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Case Report

Blunt Trauma-Induced Lymphocele in the Groin — An Uncommon Complication and Management Considerations: A Case Report

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Lymphoceles are common complications after certain surgical procedures. Blunt trauma can occasionally result in similar lymph accumulation. Herein, we present the rare case of a patient who developed a lymphocele in his right groin following a blunt trauma from a fallen tree branch. Aspiration and sclerotherapy were unsuccessful, and the lesion ultimately required surgical excision. Lymphoceles should be considered a rare differential diagnosis for post-traumatic cystic swelling, and their management should follow similar guidelines to those used for post-surgical lymphocele management.

Key Words: Lymphocele, Sclerotherapy, Blunt trauma

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INTRODUCTION

A lymphocele is a collection of lymph in a cyst or fluid-filled sac that lacks an epithelial lining [1]. It is commonly encountered after surgical procedures such as kidney transplants (KTs), inguinal lymph node dissections, and aortic surgeries [2]. Lymphocele formation after blunt trauma is rare, with only a few documented cases in the literature. Herein, we present the rare occurrence of a lymphocele in the right groin following a blunt injury. Written informed consent was obtained from the patient prior to data collection and publication of this case report. This study was exempt from approval by the Institutional Review Board of the Teaching Hospital Polonnaruwa, Sri Lanka.

CASE

A 51-year-old previously healthy man presented to the Accident and Emergency Treatment Unit at the Teaching Hospital Polonnaruwa, after blunt trauma to his right groin. The patient sustained an injury in the right femoral region caused by a falling tree branch. At the time of presentation, the patient's vital signs were stable, and the examination of the right groin revealed bruising and tenderness. There was no evidence of a pulsatile lump or expanding hematoma, suggestive of a femoral artery pseudoaneurysm. Neurovascular examination of the lower limbs was unremarkable. Ultrasonography (USG) of the right groin indicated a possible hematoma without internal color flow. The patient was monitored for 48 hours; analgesics were prescribed and subsequently discharged.

After 1 week, the patient returned to the vascular surgery outpatient clinic with a progressively enlarging, painful lump in the right groin (Fig. 1A). Clinical examination revealed a non-pulsatile cystic lump with normal overlying skin. A repeat USG of the groin showed a cystic lesion measuring 9.8×10.8×5.3 cm. Computed tomography findings revealed a low-density fluid collection, indicative of a lym-

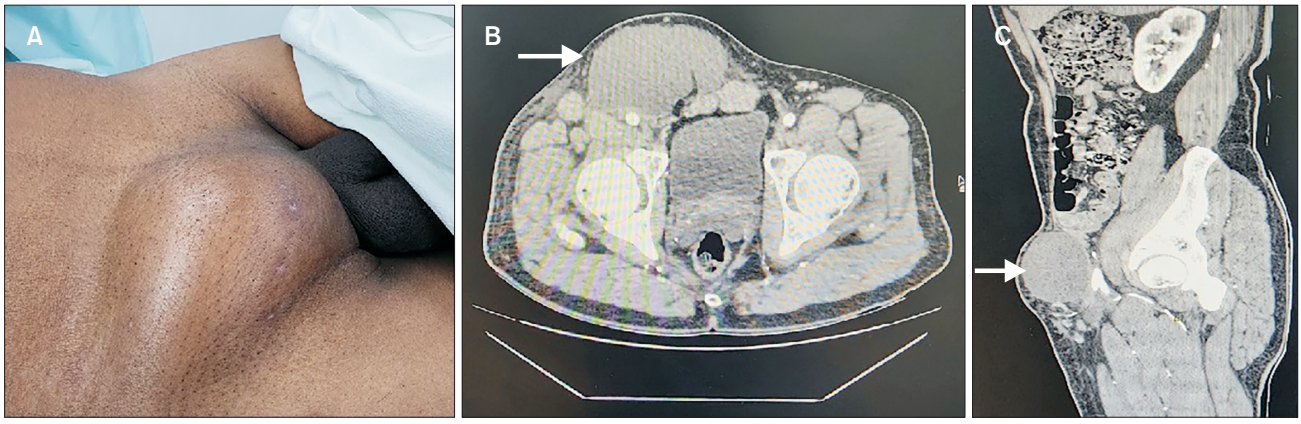

Fig. 1. (A) Lump in the right groin. (B) Computed tomography image showing a lymphocele in the axial view. (C) Computed tomography image in the sagittal view.

Fig. 2. (A) Aspirated fluid from the lymphocele. (B) Injection of methylene blue into the web spaces of the right foot. (C) Excised cyst after surgical removal.

phocele (Fig. 1B, C).

Due to the pain and discomfort caused by the lump, aspiration and sclerotherapy were decided. The procedure was performed under sterile conditions in the operating theatre. Each cyst compartment was aspirated under ultrasonographic guidance. The aspirated clear straw-colored fluid was sent for a complete analysis and microbiological culture (Fig. 2A). After each needle pass and aspiration, 5 mL of 10% povidone iodine was injected. A total of 200 mL of fluid was aspirated, and 15 mL of povidone iodine was injected. After the lump was fully decompressed, a pressure dressing was applied over the groin, and the right leg was kept in an elevated position. The patient was hospitalized for further observation. Lymphocytes were the predominant cell type in the fluid aspirate.

On postoperative day 1, gradual reaccumulation of the cyst was observed. By day 2, the patient developed a spiking fever, and intravenous (IV) cefuroxime was administered. The initial fluid cultures were sterile. Because of rapid re-accumulation and the possibility of superimposed infection, open cyst drainage was decided.

Before anesthesia, methylene blue dye was injected into the web spaces of the right foot to facilitate the identification of actively leaking lymphatics in the groin region (Fig. 2B). Under spinal anesthesia, an incision was made over the lump, and the fluid was drained. A second sample was collected for culture. Although the groin lymph nodes were stained blue, no active lymph leaks were observed. To eliminate the risk of recurrence, the cyst cavity was excised, followed by suture ligation of lymphatic channels feeding into it (Fig. 2C). The skin was then closed over a vacuum drain.

Postoperatively, IV antibiotics were continued, and the right leg was kept in an elevated position. The repeat culture was also negative, likely because of antibiotic use. The volume of the drain output gradually decreased, with a maximum of 30 mL in 24 hours, and the patient's fever gradually subsided.

Oral antibiotics were prescribed, and the patient was discharged on the sixth postoperative day. At the 1-month follow-up, there was no evidence of lesion recurrence; however, mild ankle swelling was observed, for which the patient was advised to use compression stockings.

DISCUSSION

Lymphocele in the extremities following blunt trauma is extremely rare, with only seven previously published cases identified in a literature review (Table 1) [1-7]. The pathogenesis of such lesions differs from post-surgical lymphoceles, where lymphatic damage occurs during soft tissue dissection and lymph node removal. Some researchers have hypothesized that ischemic disruption of lymph vessels caused by local soft tissue trauma leads to fluid collection [2]. The lymphatic fluid lacks platelets and clotting factors; therefore, damaged lymphatics have the potential for prolonged leakage [1,8].

Lymphocele appears as a cystic, hypoechoic lesion, with or without internal septations in ultrasound. Computed tomography scans can differentiate lymphoceles from hematomas or abscesses based on their low attenuation values [8]. Magnetic resonance imaging characterizes a lymphocele as a T2 hyperintense and T1 hypointense lesion [1]. Lymphangiography may reveal disruption of the main lymphatic channels with collateral formation [4].

In our patient, initial ultrasound imaging findings were suggestive of hematoma. However, when the patient presented later with progressively worsening groin swelling, imaging revealed a cystic fluid collection. This finding aligns with those observed in previously published reports, where a delay was observed between the initial blunt trauma and the development of a lump. Lymphocytes were predominant in the aspirate, which is characteristic of lymph collection [1,2].

The majority of the experience in managing post-surgical lymphoceles is derived from post-KT patients, where the incidence of this complication can be as high as (33.9%) [9]. Asymptomatic, uncomplicated lymphoceles

Table 1. Published cases of lymphoceles in the extremities following blunt trauma

Author	Sex	Age (y)	Location of lymphocele	Nature of insult	Management	Outcome
Harrington et al. [1]	Male	14	Right groin	Bicycle handlebar injury	Compression, simple aspiration followed by doxycycline sclerotherapy	Resolution after sclerotherapy
Chaloner and Crozier [2]	Male	35	Left medial thigh	Blow from a rifle butt	Open drainage with partial excision of the sac	Complete resolution
Owen and Ameen [3]	Female	70	Right medial thigh	Following the use of tourniquet during knee arthroscopy	Weekly aspirations	Resolution after 12 wk
Germon et al. [4]	Male	39	Right groin	Crushed against a pillar by a forklift	Conservative management	No treatment required as the lesion was asymptomatic
Vijay et al. [5]	Male	52	Left groin	Following a kick	Aspiration, open drainage followed by doxycycline sclerotherapy	Resolution after intra-lesional injections of doxycycline (7 doses)
Ramachandran et al. [6]	Male	30	Sacral region, right buttock, and thigh	Following a road traffic accident	Aspiration, open drainage followed by endoscopic drainage and peeling of the cyst cavity	Successful resolution
Surana et al. [7]	Male	37	Left medial thigh	Impact from a metal object	Open drainage	Successful resolution
Present case	Male	51	Right groin	Impact from a fallen tree branch	Povidone iodine sclerotherapy followed by open drainage and cyst excision	Successful resolution

can be managed conservatively [4]. However, symptomatic lymphoceles, which can result from pressure effects or secondary infection, requires intervention [8]. In our patient, the initial decision to intervene was based on the groin pain and discomfort caused by the lump.

Diverse management options for lymphoceles include simple aspiration, continuous drainage, sclerotherapy, laparoscopic drainage, and open surgery [10]. Simple aspiration in patients with post-KT lymphocele has a reaccumulation risk as high as 59%, and is not recommended [10]. Catheter drainage and ablation of the cyst lining with a sclerosant reduced the risk of reaccumulation. Alcohol, povidone iodine, bleomycin, doxycycline, tetracycline, and fibrin glue have been used as sclerosing agents [8]. Randomized studies comparing the safety and efficacy of these sclerosants are lacking, making operator preference a key factor in the selection of the sclerosing agent [11,12]. We used povidone-iodine because of its availability and low cost.

Infections are the main complications of percutaneous procedures, as seen in our patient. Compared with minimally invasive techniques, laparoscopic approach or open drainage of post-surgical lymphoceles have a lower recurrence rate of 8% [10]. A single case report described the successful use of endoscopic drainage and cyst wall ablation when managing a large lymphocele secondary to blunt trauma [6].

Following a suspicion of infection, open drainage was performed in our patient, which is associated with the risk of post-operative reaccumulation and lymphocutaneous fistulas. Methylene blue was injected into the soft tissues of the patient's right foot to identify and ligate the leaking lymphatics during surgery. Ballas et al. [8] used a similar technique in a patient with chest wall lymphocele, where methylene blue was injected around the patient's wrist.

In summary, lymphocele should be considered as a rare differential diagnosis for localized swelling in the extremities following blunt trauma. While asymptomatic lymphoceles can be managed conservatively, intervention is necessary in symptomatic or complicated cases. However, interventions can be challenging due to frequent reaccumulation and the need for repeat procedures.

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CONFLICTS OF INTEREST

The author has nothing to disclose.

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