

The tight pants syndrome – a sporting variant

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Summary

Tight neoprene ‘warm pants’ are increasingly utilised by sportsmen to prevent muscular injury. However, they may impede venous flow from the legs. We describe a case of extensive proximal deep vein thrombosis with subsequent pulmonary embolism in a fit young man with previous hip trauma.

Keywords: tight pants, deep vein thrombosis

The ‘tight pants syndrome’¹ describes a collection of gastrointestinal symptoms caused by wearing overtight trousers which interfere with the unidirectional motion of intestinal peristalsis (box 1). This self-induced problem is usually not intentional, but caused by patients underestimating their actual abdominal girth. On the other hand, tight sports pants are deliberately chosen by sportsmen to reduce injury and strain. These ‘warm pants’ are designed to stimulate blood circulation by massage, and counteract swelling through uniform compression. The pants comprise an

Features of the tight pants syndrome

- abdominal discomfort
- abdominal bloating
- heart burn
- frequent eructations
- palpitations
- abdominal girth > 7.5 cm greater than pants waistband

Box 1

outer nylon covering which encloses 3 mm cellular neoprene which compresses from the lower abdomen to the mid-thigh. The sewn edges are heavy duty, double-stitched and reinforced. We report a problem associated with this garment, and suggest a further, and much more serious component of the tight pants syndrome.

Case report

A 25-year-old man presented with pain and swelling of his left leg. Four years earlier, he



Figure 1 Venogram showing upper limit of the extensive deep vein thrombosis.



Figure 2 Constriction over the thigh made by the re-inforced seam of the warm pants.

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Learning points

- tight neoprene warm pants are being increasingly utilised by sportsmen and women
- contact dermatitis is the only known problem so far
- venous obstruction may occur, and these pants may predispose to venous thrombosis in at risk individuals

Box 2

sustained a fracture dislocation of the left hip following a road traffic accident which was complicated by avascular necrosis of the femoral head. This had resulted in stiffness of the left hip limiting him to 90° of flexion with limited rotation. Despite this and additional chondromalacia patellae of the left knee, he kept himself fit by weight training and static bicycling. Five months previously he had acquired a pair of neoprene sports support shorts to help his exercises. Following prolonged static bicycling whilst wearing his warm pants on the day prior to admission, he had noticed bilateral compression band marks over his thighs. There was no history of thrombophilia, he did not smoke, and had never taken anabolic steroids. Examination of the leg was suggestive of deep vein thrombosis which was confirmed by venography. The radiograms defined thrombus starting from the veins in the calf extending up into the popliteal and femoral veins, but not beyond the sapheno-femoral junction. The upper limit of the

thrombus was well demarcated, and at a level which corresponded to the distal leg seam of the warm pants, compatible with external compression (figure 1). Haemostatic screen² and abdominal ultrasound were normal.

Despite full anticoagulation with heparin and warfarin, he was re-admitted two weeks later with a pulmonary embolism, and an inferior caval filter was therefore inserted to prevent further complications.

Discussion

Deep vein thrombosis may follow sudden muscular effort or trauma, and has been seen in keep-fit enthusiasts, where increased intraluminal pressure and endothelial contusion play a role in pathogenesis.^{3,4} The risk is further increased in patients who have suffered leg trauma, including hip surgery. Warm pants are marketed for a wide range of sports and other injuries, and are designed to provide uniform compression, although the reinforced seams may cause a localised pressure band (figure 2). Whilst the pants may control swelling within the covered area, any exercise induced swelling outside the garment will not be controlled allowing an exacerbation of this tourniquet effect, slowing venous return and allowing venous pooling. The only medical problem described so far with neoprene warm pants is contact dermatitis,⁵ but this case may suggest a far more serious risk, at least for those with pre-existing leg trauma.

1 Bessa O. Tight pants syndrome: a new title for an old problem and often encountered medical problem. *Arch Intern Med* 1993; 153: 1396.

2 British Committee for Standards in Haematology. Guidelines on the investigation and management of thrombophilia. *J Clin Pathol* 1990; 43: 703–9.

3 Crane C. Deep vein thrombosis in leg following effort strain. *N Engl J Med* 1952; 246: 529–33.

4 Bramhall S, Winslet MC. Fatal pulmonary embolus in a keep-fit enthusiast. *Br J Hosp Med* 1993; 50: 342.

5 Meding B, Baum H, Bruze M, Roupe G, Trulsson L. Allergic contact dermatitis from diphenylthiourea in Vulcan heat retainers. *Contact Dermatitis* 1990; 22: 8–12.