

# Haematoma of the psoas muscle after posterior spinal instrumentation and Enoxaparin prophylaxis

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## Abstract

This case report describes the rare complication of psoas muscle haematoma following posterior lumbar spine fixation and routine anti-thrombotic prophylaxis.

## Keywords

Psoas haematoma; enoxaparin; lumbar spine; surgery; complications.

## Case report

A 31-year-old female presented with intractable lower back pain and markedly reduced sitting tolerance. She had no radicular symptoms. She underwent an uneventful lumbar discogram 2 months prior to surgical intervention. The discogram revealed concordant pain reproduction and degenerative changes at L3/4, L4/5 and L5/S1. After lengthy discussion with the patient she opted for a dynamic stabilisation procedure (DYNESYS™: Centerpulse AG, Andreasstrasse 15 CH-8050 Zurich, Switzerland).

A standard posterior incision from L3 to L5 was used for access. Intraoperatively, there was difficulty cannulating the right fourth lumbar pedicle, with a possible medial breach of the pedicle. No difficulty was encountered subsequently in applying the left pedicle screws. Blood loss was estimated at no more than 500 ml.

Postoperatively, apart from the expected surgical wound pain there were no adverse events in the first 48 h. The patient began mobilisation less than 24 h after surgery and concomitantly a prophylactic dose of subcutaneous Enoxaparin (Aventis Pharma, West Malling, Kent, ME19 4AH, UK) 20 mg once daily was started.

On the third postoperative day the patient developed a sharp left groin pain associated with numbness in the inner leg and a sensation of the hip 'giving way'. On examination there were no objective motor deficits. There were reduced superficial sensations in the left L3 dermatome associated with severe tension signs reproducing the groin pain. Postoperative haemoglobin was found to be 7 g/dl compared to a level of 13 g/dl preoperatively. There was no clinical evidence of a superficial wound haematoma. This prompted a CT scan searching for a deep wound infection or a retroperitoneal haematoma.

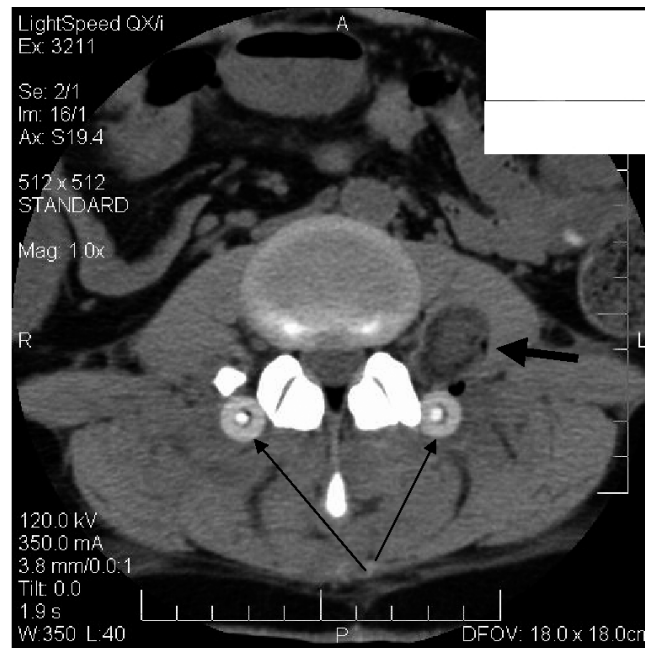


Fig. 1. Short arrow depicting haematoma in Left Psoas Muscle. Thin arrows indicating fixation hardware.

A CT scan from L2 to S1 was obtained and this revealed satisfactory positioning of the pedicle screws with no signs of breach of the bony cortex (Fig. 1). However, the scan also revealed a left psoas muscle collection at the level of L3. She was immediately started on empirical parenteral antibiotics safeguarding against an abscess even in the presence of a normal peripheral white cell count and normal core temperature.

MRI of the region was obtained as baseline imaging for later follow-up. It revealed a classical acute haematoma within the left psoas muscle with a hyper-intense signal on T1 and a hypo-intense signal on T2. The haematoma measured 6 cm at its widest diameter and approximately 100 cc in volume.

Twenty-four hours after radiological diagnosis of the collection, it was drained percutaneously under CT guidance. Examination of the aspirate revealed a liquefying haematoma. The antibiotics were stopped after failure to culture any organisms from the aspirate.

The pathogenesis is assumed to be a direct minor injury to the psoas muscle intraoperatively during attempts at cannulating the left L4 pedicle, complicated by the initiation of Enoxaparin postoperatively and rapid patient ambulation.

The patient was treated symptomatically. The pain and tension signs gradually resolved. One week post aspiration, a follow-up MRI revealed almost complete resolution of the haematoma.

## Diagnosis

Surgical haematoma of the left psoas muscle.

## Tools of diagnosis

CT scan covering the surgical area is a rapid and a relatively accurate tool of diagnosing postoperative psoas muscle pathology. It also delineates the position of the screws and shows any thecal/root compression. Additionally, it has the advantage of allowing concomitant guided aspiration that can be therapeutic as well as diagnostic.

## Discussion

Psoas haematoma is a rare but well described complication of anti-coagulation and haemorrhagic disorders, especially haemophilia<sup>[1]</sup>. This condition also is a rare complication of femoral angiography<sup>[2]</sup> and abdominal trauma.

Parenteral deep venous thrombosis prophylaxis has been implicated in causing spontaneous psoas and anterior abdominal wall haematoma<sup>[3, 4]</sup>.

Psoas haematoma has also been described in the context of retroperitoneal approaches which includes the anterior approach to the lumbar spine. Again, implicated factors include direct trauma and postoperative anti-thrombotic prophylaxis.

There is only one report describing spontaneous psoas haematoma following non-instrumented posterior spinal surgery<sup>[5]</sup>.

In our case there probably was minor intraoperative trauma to the psoas muscle during the insertion of the left L4 pedicle screws. This gradually developed into a haematoma over the next 2 days facilitated by the administration of Enoxaparin and early patient mobilisation. Pain developed when the size of the haematoma caused significant pressure on the femoral nerve on the anterior surface of the psoas still contained within the deep lumbar fascia.

## Lessons

The anatomical proximity of the psoas muscle to the pedicles in the lumbar region renders it susceptible to direct trauma during insertion of pedicle screws. The combination of groin pain with or without femoral neuropathy following posterior lumbar spine instrumentation and especially combined with postoperative anti-thrombotic therapy should alert the physician to the possibility of a psoas haematoma. CT scan is the diagnostic tool of choice. The CT diagnosis should always be coupled with attempts at drainage percutaneously.

## References

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