

Post-Traumatic Hematoma

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Introduction

A hematoma is a collection of blood and blood products underneath the subcutaneous layer of skin. It is most commonly associated with a sutured laceration or surgical incision but may also be seen following trauma, especially when the mechanism involves sheering or blunt forces over the skin, or in the presence of a muscle, tendon, or ligament tear (Niazi et al., 2016; Ritchie, 2018; Smith, Hunt, & Wood, 2006).

As blood expands and pools under the skin, focal swelling, with taut skin and discomfort, will be noted. There may or may not be overlying discoloration, which can complicate diagnosis. In the postoperative, or “sutured,” setting, it is imperative to reach the appropriate diagnosis in a timely fashion, as the hematoma may lead to infection, necrosis, or dehiscence of the wound. In the post-traumatic setting, conservative measures are typically sufficient for management (Niazi et al., 2016; Ritchie, 2018).

Case Presentation

A 32-year-old woman presented near 6 weeks after car accident for evaluation of continued right knee pain, stiffness, and focal soft tissue swelling of the distal lateral thigh. She was restrained driver, noting the right knee impacted the dash board as well as the center console. She was taken to an outside emergency department where she had radiographs of the leg as well as computed tomography of her head given a brief loss of consciousness. She reported “normal” findings of both studies. She also reported near 200cc of bloody drainage was aspirated from the knee at that time. Upon discharge, she was instructed to follow up with the orthopaedic provider if the knee symptoms persisted.

At that time, she noted significant knee and thigh swelling, “almost twice the size as my left leg.” This was associated with knee stiffness and lateral pain that caused her to ambulate with a limp. Things gradually improved with rest, icing, and use of crutches. She was able to wean the crutches after about 3 weeks. The more diffuse thigh swelling evolved into a focal area of swelling about the distal lateral thigh, which “firmed up” over the next couple weeks. At the time of evaluation, this had been stable for a couple of weeks. She reported continued knee stiffness.

Upon presentation was an obese, alert, oriented, affect appropriate female in no apparent distress. She ambulated with a straight-legged gait, without the use of an

assistive device. Inspection revealed a firm, nonmobile right lateral thigh mass. It was nontender, without abnormal warmth, discoloration, or tenderness with a negative Tinel's. Thigh compartments were soft and compressible. There was appreciable lateral joint line tenderness, although not well localized. Knee motion was 0° to 110° with discomfort noted at end-range flexion. The knee was stable with ligamentous testing. Lower extremity strength was equal bilaterally, 5/5. She was found to be distally neurovascularly intact.

Imaging obtained at the time of evaluation included anteroposterior, lateral, and sunrise views of the right knee (see Figure 1). There was no appreciable fracture, dislocation, or soft tissues calcification. There was apparent focal soft tissue swelling of the distal lateral thigh, consistent with the clinical presentation. In order to develop a definitive plan of care, the patient was referred for magnetic resonance imaging (MRI) to differentiate this “mass” as possible hematoma, a Morel-Lavallee lesion or a large cyst. MRI findings were consistent with organized hematoma (see Figure 2).

Management

Management of a postoperative or “sutured” hematoma typically involves aspiration, if within the first 24–48 hours, or surgical evacuation, if outside of the initial 48-hour window. In this setting, hematoma provides a rich medium for bacteria and needs to be addressed emergently if there are any concerning signs or symptoms of infection. Alleviating tension on the incision is paramount in preventing further wound complications like necrosis (Niazi et al., 2016; Ritchie, 2018).

Nonoperative management, as was recommended in this care, primarily consists of compression and avoidance of any recurrent sheering forces overlying area of the hematoma. Further consideration needs be given to those on anticoagulants. The patient was also referred to physical therapy for stretching, range-of-motion exercises, isometrics, and gait training. There is mixed information in the literature about the use of therapy manual techniques, taping, cryotherapy, or ultrasound to expedite resolution of hematoma (Bleakley,

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The author and planners have disclosed no conflicts of interest, financial or otherwise.

DOI: 10.1097/NOR.0000000000000559



FIGURE 1. Anteroposterior, lateral, and sunrise views of the right knee. There is no apparent fracture or dislocation. Mild patellofemoral osteophytes. On anteroposterior, note focal area of soft tissue swelling superolateral to the knee.



FIGURE 2. Coronal T2 fat-suppressed, coronal T1-weighted, and axial T2 fat-suppressed images of the right knee. On coronal T2 and T1 images, note abnormal signal within the subcutaneous layers of the distal lateral thigh. On T2 fat-suppressed, also note mild bony edema of the lateral femoral condyle consistent with bony contusion. On axial image, ellipse denotes hematoma.

Discussion

Hematoma should be one of the top differential diagnoses for a patient presenting with focal swelling or “mass” following a traumatic incident. Advanced imaging, either with ultrasound or magnetic resonance imaging, is beneficial in differentiating hematoma from other etiologies, such as a Morel Lavelle lesion, which require a different treatment approach.

The advanced practice provider can provide reassurance that, while it may take several months, a hematoma is a self-limiting process and the body will eventually reabsorb the blood products. Referral to physical therapy is beneficial in providing modalities, stretching, and range-of-motion exercises in an attempt to expedite this process (Ritchie, 2018; Smith et al., 2006).

In following a patient with hematoma, the advanced practice provider should be aware of the clinical presentation of a potential complication known as myositis ossificans (MO). The occurrence of MO is estimated between 5% and 18% of cases of contusion or hematoma, relative to the severity of the injury, and presents most commonly in quadriceps injuries. As the ossification forms within the muscle, the mass becomes hard, painful and limits associated range of motion. While rare, significant functional limitations resulting from MO may necessitate surgical intervention (Von Fange, 2017).

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