Primary pyogenic abscess of the psoas muscle

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Summary. During a six-year period, eleven persons with primary pyogenic abscess of the psoas muscle were treated at the Mackay Memorial Hospital. Five were males and six were females and their average age was 47.2 years (range 6–83 years). The abscess was identified by CT in 7 patients, MRI in 2 and ultrasonography in 1. One abscess was found during laparotomy. Treatment included extraperitoneal drainage of the abscess in 7 patients and CT guided aspiration in 3. One patient improved after antibiotic therapy and they all recovered after treatment. The diagnosis of primary pyogenic abscess requires a high index of suspicion and the best treatment is early operative drainage and administration of systemic antibiotics.

Résumé. Sur une période de 6 ans nous avons traité 11 abcès pyogéniques primaires du psoas au Mackay Memorial Hospital. Ces cas comprenaient cinq hommes et trois femmes. Leur âge moyen étaient de 47.2 ans (compris entre 6 et 83 ans). Sept cas ont été identifiés à l'aide d'un scanner, deux l'ont été par résonance magnétique et un par échographie. Un dernier cas a été observé à l'occasion d'une laparotomie. Le traitement comprenait dans sept cas un drainage extrapéritonéal ainsi que trois suctions guidées sous scanner. Un cas s'est amélioré à la suite d'un traitement antibiotique. Tous les patients ont récupéré à la suite de ce traitement. Le diagnostic d'un abcès pyo-

génique primaire nécessite un indice de probabilité élevé et son meilleur traitement consiste à effectuer un drainage chirurgical et à prescrire des antibiotiques systémiques.

Introduction

Because there are no specific symptoms and signs, the diagnosis and treatment of a primary pyogenic psoas abscess are almost always delayed. In this paper, we present our clinical experience of 11 cases and discuss the problems we faced in making the diagnosis.

Clinical materials and methods

During 1989–1994, primary pyogenic psoas abscess was diagnosed in 11 patients at the Mackay Memorial Hospital. Six were female and five were male and their ages ranged from 6 to 83 years (average 47.2 years).

Results

The diagnoses on admission were disparate, and a diagnosis of “possible psoas abscess” was made in only 2 patients. Delay in diagnosis was frequent ranging from 6 to 34 days. The condition in all our patients was diagnosed as “primary” because none of them had an obvious focus of infection of contiguous structures and the aetiology was unknown. The symptoms and signs were generally non-specific. Back pain in different locations was the cardinal symptom while fever was present in 6 patients. “Knocking” pain at the costovertebral

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Fig. 1. Plain radiograph of the abdomen showing absence of the psoas shadow

Fig. 2. CT scan showing psoas abscess

angle and the psoas sign of pain on extension and internal rotation of the hip were the most common presenting features.

Eight of the patients had leucocytosis with total counts ranging from 5.8 to 28.3×10^3 . The ESR was elevated in every instance. Anaemia was not common and only one affected person had a haemoglobin level less than 10 gm/dl. Plain radiographs showed absence of a psoas shadow in 5 cases (Fig. 1). Other radiographic findings included scoliosis in 1 patient and intestinal dilata-

Fig. 3. MRI scan showing psoas abscess on the left side

tion in 3. Chest X-ray revealed a pleural effusion in one patient. CT identified the psoas abscess in 7 persons (Fig. 2), MRI in 2 (Fig. 3) and ultrasonography in one. One abscess was found during laparotomy. Management included surgical drainage in 6 individuals and CT-guided percutaneous drainage in 3. Surgical drainage was used in one patient after failure of the latter procedure. Another improved after antibiotic therapy, without additional measures.

The pus seen at drainage was yellowish and turbid in the majority of the patients and the amount ranged from 20 – 500 cc. Culture resulted in growth of *Staphylococcus aureus* in 8 cases and *E.coli* in one. All patients improved after systemic antibiotic therapy and proper drainage. The average duration of treatment with antibiotics was 31.4 days (21–52 days).

Discussion

The psoas muscle is located in the iliopsoas compartment [1] which is an extraperitoneal space defined by the iliopsoas fascia. The anterior border of the iliopsoas fascia is also termed the "transversalis fascia" and anterior to the transversalis fascia is the retroperitoneal space. A pyogenic psoas abscess is a retrofascial infection rather than a retroperitoneal infection [2]. Up until 1993, only 434 cases had been reported, of which 315 were primary (72.6%) [3, 4].

The symptoms and signs in psoas abscess are nonspecific. Pain, especially in the back, is the most common complaint but the location is variable. Internal rotation and extension of the hip stretches the psoas muscle and causes pain (the psoas sign). Pus may also enter the adductor angle and cause pain in the proximal part of the thigh. In

children, there may be difficulty in differentiation from primary hip disease.

Anaemia, leucocytosis with a shift to the left and an elevated ESR are common [2, 3, 5, 7]. In our series, 8 patients had leucocytosis, one had anaemia, and the ESR was elevated in each. All of these findings were non-specific.

The most significant features on a plain radiograph of the abdomen are loss of definition of the psoas muscle and gas in the soft tissues [5]. Five of our patients had no psoas muscle shadow on the plain film. Unfortunately, this finding may also be present in a healthy person and it correlates poorly with a lesion in the psoas muscle [5, 6]. A chest X-ray may show elevation of the diaphragm and pleural effusion [7] but only one patient in our series had a pleural effusion. Urography may reveal deviation of the ureter or displacement of the kidney but no patient in our group underwent this investigation.

CT and ultrasonography are better techniques than conventional radiography for demonstrating a psoas abscess [2–4, 7] and can help in diagnostic confirmation in 95–100% of cases. Ultrasonography is less expensive and easily applied, but is less accurate than CT and MRI [8]. A CT scan is the best technique for demonstrating a psoas abscess and it can indicate the lesion size and the extent of inflammation. Nevertheless, it is not sufficiently specific for the differentiation of a psoas abscess, a neoplasm or a haematoma [9], although MRI is effective in their discrimination. In our series, the abscess was demonstrated by CT scan in 7 patients and by MRI examination in two. The disadvantages are that MRI is expensive, cortical or trabecular bone identification is poor and the equipment is often not available outside specialised centres [8].

Staphylococcus aureus is the most common pathogen in primary psoas abscesses [5]. Some authors have speculated that suppurative lymphadenitis [11, 12] and trauma with the formation of a haematoma may be the mechanism of infection. Effective drainage is still the best approach to

treatment of a psoas abscess although CT-guided percutaneous drainage is often utilised initially because it is a less destructive procedure than surgical exploration.

The duration of antibiotic usage has not been widely discussed but a three week course after the patient becomes afebrile might be appropriate [5]. In our series, antibiotics were generally prescribed for 4 to 6 weeks.

With adequate treatment, the mortality rate for primary psoas abscess is only 2.4% [3]. Fortunately, there were no deaths in our series and all our patients recovered completely. A high index of suspicion, early diagnosis, and adequate treatment are essential for effective management.

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