

A Rare Inguinal Ganglion Cyst Causing Common Femoral Vein Compression: Diagnostic and Surgical Challenges

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Highlights

- Ganglion cysts causing compression of the common femoral vein are exceedingly rare.
- Inguinal cystic lesions may mimic femoral hernia or vascular pathology.
- Doppler ultrasonography and CT angiography are valuable diagnostic tools.
- Surgical exploration remains definitive for diagnosis and treatment.
- Early recognition can prevent prolonged venous compression and limb edema.

Abstract

Introduction: Ganglion cysts are benign mucin-filled cystic lesions commonly occurring around joints and tendon sheaths. Their occurrence in the inguinal region causing compression of the common femoral vein is exceedingly rare.

Presentation of Case: We report a case of a 56-year-old male presenting with gradually progressive left inguinal swelling associated with exertional swelling of the left lower limb. Imaging revealed a cystic lesion adjacent to the saphenofemoral junction compressing the left common femoral vein. Surgical exploration demonstrated a ganglion cyst arising from the posterior ramus of the pubic bone and adherent to the posterolateral wall of the common femoral vein, causing localized venous compression and fusiform dilatation. Deroofing of the cyst with evacuation of gelatinous contents was successfully performed.

Discussion: Ganglion cysts involving the inguinal region are extremely uncommon and may clinically mimic femoral hernia, saphena varix, or vascular lesions. Imaging modalities including Doppler ultrasonography and CT angiography play an important role in diagnosis and operative planning. Surgical excision or deroofing remains the treatment of choice in symptomatic lesions causing neurovascular compression.

Conclusion: Rare cystic lesions should be considered in the differential diagnosis of inguinal swellings associated with lower limb edema. Early diagnosis and surgical intervention provide symptomatic relief and prevent venous complications.

Keywords: Ganglion cyst; Common femoral vein; Inguinal swelling; Venous compression; Lower limb edema; Groin cyst

1. Introduction

Ganglion cysts are benign cystic lesions containing gelatinous mucinous material and are most frequently encountered around the wrist and ankle joints. Involvement of the inguinal region is rare, and lesions causing compression of major vascular structures such as the common femoral vein are exceptionally uncommon.^{1,2}

Patients may present with inguinal swelling, lower limb edema, or symptoms mimicking femoral hernia, saphena varix, lymphadenopathy or vascular aneurysms. Due to the rarity of the condition, diagnosis may be challenging preoperatively. Doppler ultrasonography and computed tomography angiography play important roles in identifying the cystic nature of the lesion and its relationship with adjacent vascular structures.^{2,8}

We report a rare case of ganglion cyst arising from the posterior ramus of the pubic bone causing compression of the left common femoral vein and presenting as an inguinal swelling with exertional lower limb edema.

2. Presentation of Case

A 56-year-old man with no known comorbidities presented with swelling in the left inguinal region for several months. The swelling was insidious in onset and gradually increased in size to approximately 3 × 2 cm. The patient also complained of intermittent swelling of the left lower limb, which became more prominent on exertion.

On local examination, a diffuse swelling was noted in the region of the saphenofemoral junction, located inferolateral to the pubic tubercle. The swelling was non-pulsatile and non-compressible, with absence of cough impulse. No bruit was audible on auscultation.

Venous Doppler ultrasonography of the left lower limb demonstrated competent saphenofemoral and saphenopopliteal junctions. A well-defined cystic lesion measuring 22 × 20 mm was identified at the region of the saphenofemoral junction. No internal vascularity or flow was observed on color Doppler examination.

Computed tomography angiography revealed a well-defined hypodense cystic lesion measuring 27 × 22 × 36 mm situated inferior to the left common femoral vein, causing displacement and compression of the vein. No internal enhancement or vascular flow was observed.



Figure -1 , Venous Ganglion cyst causing displacement and compression of Left Common femoral Vein

Based on the clinical and radiological findings, the patient was diagnosed with a cystic lesion of the left inguinal region causing compressive effects on the common femoral vein.

The patient underwent surgical exploration under Spinal anaesthesia. Intraoperatively, a 3×2 cm ganglion cyst containing gelatinous material was identified arising from the posterior ramus of the pubic bone. The cyst was densely adherent to the posterolateral aspect of the left common femoral vein, causing external compression with localized fusiform dilatation of the vein. Deroofing of the cyst and evacuation of its gelatinous contents were performed successfully.

Histopathological examination revealed a fibrous cyst wall with myxoid degeneration, which is consistent with Ganglion Cyst. The postoperative period was uneventful, and the patient experienced symptomatic relief from lower limb swelling.

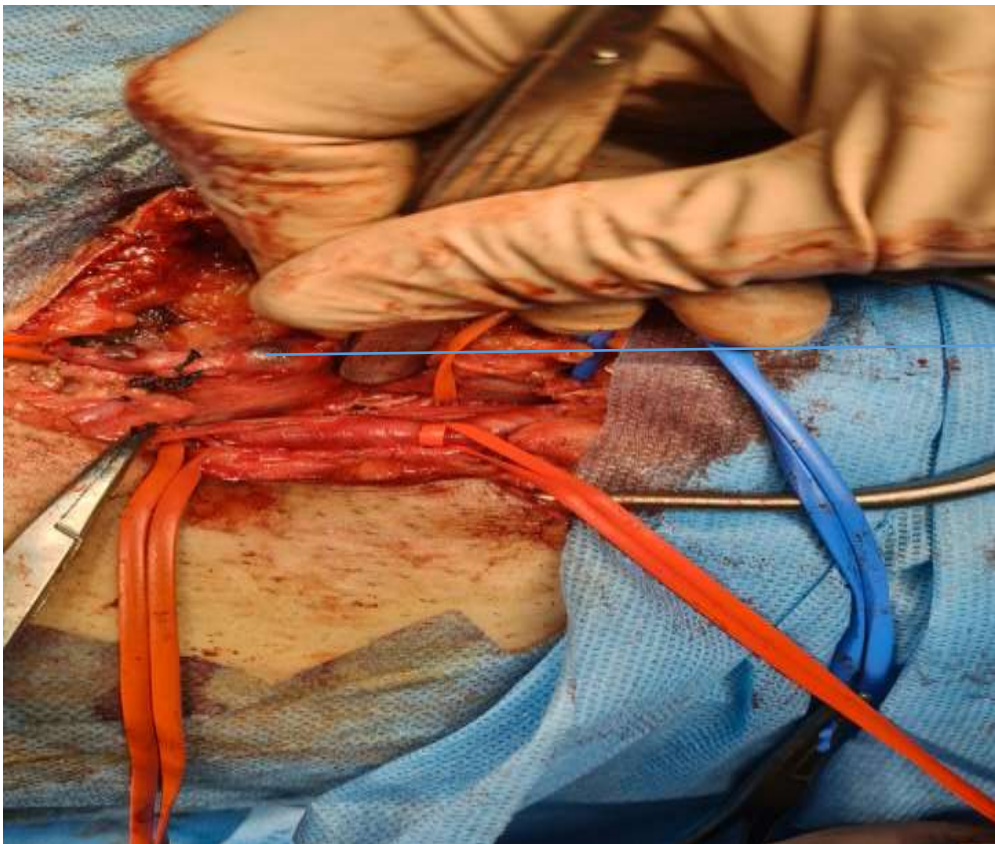


Figure -2 Venous Ganglion Cyst

3. Discussion

Ganglion cysts are benign soft tissue lesions characterized by myxoid degeneration and accumulation of gelatinous mucinous material within a fibrous capsule. They are most commonly encountered around the wrist and ankle joints, whereas occurrence in the inguinal region is distinctly uncommon.(1,2)

Cystic lesions in the groin present a diagnostic challenge because of the wide range of differential diagnoses including femoral hernia, saphena varix, lymphadenopathy, femoral artery aneurysm, venous aneurysm, abscess, lymphocele, and adventitial cystic disease.(3) In the present case, the lesion clinically simulated pathology near the saphenofemoral junction and produced symptoms secondary to venous compression.

Compression of the common femoral vein by ganglion cysts is extremely rare. Patients may present with exertional limb swelling by compressing adjacent blood vessels in groin area .(4,5) Kwon et al. described cystic adventitial disease involving the femoral vein presenting with unilateral lower limb swelling

secondary to venous obstruction.(7) Similarly, Spinner et al. reported femoral venous compression caused by cystic adventitial disease leading to lower extremity edema and venous outflow obstruction.(9) Min et al. also documented cystic adventitial disease of the common femoral vein presenting as unilateral leg swelling, highlighting the rarity and diagnostic difficulty of these lesions.(10)

Imaging studies play a crucial role in diagnosis. Doppler ultrasonography is useful for excluding vascular lesions and demonstrating the cystic nature of the swelling, while CT angiography or magnetic resonance imaging helps delineate the lesion and its relation to adjacent neurovascular structures.(2,8) In our case, venous Doppler demonstrated a cystic lesion without internal vascularity, whereas CT angiography clearly showed compression and displacement of the left common femoral vein.

The exact pathogenesis of ganglion cysts and adventitial cystic disease remains uncertain. Proposed theories include repetitive trauma, developmental inclusion of mucin-secreting cells, synovial herniation, and myxomatous degeneration of connective tissue.(3,4) Levien and Benn proposed a unifying hypothesis suggesting synovial or ganglion-like degeneration as the underlying mechanism in adventitial cystic disease.(3) Desy and Spinner further emphasized the role of articular connections and mucin-secreting mesenchymal cells in the development of cystic adventitial lesions.(4)

To the best of our knowledge, ganglion cysts arising from the pubic ramus causing compression of the common femoral vein are exceptionally rare, with only limited cases of groin ganglion-associated venous compression described in the literature.

Surgical excision remains the treatment of choice in symptomatic lesions causing neurovascular compression. Complete excision including the stalk is preferred to reduce recurrence risk; however, in lesions densely adherent to major vascular structures, limited excision or deroofing may be safer to avoid vascular injury. (5) In the present case, the cyst was firmly adherent to the posterolateral wall of the common femoral vein with associated localized fusiform venous dilatation, and deroofing with evacuation of gelatinous contents was performed successfully with symptomatic improvement.

This case highlights the importance of considering rare cystic lesions in the differential diagnosis of inguinal swellings and lower limb venous obstruction. Early recognition and surgical management can prevent prolonged venous compression and associated morbidity.

4. Conclusion

Ganglion cysts involving the inguinal region are exceedingly rare and may mimic vascular or hernia-related pathology. Compression of the common femoral vein can present with exertional lower limb swelling and diagnostic uncertainty. Doppler ultrasonography and CT angiography are valuable diagnostic modalities, while surgical exploration remains definitive for diagnosis and treatment.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Ethical Approval

Ethical approval was waived for this single case report by the institution.

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