CASE REPORT

Severe low back pain as the initial symptom of venous thrombosis of the inferior vena cava

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SUMMARY

A 45-year-old previously well male truck driver presented to the emergency department with severe low back pain; lumbosacral X-ray was normal and he was given analgaesics and discharged. The following day, he presented to the emergency department again, his pain had not responded to the analgaesics; this time he also presented with massive bilateral swelling of lower limbs and left testicle that started 3 h earlier. The pain was severe, dull and interfered with the patient's ability to walk. An urgent workup revealed extensive thrombosis of the inferior vena cava.

CASE PRESENTATION

A 45-year-old male truck driver presented to the emergency department with severe lower back pain radiating to both thighs for 1 day. He had a history of a 4-day long-haul trip the previous week. The patient recalled no history of trauma or similar episodes in the past. He had no medical or surgical history and denied the use of any drugs. He gave a history of heavy waterpipe (hookah) smoking and denied consuming alcohol. Systemic review was negative for any other symptoms and his physical examination was normal. X-ray of the back (figure 1) was performed to rule out intervertebral disc prolapse and the patient was given analgaesics and discharged.

The following day the patient presented to the emergency department with symptoms that his lower back pain did not respond to the given analgaesics. He also presented with severe painful bilateral lower limb swelling (figure 2) and testicular swelling that prevented him from walking for the last 3 h. His examination revealed a vitally stable, oriented and conscious patient. Examination

BACKGROUND

Inferior vena cava (IVC) thrombosis is a condition that is not routinely considered in a patient presenting with low back pain in the absence of other findings.

Failure to promptly recognise the condition and treat the patient may lead to death.

Figure 1 Anteroposterior and lateral views of X-ray of the lumbosacral spine showing normal body heights, alignment and disc spaces with no spondylolysis or listhesis on first day of presentation.

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Figure 2 Massive swelling of the feet on second day of presentation.

of the abdomen revealed engorged superficial veins, mild diffuse abdominal tenderness and scrotal oedema. Examination of the lower limbs showed bilateral massive lower limb swelling with erythema, tenderness and engorged superficial veins (phlegmasia alba dolens). Examination of other systems was normal. An urgent workup revealed venous thrombosis of the infrarenal part of the IVC.

INVESTIGATIONS

- ▶ Blood tests—white cell count $14.1 \times 10^9/L$, neutrophils 87.7%, other full blood count values normal, D-dimer $4.74 \mu g/mL$, C reactive protein $45 mg/L$, lipid profile normal, liver function tests total bilirubin 1.4 otherwise normal, antinuclear factor and lupus anticoagulant negative.
- ▶ Thrombophilia screening—acquired-activated protein C-R 103, antithrombin-3 102, protein C 100, protein S 127, phosphatidyl serine negative.
- ▶ X-ray lumbosacral spine (figure 1)—normal.
- ▶ Contrast-enhanced CT of the abdomen and pelvis (figure 3)—the IVC at its formation by the common iliac veins appeared distended with no evidence of any opacification by the contrast. Multiple collateral vessels were seen in the infrarenal portion of the IVC with normal appearing IVC at its superior aspect (suprarenal portion). Both the common iliac veins and common femoral veins were significantly

distended with no evidence of any opacification by the contrast. No anatomical variation or anomaly of the IVC could be seen.

- ▶ Ultrasound Doppler of both lower limbs—extensive deep venous thrombosis involving both common femoral, superficial femoral and popliteal veins with echogenic thrombus inside with no evidence of any compressibility, colour flow or pulse Doppler signals.
- ▶ Echocardiography—normal, no intramural thrombi seen.

TREATMENT

- ▶ Lifestyle and diet modification
- ▶ Compression stockings
- ▶ Paracetamol 1000 mg thrice daily as needed for pain
- ▶ Warfarin (dose adjusted according to International Normalised Ratio (INR))
- ▶ Enoxaparin 80 mg twice daily for 5 days
- ▶ Tramadol 50 mg twice daily prn

OUTCOME AND FOLLOW-UP

The patient was admitted to the hospital, started on the aforementioned treatment and investigated for coagulopathy (results shown above). Vascular surgeons as well as haematologists were consulted; vascular surgeons advised him to apply compression stockings when awake and encouraged his mobilisation to prevent further swelling and haematologists recommended life-long warfarin therapy. He was also seen by a dietician who educated him about dietary habits harmful for his condition. His symptoms started to resolve and his condition settled. The doses of warfarin were adjusted according to the INR results.

Eighteen days after being admitted in the hospital, the patient expressed his wish to travel back to his home country to proceed with therapy and follow-up.

On discharge, the patient was conscious, oriented and vitally stable. He occasionally complained of intermittent mild lower back and thigh pains. The patient was advised to measure factor V Leiden in his home country.

DISCUSSION

IVC thrombosis is a rare condition that is not routinely considered in patients presenting with low back pain in the absence of other findings.¹ The well-known triad of Virchow describes

Figure 3 Axial (A) and coronal (B) CT of the abdomen showing the thrombosis and dilation of the infrarenal part of the inferior vena cava on the second day of presentation.

hypercoagulability, alterations in blood flow (stasis) and endothelial injury as the major contributors of thrombosis. Diagnosis of thrombosis of the IVC is challenging because of the variable spectrum of signs and symptoms, ranging from asymptomatic incidental findings to life-threatening pulmonary embolism,² with bilateral lower extremity swelling and dilation of superficial veins being the most commonly described presentations, accounting for 50% of cases; other described presentations include lower back pain, nephrotic syndrome and hepatic engorgement.³ Haematological investigations of IVC thrombosis show raised WCCs, C reactive protein and D-dimer.⁴ Among the radiological investigations, contrast venography remains the gold standard for diagnosis of IVC thrombosis as it has a low false-positive rate and allows access for immediate treatment if

required, bearing in mind that it is an invasive procedure and could be complicated by postprocedural deep vein thrombosis.⁵ Treatment options include medical, endovascular and surgical measures.⁶

In our case, the initial symptom of presentation of the condition was solely lower back pain. All other presenting symptoms and signs were not seen until the second day. We are presenting this case suggesting that lower back pain could be the initial presenting symptom of IVC thrombosis.

Contributors MT was involved in writing the manuscript. SAM took part in supervising the manuscript. VMB and MJA undertook final revision and made corrections to the manuscript.

Competing interests None.

Patient consent Obtained.

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Learning points

- ▶ Severe low back pain could be the initial and only presenting symptom of inferior vena cava thrombosis.
- ▶ History of long-haul travel and/or heavy smoking should alert the physician to the possibility of underlying venous thrombosis.
- ▶ Contrast-enhanced CTs are advisable in high-risk patients with suspected thrombosis of the inferior vena cava, as ultrasound Doppler cannot detect thrombi in the retroperitoneal inferior vena cava.

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