

CASE REPORT

Unilateral Leg Swelling Caused by Common Femoral Vein Compression by a Hip Ganglion Cyst in the Groin

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Background: As a rare cause of unilateral leg swelling, extrinsic vein compression caused by intraperitoneal, retroperitoneal, or inguinal lesions has been noted. A rare case of leg swelling as a cause of extrinsic compression of common femoral vein from a ganglion cyst in the groin is presented.

Case presentation: A 38 year old man was referred with a 3 week history of left leg swelling. Following a radiological diagnosis of common femoral vein compression from a cystic groin mass, he firstly underwent needle aspiration. Although the lesion became somewhat smaller, his left leg was still swollen, and he underwent surgical excision of the lesion 2 days after needle aspiration. Histopathological features of the cystic wall were consistent with those of a ganglion cyst. He was discharged from the hospital with complete improvement of the leg swelling, and has remained free from recurrence 1 year after surgery.

Conclusion: Femoral vein compression by a ganglion cyst in the groin is a very rare pathology; however, it should be kept in mind in the differential diagnosis of unilateral leg swelling.

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INTRODUCTION

Most unilateral lower limb swelling is the result of deep vein thrombosis or lymphatic disorders. As a rare cause of unilateral leg swelling, extrinsic vein compression caused by intraperitoneal, retroperitoneal, or inguinal lesions has been noted. A rare case of leg swelling causing extrinsic compression of common femoral vein (CFV) from a hip ganglion cyst in the groin is presented.

CASE REPORT

A 38 year old healthy man was referred with a 3 week history of left leg swelling without pain or inflammation. He had no history of trauma or surgical intervention to his viscera, pelvis, or lower body.

On physical examination, the circumference of the left thigh (10 cm above the knee) was 48 cm, 5 cm greater than the right, and the circumference of the left calf (10 cm below the knee) was 42 cm, 5 cm greater than the right. A firm well circumscribed mass of 2 cm diameter was palpable in the left groin, which was immobile and non-tender. All

data from the laboratory findings, including hematological examination, blood chemistry, C-reactive protein, and D-dimer, were within the normal range.

Ultrasound revealed no deep vein thrombosis; the left CFV was severely compressed by a low echoic cystic groin mass. An enhanced computed tomography scan and magnetic resonance imaging demonstrated a 20 × 30 mm cystic groin mass arising from the left hip joint and compressing the left CFV laterally and ventrally (Figs. 1 and 2).

With the diagnosis of CFV compression from a groin ganglion or synovial cyst, he firstly underwent needle aspiration of the cyst under ultrasonographic guidance, and approximately 3 mL of translucent viscous fluid was extracted through a 14 gauge needle. The smear comprised a few foamy cells in abundant mucoid material with no atypical or inflammatory cells. Although the lesion became somewhat smaller, his left leg remained swollen.

Two days after needle aspiration, the left groin was explored through a longitudinal incision under general anesthesia. The cystic mass was located at the medial and dorsal side of the left CFV with severe fibrous adhesion (Fig. 3A). The mass was dissected from the vein, followed proximally to its origin from the hip joint, and completely removed (Fig. 3B). The cystic cavity contained jelly-like translucent fluid, and the internal surface of the cyst wall was macroscopically smooth (Fig. 4). Microscopic examination identified a cyst wall composed of fibrous connective

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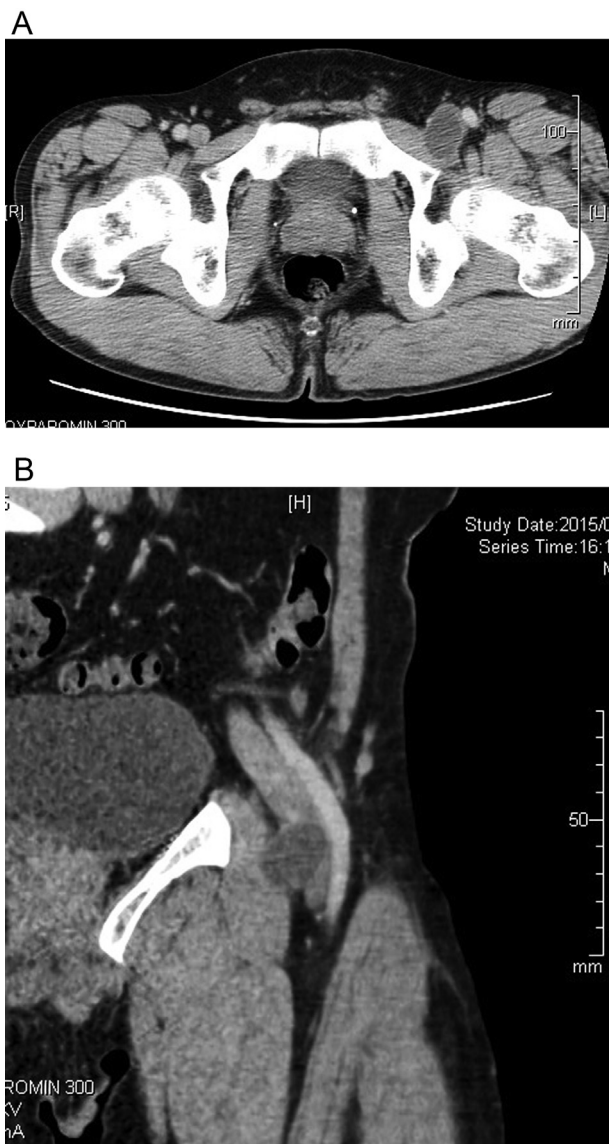


Figure 1. Enhanced computer tomography scan demonstrated a 20 × 30 mm cystic groin mass compressing the left common femoral vein laterally and ventrally. (A) Axial view. (B) Coronal view.

tissue without a lining of synovial cells or inflammatory reaction. Histopathological features were consistent with those of a ganglion cyst.

He was discharged from hospital with complete resolution of the leg swelling, and has remained free from recurrence 1 year after surgery.

DISCUSSION

Femoral vein compression by various groin masses is a rare cause of unilateral leg swelling and is considered to induce subsequent deep vein thrombosis or pulmonary embolism.¹⁻³

Yukata et al.¹ enumerated some different pathological lesions, including ilio-pectineal bursitis, ganglion cyst, and synovial cyst, in cases of hip joint related cystic mass causing extrinsic femoral vein compression. Bursitis is

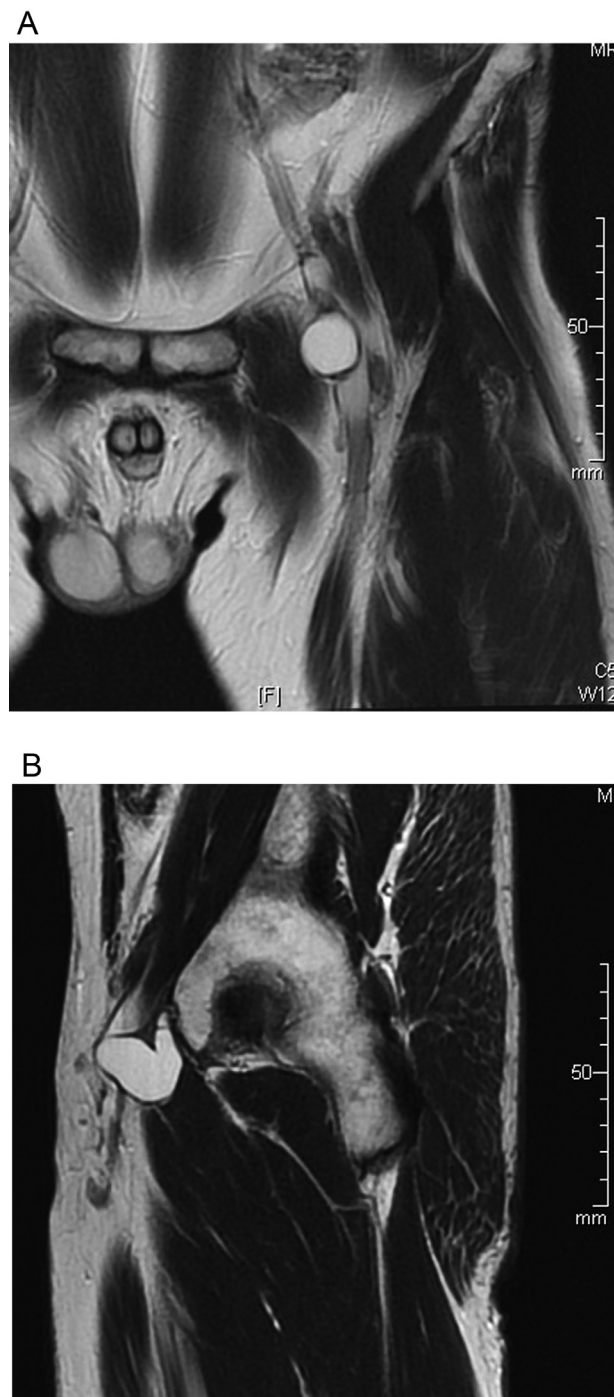


Figure 2. Magnetic resonance imaging demonstrated a cystic groin mass compressing the left common femoral vein ventrally and arising from the left hip joint. (A) Coronal view. (B) Sagittal view.

thought to lead to cyst formation by increased intra-articular pressure and an intrinsically weak bursa secondary to underlying inflammatory or degenerative joint disease. Ilio-pectineal bursitis is usually accompanied by various hip disorders such as trauma, avascular necrosis of the femoral head, osteoarthritis, rheumatoid arthritis, or total hip arthroplasty. However, patients with ganglion and synovial cysts usually have no medical history of trauma or hip joint disease. Both cysts are felt as an asymptomatic

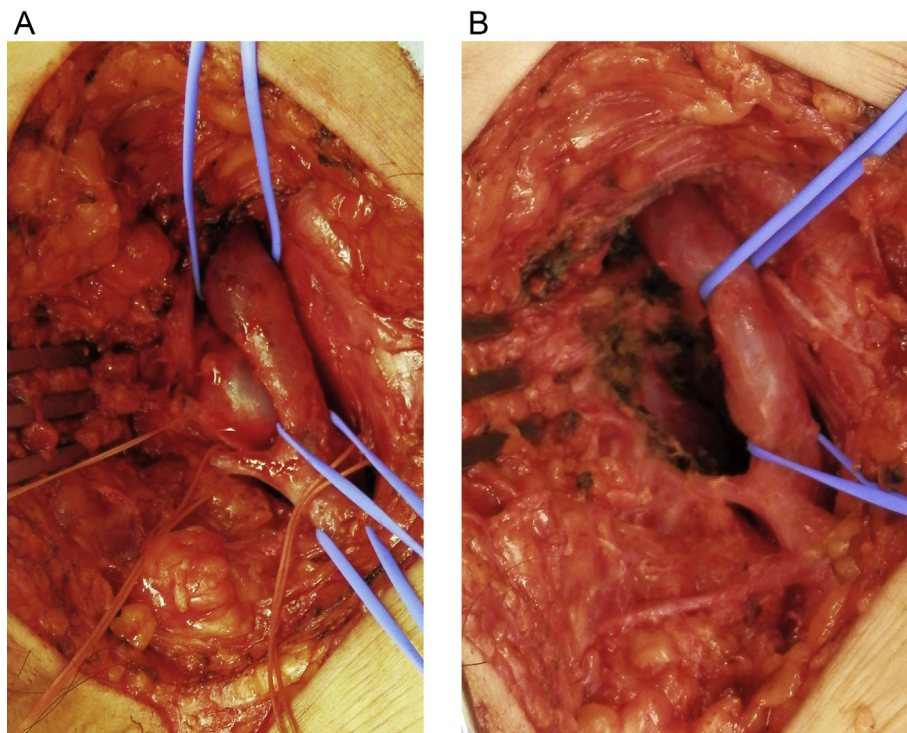


Figure 3. Intraoperative findings. The cystic mass was located on the medial and dorsal side of left common femoral vein (A). The femoral vein compression was completely removed after tumor excision (B).



Figure 4. The internal surface of the cyst wall was macroscopically smooth.

groin mass, contain a similar gelatinous fluid, and are distinguished only by histopathological examination. A ganglion cyst is generally considered to be the result of myxomatous degeneration of fibrous tissue structures and does not have a lining of synovial cells on the cyst wall. In contrast, a synovial cyst sometimes directly communicates with the adjacent joint, and has a lining of synovial cells on the cyst wall. However, it may not be so meaningful to distinguish between cysts because these have very similar clinical features and prognosis.

A search of the English literature using PubMed, found only eight cases of CFV compression by a ganglion cyst in the groin, including the present case (Table 1).^{2,4–8} The mean age was 57 (2–91) years (3 men and 5 women) and the chief complaints were leg swelling in seven cases except for one case of groin mass in a 2 year old infant. Coexisting deep vein thrombosis or pulmonary embolism was not

Table 1. Reported cases of common femoral vein compression by a ganglion cyst in the groin in English literature.

First author (year)	Age	Sex	Chief complaint	Laterality	Diagnosis	Tumor size	DVT	PE	Treatment	Prognosis
Gale (1990) ²	46	F	Leg swelling	Left	CT, venography	25 mm	–	–	Surgical excision	Leg swelling resolved
Emura (2005) ⁴	2	F	Groin mass	Right	CT	15 × 10 × 8 mm	–	–	Surgical excision	Leg swelling resolved
Bhan (2007) ⁵	40	M	Leg swelling	Left	CT, scintigraphy, US, venography	20 mm	–	–	Surgical excision	Leg swelling resolved
Gong (2010) ⁶	76	M	Leg swelling	Right	CT	30 mm	–	–	Surgical excision	Leg swelling resolved
Bekou (2011) ⁷	74	F	Leg swelling	Left	CT, US	N/D	–	–	Surgical excision	Leg swelling resolved
	91	F	Leg swelling	Right	CT, US	40 × 30 × 90 mm	–	–	Needle aspiration	Leg swelling resolved
Matsumoto (2012) ⁸	85	F	Leg swelling	Left	CT, US, MRI	30 mm	–	–	Needle aspiration	Leg swelling resolved
Present case	38	M	Leg swelling	Left	CT, US, MRI	21 × 32 mm	–	–	Surgical excision	Leg swelling resolved

CT = computed tomography; DVT = deep vein thrombosis; MRI = magnetic resonance imaging; N/D = not described; PE = pulmonary embolism; US = ultrasonography.

reported in any of the cases. Surgical excision was done in six, and the other two patients were treated only by needle aspiration. Leg swelling was resolved in all cases.

Yukata et al.¹ suggested that treatment of cystic lesions of the hip joint depended on their size, the severity of symptoms including local compression, and the nature of the underlying disease. Surgical excision was a more reliable treatment for prevention of recurrence; however, they recommended needle aspiration/puncture as a first line treatment because it is easier to perform, less invasive than surgery, and the analysis of cystic content can aid diagnosis. In the present case, needle aspiration did not completely resolve the symptoms so surgical excision was performed as well. Complete needle aspiration of the viscous content of the ganglion cyst was difficult, and surgical excision was considered to be an appropriate treatment for this young patient considering the risk of recurrence.

CONCLUSION

CFV compression by a hip ganglion cyst in the groin is a very rare pathology; however, it should be kept in mind in the differential diagnosis of unilateral leg swelling.

CONFLICT OF INTEREST

None.

FUNDING

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