Case Report

Two cases of psoas abscess with discitis by methicillin-resistant
*Staphylococcus aureus* as a complication of femoral-vein catheterization
for haemodialysis

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**Introduction**

Percutaneous femoral-vein catheterization is a commonly used method for transient blood access for haemodialysis patients. The most frequent complication of the catheterization is catheter infection [1,2]. We experienced two cases of psoas abscess with discitis followed by catheter infection. This is the first report of psoas abscess as a complication of the femoral double-lumen catheter.

**Cases**

**Case 1**

The first case was a 53-year-old woman with diabetic nephropathy and chronic renal failure. The patient had been diabetic for at least 14 years. She underwent a left nephrectomy for staghorn calculus when she was 40 years old. The patient was admitted to our hospital in June 1995 because of chronic renal failure and ascites. Haemodialysis was started in September following which the amount of ascites gradually decreased. In spite of efforts to create a shunt for blood access in both forearms, blood flow remained insufficient for haemodialysis. It was necessary to use a double-lumen catheter (Shaldon’s catheter) in the femoral vein for haemodialysis until March 1996 when the shunt flow became sufficient. To avoid catheter infection, we carefully changed the catheter and position of the insertion sites every 3 or 4 weeks.

On 24 February 1996, a high-grade fever (39°C) suddenly appeared. We removed the double-lumen catheter from the patient’s left femoral vein on the same day. Her body temperature decreased to 37°C over the next 3 days, but increased to 39.5°C again on 28 February. The patient began to complain of severe left lumbago and gait disturbance and could not extend her left hip joint (the so-called psoas position) because of severe pain. A CT scan on 28 February showed no obvious abnormality, but a large multicentric abscess over the next 3 days, but increased to 39.5°C again on 28 February. The patient began to complain of severe left lumbago and gait disturbance and could not extend her left hip joint (the so-called psoas position) because of severe pain. A CT scan on 28 February showed no obvious abnormality, but a large multicentric abscess in her left psoas muscle was demonstrated 1 week later (Figure 1). An MRI revealed discitis in the L4/5 disc which faced the psoas abscess (Figure 2).

Aspiration drainage of the abscess was performed under the X-ray imaging on 14 March, and about 15 ml of yellowish, foul-smelling pus was recovered. Methicillin-resistant *Staphylococcus aureus* (MRSA) was identified from culture. Blood culture on 28 February also demonstrated MRSA. We started intravenous treatment with vancomycin 0.5 g every 2
days. The fever and lumbago gradually improved and the patient was able to walk 3 weeks later. A CT scan performed on 22 March revealed scarring of the abscess.

**Case 2**

The second case was a 64-year-old man with chronic renal failure due to chronic glomerular nephritis. Haemodialysis treatment was necessary from January 1996. Renal-cell carcinoma was found in his left kidney and a nephrectomy was performed in February 1996. Although the patient’s condition was fair, his blood shunt occluded on 5 February. Haemodialysis was performed using a double-lumen catheter inserted in the femoral vein. On 29 February, a slight increase in body temperature (37.5°C) was observed but disappeared spontaneously on the following day. Four days later, the patient complained of fever and left lumbago. The lumbago gradually became more severe over the following week. On physical examination he could not extend his left hip joint because of severe pain. A CT (15 March) demonstrated an abscess (5 × 2 × 4 cm) in the upper portion of the left psoas muscle (Figure 3). An MRI demonstrated discitis in the Th₁₂/L₁ disc. In this case, we could not perform drainage of the abscess because its position was very close to the peritoneum, and an operation using a needle was considered dangerous. MRSA was detected by blood culture at the time of high-grade fever. Intravenous treatment with vancomycin was delivered as in Case 1 and the fever and pain gradually improved.

**Discussion**

Percutaneous venous catheterization, first described by Shaldon et al. in 1963 [3], is currently a popular method for transient blood access for haemodialysis. The femoral vein has many advantages for percutaneous venous cannulation. Prolonged femoral catheterization, however, is associated with a higher infection rate than either the subclavian or internal jugular sites [1,2]. Bacteraemia is frequently observed following catheter infections, but psoas abscess is extremely rare. To our knowledge, this is the first report of psoas abscess as a complication of femoral-vein catheterization.

Secondary psoas abscess occurs not only by direct spread from contiguous structures but also by haematogenous spread from a distant site [4–8]. The most common cause is Crohn’s disease, and other inflammations or neoplasms in the pelvic area have been reported. The anatomical structures of lumber veins and ascending lumber vein are thought to be responsible for the occurrence of psoas abscess and discitis. Interestingly, the two cases in the present report have strikingly common features. First, both cases underwent left nephrectomy though for different reason (staghorn calculus in Case 1 and renal-cell carcinoma in Case 2). Second, in both cases the psoas abscess developed in the left psoas muscle when double-lumen catheters were used in the left femoral veins. Third, both psoas abscesses produced discitis in the adjacent lumber discs. There is a possibility that the anatomical changes in the lumbar veins or ascending lumber vein caused by the nephrectomy are involved in the pathogenesis of psoas abscesses with discitis as a complication of catheterization.

Percutaneous drainage and chemotherapy is the recommended treatment for psoas abscess [5–9]. We performed drainage for Case 1, but could not for Case 2 because of the location of the abscess. Though the recovery of Case 2 was slower than that of Case 1, the
treatment was successful. Intravenous vancomycin administration was effective for MRSA abscesses in these cases.

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References


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