Case Report

Compression of femoral vein by the strap of a urine-collecting device in a spinal cord injury patient

S Vaidyanathan^{*1}, R Parry¹, BM Soni¹, G Singh¹ and P Sett¹

¹Regional Spinal Injuries Centre and Department of Radiology, District General Hospital, Southport, Merseyside PR8 6PN, UK

Objective: To report an unusual cause of femoral vein compression in a spinal cord injury (SCI) patient.

Design: A case report of a SCI patient in whom the strap of a urinal produced compression of femoral vein.

Setting: Regional Spinal Injuries Centre, Southport, England.

Subject: A 65-year old male, who had sustained paraplegia at T-10 level 33 years ago, attended the spinal unit for a routine follow-up intravenous urography (IVU). He was wearing a urinal, which was held tightly over the penis by means of two straps coursing over the inguinal regions.

Main outcome measures: IVU was performed by injecting 50 ml of Ultravist-300 via a 23-gauge butterfly needle inserted in a vein over the dorsum of the left foot. After completion of the injection, an X-ray of the pelvis was taken to evaluate the right hip. This showed contrast in the vena profunda femoris, circumflex femoral veins and inter-muscular veins with evidence of compression of proximal femoral vein.

Results: It was suspected that the strap holding the urinal was causing compression of the femoral vein. Therefore, a venogram was performed 5 days later, when the patient had discarded the urinal and the straps. This showed free flow of contrast through the left femoral and iliac veins.

Conclusion: Compression of femoral vein by a strap holding the urinal was discovered serendipitously in this patient during a routine follow-up. Physicians and health professionals should bear in mind this rare complication when examining spinal cord injury patients who use this type of urine collecting device, and discuss with them alternative methods for urinary drainage.

Spinal Cord (2001) 39, 54–56

Keywords: spinal cord injury; femoral vein compression; urine collecting device

Introduction

Patients with spinal cord injury (SCI) may develop femoral vein compression due to certain reasons, which are not usually seen in persons with intact neuraxis. For example, vascular compression by heterotopic ossification may occur, albeit rarely, in SCI patients.¹ We report another unusual cause of femoral vein compression in a spinal cord injury patient.

Case report

A 65-year old male, who had sustained paraplegia at T-10 level 33 years ago, attended the Spinal Injuries Unit for routine follow-up. He has been managing his

bladder by wearing an external collecting device over the penis. The urinal was held tightly over the penis by means of two straps coursing over the inguinal regions. He had noticed swelling of feet and legs in the past. Recently, he felt unsteady over the right hip when he stood up after wearing callipers.

As part of the routine follow-up, intravenous urography (IVU) was performed with 50 ml of Ultravist-300 injected via a 23-gauge butterfly needle inserted in a vein over the dorsum of the left foot. After completion of the injection, an X-ray of the pelvis was taken to evaluate the right hip. This showed no abnormality in the hip, but contrast was seen in the vena profunda femoris, circumflex femoral veins and inter-muscular veins with evidence of compression of proximal femoral vein (Figure 1a).

*Correspondence: Dr S Vaidyanathan, Regional Spinal Injuries Centre, District General Hospital, Town Lane, Southport, Merseyside PR8 6PN, UK

Figure 1 (a) X-ray of pelvis, taken soon after completion of injection of 50 ml of Ultravist-300 in a pedal vein, showed opacification of vena profunda femoris, femoral circumflex veins, and inter-muscular veins. There was compression of proximal femoral vein with very little contrast in the left iliac vein. (b) Clinical photograph of the urinary collecting device: the strap on the left side is digging into the inguinal fold. (c) Venogram, performed 5 days later when the patient had discarded the urinal and the straps, showed free flow of contrast through the left femoral and iliac veins

Physical examination showed no palpable mass in the left iliac fossa or in the inguinal region. It was however noted that the strap holding the urinal in place was tight on the left side, and dug into the inguinal fold (Figure 1b).

It was suspected that the strap holding the urinal was in fact causing compression of the femoral vein. Therefore, a venogram was performed 5 days later, when the patient had discarded the urinal and the straps. This showed free flow of contrast through the left femoral and iliac veins (Figure 1c).

Discussion

Vascular compression due to heterotopic ossification following spinal cord injury has been described.¹ Femoral or iliac vein compression by heterotopic ossification may predispose to venous thrombosis in SCI patients.^{1,2} This case is unique, since there has been no report of compression of femoral vein by a strap holding the urinal in SCI patients, in Medline database.

Nowadays, only a few people with spinal cord injury wear this type of male urinal. Dermatitis of the penis is a known complication of using this urinary collecting device, as a small quantity of urine tends to remain in the urinal all the time. The elastic straps

attached to the urinal have to pull the collecting device against the pubis in order to prevent urine leakage and this was the cause of femoral vein compression in this case. We discussed with this SCI patient possible sequel of femoral vein compression, eg deep vein thrombosis. This patient decided to discard the urinal and the straps, and wear a self-adhesive, silicone, penile sheath and a leg bag.

Summary

Compression of femoral vein by a strap holding the urinal was discovered serendipitously in this case during a routine follow-up IVU. Physicians and health professionals should bear in mind this rare complication when examining spinal cord injury patients who use this device, and advise them to consider alternative methods for urinary drainage.

References

- 1 Colachis SC III, Clinchot DM, Venesy D. Neurovascular complications of heterotopic ossification following spinal cord injury. *Paraplegia* 1993; **31**: 51–57.
- 2 Colachis SC III, Clinchot DM. The association between deep venous thrombosis and heterotopic ossification in patients with acute traumatic spinal cord injury. *Paraplegia* 1993; **31**: 507–512.