

## Education-Family Physician Corner

### Post-Traumatic Left Thigh Seroma

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**A forty-seven-year-old male had a left-thigh trauma after a vehicular accident. The patient developed a left-thigh swelling which was managed by aspiration of a hematoma on admission and was performed twice within 3 months. Large seroma recollected and evacuation of the seroma and excision of the well-formed fibrous capsule was performed. We present this case to increase the awareness of physicians for better prevention and treatment of post-traumatic or postoperative seromas.**

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Seromas are defined as the localized accumulation of exudative serous fluid within a dead space (tissue or organ). It follows surgery or trauma, in which the lymphatic system in the involved area is affected<sup>1-5</sup>.

Seromas usually appear as fluctuant and palpable masses, and could be either asymptomatic or symptomatic by causing pressure on the overlying skin or adjacent neurovascular bundles<sup>1,6</sup>. Chronic persistent seromas could form a fibrous capsule (pseudocyst or pseudo bursa) complicating the condition and further management<sup>2</sup>. The upper thigh and buttocks are common sites of pseudocyst formation<sup>7</sup>.

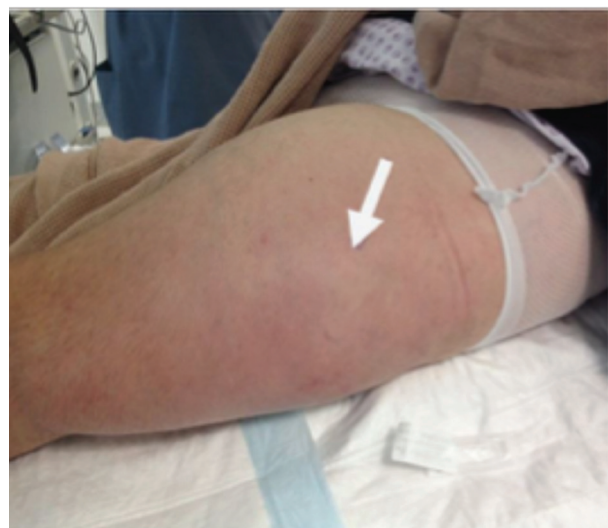
The presence of a large dead space, soft tissues, muscle injuries and extensive electrocautery use during surgery could lead to seroma formation<sup>5</sup>.

The aim of this presentation is to emphasize the importance of proper management of seromas to prevent recurrence.

#### THE CASE

A forty-seven-year-old male, known to have hypertension was involved in a motor vehicle accident three months earlier and sustained a left thigh trauma followed by swelling. The swelling was aspirated immediately using a large bore syringe and was found to be a hematoma.

One month later, the swelling increased involving the posterolateral aspect of the left thigh, fluctuant with no neurovascular deficits, see figure 1. The patient was admitted to the hospital immediately, and incision and drainage of the hematoma were performed under general anesthesia.



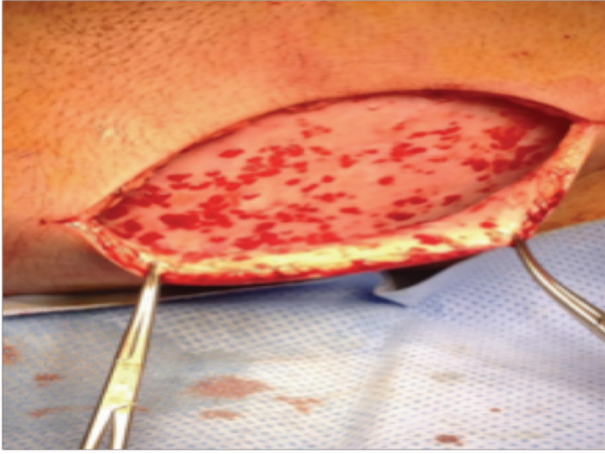
**Figure 1: Left Thigh Fluctuating Swelling**

Two months later, the patient returned to the hospital with the same problem; however, this time, the swelling increased even more and involved the whole lateral aspect of the left thigh. The swelling was fluctuant, not tender and did not affect the overlying skin viability or the neurovascular function.

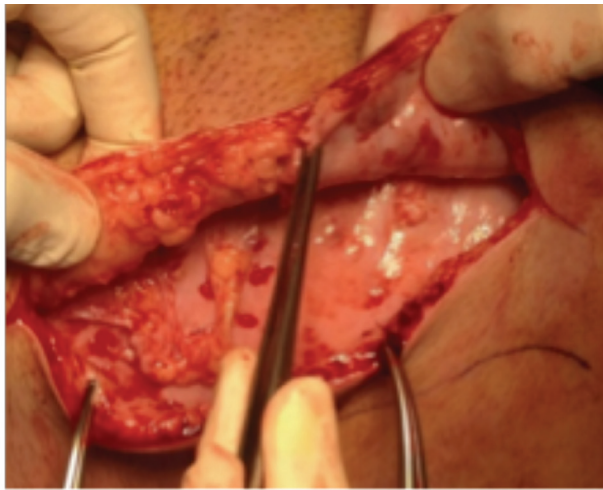
The patient underwent drainage of the seroma with excision of the capsule under general anesthesia. Intraoperatively, once the incision was made, one liter of serous fluid was drained and a smooth, shiny fibrous capsule was found just under the skin and subcutaneous layers which have been excised, see figures 2 to 4.

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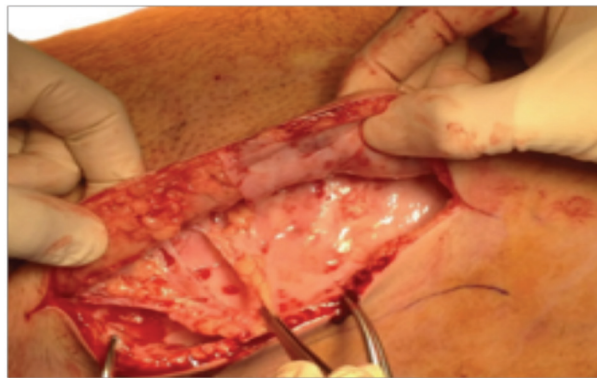
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**Figure 2: Shiny Fibrous Capsule**



**Figure 3: Capsule and Underlying Fat**



**Figure 4: Capsulectomy**

Negative pressure/suction drain was inserted in the dead space after proper hemostasis and applying of quilting sutures. The skin was closed in two layers, and pressure dressing was applied.

Postoperatively, the patient remained in the hospital for one week on intravenous antibiotics, and negative/suction drain was maintained and monitored every 12 hours.

The patient was discharged on pressure garment and instructed to decrease his physical activities for two weeks. He was seen in the clinic one week after discharge with no seroma formation.

## DISCUSSION

Seromas develop after soft tissue injury followed by continuous lymphatic fluid leak and accumulation in a confined dead space. The leaked lymphatic fluid has high molecular concentration and low coagulability, which might be complicated either by preventing or delayed resolution<sup>7</sup>.

The majority of seromas do not persist for an extended period and spontaneous resolution might occur after aspiration<sup>2</sup>. That was not similar to our case.

Seroma is the most common wound complication after mastectomy and common after excision of large tumors in the limb. In addition, individuals who undergo abdominal flap breast reconstruction usually develop seromas at donor site<sup>2,3,8</sup>.

There are certain factors that increase the risk of seroma formation, such as wide tissue excision and dissection, extensive use of electrocautery, heparin therapy, hypertension and obesity. The last two factors were applicable to our patient<sup>2,8</sup>.

Aspiration, drainage and surgical removal of a seroma are the available treatment methods depending on the condition<sup>1</sup>.

Serous fluid aspiration has some disadvantages, such as fast accumulation, which usually occurs if performed in the immediate postoperative period<sup>8</sup>. Bleeding in the cavity and infection of the serous fluid and surrounding tissue are well-known after multiple attempts of aspiration<sup>2,3</sup>.

Fluid aspiration should be considered in refractory cases or those causing pressure symptoms. Patients may benefit from aspiration if the tissue has started to heal and oozing has ceased, which was not applicable to our patient as the tissue did not heal well due to the presence of the fibrous capsule, preventing tissue healing<sup>8</sup>.

Wound infection, dehiscence and formation of a capsule (pseudo bursa) are well-known complications of chronic seromas<sup>1</sup>.

Fibrous capsule formation as a consequence of chronic seroma necessitates surgical excision of the capsule (capsulectomy) to prevent recurrence. Hence capsulectomy becomes the treatment of choice in chronic cases as was in our patient<sup>1,2,6,8</sup>.

Small pseudocysts could be managed by applying a pressure dressing, incision and fluid drainage. However, capsulectomy remains the treatment of choice for larger pseudocysts<sup>7</sup>. Serous fluid accumulates in dead spaces; hence, minimizing these spaces plays a major role in decreasing formation incidence<sup>3</sup>.

Preventive measures must be considered in high-risk patients, such as using surgical drains, performing vertical incision, using tension or quilting sutures, compression dressing, minimal electrocauterization and use of intraoperative adhesive

methods<sup>1,2,7,9</sup>. Seroma formation could be reduced by delaying the postoperative mobilization.

## CONCLUSION

**Seromas must not be taken lightly. Proper history and physical examination of patients with ideal assessment of risk factors could lead to the best treatment option available.**

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