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Loin to groin pain: The importance of a differential diagnosis

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ABSTRACT

INTRODUCTION: Ureteric colic frequently presents as loin to groin pain and accounts for a significant proportion of emergency urological admissions. However, a number of differential diagnoses should be considered in a systematic approach when assessing patients.
PRESENTATION OF CASE: We report a case of a 30 year old man admitted with severe unilateral loin to groin pain following lumbar specific weightlifting exercises. After a significant delay due to initial mis-diagnosis he was diagnosed with acute paravertebral lumbar compartment syndrome (PVCS) and managed conservatively.
DISCUSSION: Exertional PVCS is a rare and potentially life threatening condition arising following lumbar specific exercise that has only been recorded a handful of times previously. Patients typically present with intractable lumbar pain and rhabdomyolysis 6–12 h following exercise. Due to initial diagnostic delay our case was managed conservatively with fluid resuscitation and monitoring of renal function.
CONCLUSION: Assessment of patients with loin pain requires a systematic approach. PVCS is a rare cause of lumbar back and loin pain but one that should be considered, particularly in active young males. Early diagnosis is key to prevent the potential sequalae of untreated rhabdomyolysis. There is currently no consensus on management option for PVCS with only a few cases being reported in the literature. We describe successful management with supportive non operative treatment.

1. Case report

A 30 year old male presented to the emergency department complaining of acute severe left loin pain with a visual analogue score of 10 radiating to his groin. He had vomited four times and was complaining of dysuria and discoloured urine. He had no significant past medical history and took no regular medications. He admitted to smoking cannabis daily but denied other substance misuse. On examination he was afebrile and haemodynamically stable. His chest was clear and abdominal examination revealed left renal angle tenderness with voluntary guarding. Laboratory investigations revealed white cells of 15×10^9/L (reference range $4–11 \times 10^9$/L) with a neutrophilia of 13×10^9/L (reference range $1.5–7 \times 10^9$/L). CRP was within normal limits. Urine dip was positive for three plus blood. The patient's main concern was that he had a trapped nerve from a weights session the night before.

He was initially diagnosed with renal colic and admitted for intravenous opioid analgesia and fluid resuscitation. CT kidney, ureter, bladder the next day was difficult to interpret due to paucity of intra-abdominal and retroperitoneal fat but revealed left sided calcifications adjacent to the expected position of the vesicoureteric junction. No proximal obstruction could be visualised and therefore excretory urogram was arranged to confirm the calcification position. Laboratory tests were repeated including liver function tests revealing an AST of 378 U/L (reference range 10–36 U/L). The following day CT urogram reported the pelvic calcifications to be phleboliths lying outside the urinary tract.

The patient was reassessed and found to still be very tender in lumbar area, but also noted to have paravertebral paraesthesia overlying a 10 cm × 15 cm area. Flexion and extension of the spine significantly worsened his pain, as did left hip flexion. Further specifics to the history were clarified; he had participated in a dead-lifting weight training session targeting the lumbar muscle groups. MSU remained positive for 3+ blood only. Creatine phosphokinase and LDH were markedly raised, at 42,000 IU/L, and 1314 IU/L respectively. Urine sample was sent to the lab revealing high levels of myoglobin.

The CT urogram was then re-examined, and the possibility of enlargement and decreased density of the left paravertebral muscles was raised, with an MRI suggested for further investigation (Fig. 1). The MRI confirmed a diagnosis of erector spinae rhabdomyolysis and compartment syndrome with increased uptake in the left paravertebral muscles suggestive of oedema (Fig. 2).

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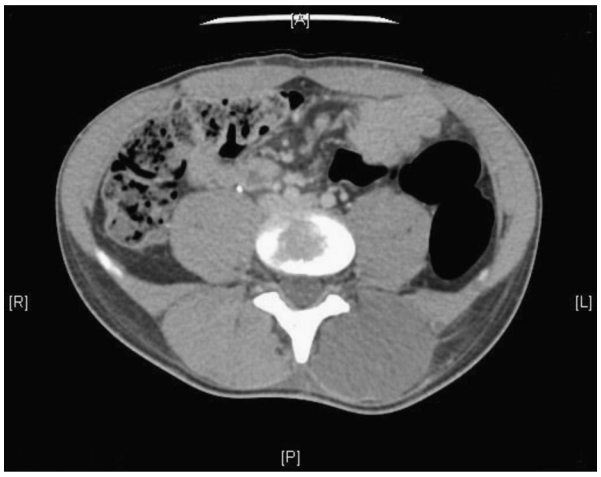

Fig. 1. CT urogram showing enlargement and decreased density of left sided paravertebral muscles. This was not reported on the original scan.

The patient was managed with intravenous fluids resuscitation and analgesia as supportive therapy. The role of surgical fascia decompression was limited due to the risk of introducing infection. Renal function was monitored closely with daily urea, electrolytes, base excess and serum pH being performed. Over the following days CPK increased to 68,000 IU/L before recovering without operative intervention (Fig. 3).

He was discharged around two weeks post admission with significant improvement in back pain and function. At one week post discharge his CK was 224 IU/L, with lumbar pain and parenthesis completely resolved.

2. Discussion

This case demonstrates the importance of having a broad base of differential diagnoses. Loin pain accounts for 25–35% of emergency urological admissions, but only 64% due to renal calculi confirmed on CT [1]. Acute paravertebral lumbar compartment syndrome is a rare differential diagnosis of loin pain, but this case highlights the need for a systematic approach when assessing patients.

Compartment syndrome (CS) has various aetiologies and was first described by Von Volkmann in 1881. CS is caused by raised intra-compartmental pressure of the interstitium over its capillary perfusion pressure impairing capillary flow [2]. Interruption of the local microcirculation causes endothelial destruction, capillary leak, protein loss and accumulation of fluid in the interstitial and intracellular spaces resulting in lack of blood flow to tissues and ischaemia [3]. Untreated, ischaemic tissues can be irreversibly damaged, releasing high levels of muscle enzymes with resulting rhabdomyolysis and acute kidney injury. Treatment is typically with urgent surgical decompression and rehydration to induce diuresis. Initial delay in diagnosis influenced the decision to treat our patient conservatively, as it has been previously demonstrated that in cases of CS with delayed diagnosis >48 h the post-operative risk of infection out weights the benefits of surgery [4].

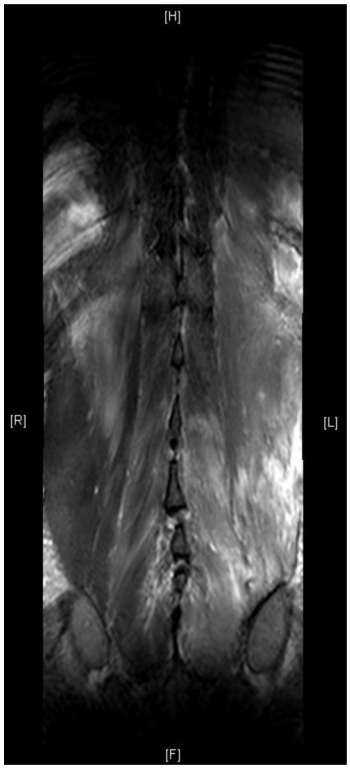

Fig. 2. MRI lumbar spine with contrast showing enhancement and increased signal of the left erector spinae muscle complex consistent with acute myositis and rhabdomyolysis.

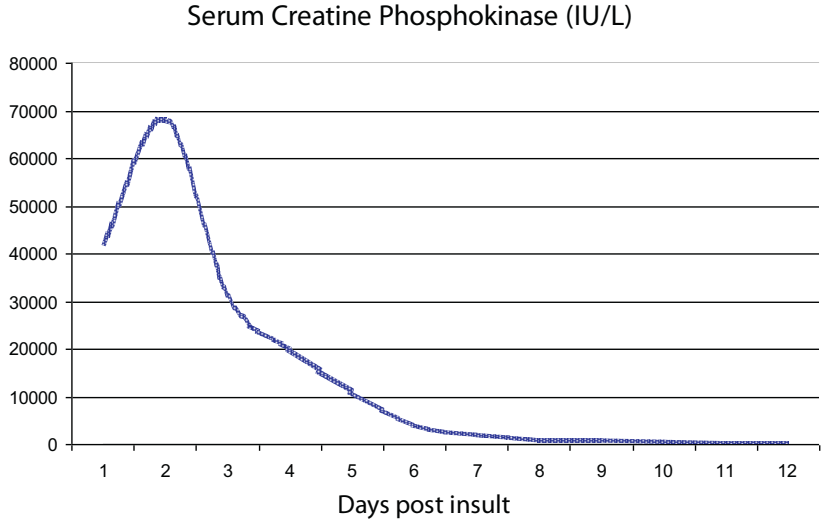

Fig. 3. Serum creatine phosphokinase over time.