and evacuation of the remaining space with a large drain to reduce the risk of blood re-accumulation.

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CASE PRESENTATION

A 62-year-old man presented with a 15-year history of an enlarging right lateral thigh wound following a motor vehicle accident, initially diagnosed as a Morel-Lavallee lesion. Despite initial stability, the lesion began to grow in 2019, causing significant pain. In 2021, an ultrasound revealed a large fluid collection above the fascia of the thigh musculature. By 2023, the patient experienced leakage from the thigh and skin breakdown (Fig. 1). The first surgical intervention involved excision and removal of several hundred milliliters of organized hematoma extending from the anterior superior iliac spine to the knee along the lateral aspect of the muscle fascia. The area was decorticated, and the remainder curetted. Two 10-mL fully fluted flat drains were placed. Prophylactic antibiotics (Cefazolin 2000 mg) were administered before the initial and all subsequent interventions.

Following the first procedure, the area of the distal lower extremity and knee was successfully treated. However, the patient experienced persistent sanguinous drainage from the drains with propagation of the hematoma proximally. A CT angiogram ruled out vascular anomalies, prompting a second hematoma evacuation (Fig. 2). The second procedure involved extending the incision to the lateral proximal thigh and hip. The capsule of the hematoma was opened, and 400 mL of old clot was removed. Complete decortication of the thick peel cavity was performed, followed by the pulse irrigation and application of a fibrin sealant on the raw

Disclosure statements are at the end of this article, following the correspondence information.



Fig. 1. Preoperative CEH of the thigh.

surfaces. Two 10-mL flat fully fluted Jackson-Pratt drains were placed.

The patient continued to have copious bloody drainage and hematoma recurred after drains were removed. During subsequent visits to the emergency department, the thigh CEH broke through the skin with subsequent decrease in hemoglobin requiring blood transfusions. A third operation was scheduled for radical resection and closure.

During the third case, the patient was placed in the left lateral decubitus position. An elliptical incision was made around the previous incision site on the right lateral thigh measuring 6 cm × 20 cm. The entire hematoma cavity and the surrounding pseudocapsule was removed en bloc down to the muscle fascia (Fig. 3). Arista, an absorbable hemostatic powder, was then placed over the wound bed after debridement with Versajet. A 19 French round drain was placed laterally in a separate stab wound and secured. Quilting sutures of 2-0 and 3-0 Prolene were placed in four quadrants to decrease the cavity and tied over top of Xeroform bolsters and attached to the iliotibial band (Fig. 4). The midline incision was closed with 2-0 PDS through the superficial fascia and then down to the iliotibial band to decrease dead space. The patient remained stable postoperatively, with no recurrence observed during follow-up. The drain was removed three weeks after surgery, followed by the removal of the bolsters four weeks postoperation. There was no evidence of recurrence at 5 months.



Fig. 2. CT of chronic expanding hematoma in the right upper thigh.

DISCUSSION

CEHs are a rare entity, with less than 100 cases reported in the literature. They are characterized by the persistent growth of a hematoma over an extended period and commonly occur in the thigh or upper extremities following trauma or surgical intervention.⁵ Although magnetic resonance imaging was not used in this case, CT has been used in other studies for diagnosis.⁶ Additionally, the pathology report showed a mixture of blood breakdown products, inflammation with hemosiderin deposition and a fibrous-walled cavity, aligning with histological findings typically seen in CEH. Long-term endothelial stimulation in a CEH can lead to neoplastic transformation, emphasizing the importance of accurate diagnosis and appropriate treatment.⁷

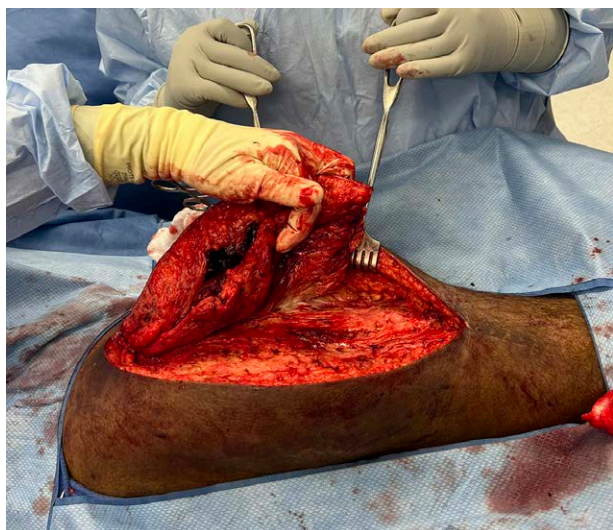


Fig. 3. Removal of hematoma pseudocapsule.

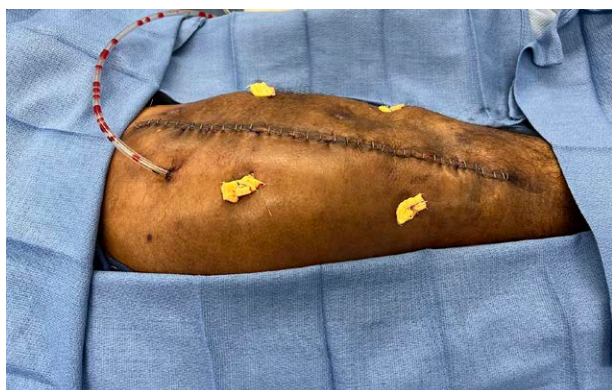


Fig. 4. Closure of hematoma with large 19 French drain and quilting sutures tied over top of Xeroform bolsters and attached to iliotibial band.

The treatment of CEHs is variable and can include simple analgesics and anti-inflammatories, aspiration, or incision and drainage.^{8,9} However, surgical excision of the hematoma and its capsule is the treatment of choice. This case is unique as we ultimately performed radical excision of the hematoma and used quilting sutures to decrease the cavity by securing the stitches to the iliotibial band and then securing the sutures over Xeroform bolsters to provide tension while simultaneously protecting the skin from pressure breakdown. Additionally, we utilized an absorbable hemostatic agent, a factor that likely contributed to our success, particularly when considering the pathophysiological implications of CEH, where blood and its breakdown product play a role in capillary bleeding within the granulation tissue.

This case supports the idea that surgical excision with removal of the pseudocapsule is the superior

method to treat CEH. Despite initial attempts, recurrence persisted until the entire pseudocapsule was completely removed. Additionally, the utilization of quilting sutures, absorbable hemostatic agents, and a large drain in conjunction with radical resection proved effective in preventing further recurrence. Due to the rarity of CEH, this treatment method has not been trialed on other patients.

CONCLUSIONS

Our case highlights the diagnostic and therapeutic challenges associated with CEH. Despite their complexity, complete surgical excision of the hematoma and pseudocapsule are required for definitive treatment. We present a case in which quilting sutures, absorbable hemostatic agent, and a large drain were used to decrease the chance of recurrence.

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DISCLOSURES

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ETHICS APPROVAL

Approval was obtained from Jefferson's Privacy Office and Office of Human Research.

REFERENCES

1. Reid JD, Kommareddi S, Lankerani M, et al. Chronic expanding hematomas. A clinicopathologic entity. *JAMA*. 1980;244:2441–2442.
2. Negoro K, Uchida K, Yayama T, et al. Chronic expanding hematoma of the thigh. *Joint Bone Spine*. 2012;79:192–194.
3. Myrick KM, Davis S. Morel-Lavallee injury a case study. *Clin Case Rep*. 2018;6:1033–1039.
4. Sakamoto A, Matsuda S. Chronic expanding hematoma: a late complication 45 years after thoracoplasty. *J Thorac Dis*. 2017;9:E6–E9.
5. Ito T, Nakahara T, Takeuchi S, et al. Four cases of successfully treated chronic expanding soft tissue hematoma. *Ann Dermatol*. 2014;26:107.
6. Sakamoto A, Okamoto T, Matsuda S. Chronic expanding hematoma in the extremities: a clinical problem of adhesion to the surrounding tissues. *Biomed Res Int*. 2017;2017:1–5.
7. Burgert-Lon CE, Riddle ND, Lackman RD, et al. Angiosarcoma arising in chronic expanding hematoma: five cases of an under-recognized association. *Am J Surg Pathol*. 2015;39:1540–1547.
8. Lenin Babu V, Rana MM, Arumilli BRB, et al. Chronic expanding haematomas with interesting presentations. *Iowa Orthop J*. 2007;27:108–111.
9. Mikić ZD. Operative treatment of the large post-traumatic subcutaneous haematoma or bursa. *Injury*. 1992;23:327–330.