

## Physical Signs Unusual causes of calf swelling – 2

# Rhabdomyolysis mimicking deep vein thrombosis

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**Summary:** A 55 year old woman with pain and swelling of the leg was heparinized on the basis of a clinically diagnosed ilio-femoral deep vein thrombosis (DVT). Subsequent investigation showed her to have extensive rhabdomyolysis of the leg. Rhabdomyolysis can mimic the appearance of deep vein thrombosis and this case further illustrates the importance of venography in the assessment of the swollen leg.

### Introduction

There are numerous causes of a swollen leg which require different therapeutic measures.<sup>1</sup> One of the commonest is an acute deep vein thrombosis (DVT) and while it is well recognized that the clinical diagnosis of DVT is insensitive<sup>2,3</sup> further investigation is not always performed in this condition.<sup>4</sup> We present a case of rhabdomyolysis which closely mimicked an acute DVT and where treatment with anticoagulation had possible adverse effects.

### Case report

A 55 year old woman gave a 14-hour history of severe cramp-like pain, affecting mainly the calf of the left leg, associated with swelling, numbness and weakness such that she had become unable to weight bear on the leg. The patient consumed over 1 bottle of vodka at weekends. On examination the patient had a markedly swollen leg with tenderness over the calf muscles, a positive Homan's sign and diminished power and sensation in the leg. The clinical diagnosis of the referring general practitioner, medical registrar and consultant was of a left ilio-femoral DVT and the patient was heparinized. No urine was available for analysis on admission but it was recorded subsequently that her urine was black with a large amount of blood and protein as detected by 'Multistix'. Bilateral ascending venography, performed on the day following admission, was entirely normal. The infusion was therefore stopped, the patient having already received

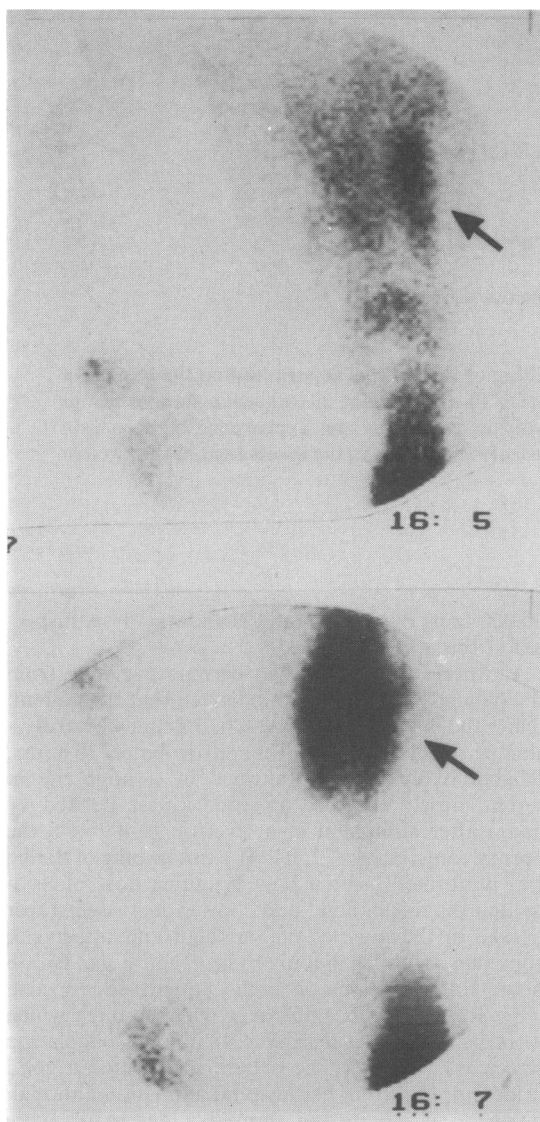
20,000 units of heparin, and rhabdomyolysis suspected at this stage.

Further information then became available from the patient's husband who indicated that the patient, under the influence of alcohol, had slept awkwardly – slumped double in a chair for approximately 10 hours. Rhabdomyolysis was confirmed by a huge rise in serum muscle enzymes (creatinine kinase peaked 24 hours after admission at a level of 94,400 U/l, the normal range being < 150 U/l). Scintigraphy of the leg was performed using a bone scanning dose of technetium diphosphonate<sup>5</sup> and showed increased tracer uptake in the muscles of the thigh and upper calf consistent with rhabdomyolysis (Figure 1). By 36 hours following admission the patient developed a large area of skin haemorrhage over the thigh which worsened over the subsequent 48 hours. Coagulation screen was normal. The patient maintained a good urine output during her hospital admission although biochemical monitoring showed a degree of acute renal failure which resolved spontaneously. By day 15 of her admission the muscle enzymes had returned to normal as had her renal function. With pressure stockings and intensive physiotherapy her leg had improved and she was able to weight bear with a walking stick which she required for a further 5 months.

### Discussion

The clinical diagnosis of DVT is known to be inaccurate: venography confirms only 50% of cases suspected clinically, while 50% of post-operative DVT

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**Figure 1** Technetium diphosphonate bone scan of both legs showing right and left thigh (upper image) and calves (lower image) with anterior projection. Marked extraosseous uptake of tracer is seen in the muscle of the left thigh and calf (areas both arrowed).

(diagnosed by fibrinogen leg scans) have no clinical signs or symptoms.<sup>2,3</sup> Non-traumatic rhabdomyolysis is generally attributed to the development of pressure myonecrosis, during a period of depressed consciousness, and muscle swelling occurs in 6–74% of cases.<sup>6–8</sup> In the surveys of rhabdomyolysis there is no mention of the muscle swelling mimicking a DVT<sup>6–8</sup> and in reviews of DVT, rhabdomyolysis is not listed as a differential diagnosis.<sup>2,3</sup> In our patient the involvement of calf and thigh muscle presented a very typical picture of an ilio-femoral DVT, although the leg weakness and impaired sensation were unusual. In retrospect it seems likely that the muscle swelling had led to nerve compression resulting in impaired sensation. In addition the presence of dark urine, which was noted after her admission, should have suggested an alternative diagnosis to venous thrombosis. It should be noted however that, in general, urine testing is not a sensitive clue to the presence of rhabdomyolysis.<sup>8</sup> Our patient was slightly unusual in view of the extent of the muscle necrosis of the leg, as evidenced by the huge rise in muscle enzymes and also by the changes seen on scintigraphy of the leg. Although the patient only received a small quantity of heparin she developed widespread skin haemorrhage over the leg following her anticoagulation, and it is conceivable that she may have bled into the large area of ischaemic, oedematous muscle, thus adding to the morbidity of the condition.

Unfortunately the important history of acute alcohol intoxication and leg compression was not forthcoming from the patient and other studies of patients with rhabdomyolysis have also commented on the misleading or unreliable clinical history given by these patients.<sup>6,8</sup> This is perhaps not surprising since alcohol is the commonest aetiological factor found in patients with non-traumatic rhabdomyolysis.<sup>7,8</sup>

In summary we think that rhabdomyolysis should be added to the list of causes of an acute swollen leg which may rarely mimic a DVT.

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