BASELINE AUDIT OF THE AETIOLOGY, PATHOLOGY AND MANAGEMENT OF PSOAS ABSCESS AT FURNESS GENERAL HOSPITAL

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INTRODUCTION

Psoas abscess is relatively uncommon, with a reported incidence of 0.4 cases per 100,000 population per year⁽¹⁾. One should, however, have a high index of suspicion in patients who have swinging pyrexia, anaemia and elevated white blood count (WBC) with loin pains, more so if these are associated with known disease that could give rise to psoas abscess – namely, gastrointestinal problems (Crohn’s disease, diverticular disease and carcinoma of the colon)⁽¹⁾, osteomyelitis of the spine and pyonephrosis⁽²⁾.

Psoas abscess can be primary (30%) or secondary (70% of cases). The primary type arises from haematogenous or lymphatic spread and the secondary type from pathologies of the gastrointestinal system, the spine and the renal tract.

AIM

The aim of the audit was to collect the cases of proven psoas abscess presenting at Furness General Hospital between January 1997 and December 1999, and to determine the cause, investigation, management and outcome of the condition.

METHOD

A retrospective case note review was done of all patients under the care of general or orthopaedic surgeons over a three-year period between January 1997 and December 1999 with primary or secondary psoas abscess. A proforma was designed for retrospective data collection and the information was analysed in EPI Info V6.4, a World Health Organisation database and statistical package.

RESULTS

Five patients (three male and two female) were identified during this three-year period. The median age was 68 years (range 58-85 years).

They all felt unwell and with pyrexia temperature $\geq 38^{\circ}\text{C}$ and tachycardia of $\geq 100\text{bpm}$. The other common symptoms on presentation were flexion deformity of the hip, swelling of the loin, flank pain and back pain (Figure 1).

Three presented with the abscess on the right side and two on the left. The bacteriology showed streptococcus organism⁽²⁾, bacteroides⁽²⁾, *E coli*⁽¹⁾, staphylococcus⁽¹⁾ and proteus mirabilis⁽¹⁾. The abscesses were secondary to colonic malignancy, appendicitis, osteomyelitis, kidney stones and discitis (Figure 2). There were no primary abscesses.

Symptoms	Number of Patients
Feeling unwell	2
Flexion deformity of hip/pain	3
Swelling join	3
Pyrexia	5
Flank pain	4
Back pain	2
Site of abscess: Right = 3 Left = 2	

Figure 1

Patients	Treatment	Cause of abscess	Complication
1	(1) Ultrasound/ guided drainage (2) open drainage	Pyonephrosis	Discharging sinus
2	(1) Ultrasound/ guided drainage (2) larger calibre drain	Lumbar osteomyelitis	Flexion deformity of hip (physio) Hydronephrosis Discharging sinus
3	(1) Ultrasound/ guided drainage (2) radiotherapy to abscess cavity	Colonic	Renal
4	(1) Open retroperitoneal drainage (2) Re-insertion of drain	Retro-caecal appendicitis	Recurrence after one week Flexion deformity Discharging sinus
5	(1) Antibiotics Long-term	Discitis	Inferior Vena Cava IVC thrombosis

Figure 2

DIAGNOSIS

Of the five patients, two initially presented to the medical unit, two to the orthopaedic unit and only one directly to the surgical unit. The referral rate was largely determined by the mode of presentation. The delay in diagnosis ranged from seven to twenty-eight days and some delay in diagnosis of psoas abscess occurred in all cases (Figure 3).

The WBC was elevated in all five cases with marked neutrophilia, and a very high ESR mean of 70 (range 30-100). They were all anaemic and three had deranged liver

Patient	Age/Sex	Time to diagnosis (days)
1	67 years Female	8
2	64 years Female	14
3	67 years Male	14
4	85 years Male	7
5	58 years Male	28

Figure 3

function tests. CRP was done in only one case and was grossly elevated at 97. Plain abdomen X-ray did not detect any abnormality. Ultrasound was diagnostic in three of the five (60%) and CT was diagnostic in all cases. MRI was performed in only one case, and the abscess was demonstrated.

Patient 1

Presented as an outpatient with swelling in the left loin, dull ache and vague tenderness. Abdominal ultrasound revealed a 5cm collection with some internal echoes deep in the retro-peritoneum around the kidney. CT scan confirmed a psoas abscess, extending from the upper pole of the left kidney, with some calcifications at the upper left pole of the kidney. She had an ultrasound-guided aspiration, followed by open drainage. She continued to have a discharging sinus through which she subsequently passed several calculi.

Patient 2

Admitted into the medical unit initially as pyrexia of unknown origin (PUO). Plain abdominal X-ray showed degenerative lumbar spine and abdominal ultrasound revealed a large psoas abscess on the right with hydronephrosis. CT scan confirmed the psoas abscess with destruction of L5 and S1 vertebrae body suggestive of osteomyelitis. She had ultrasound-guided aspiration and insertion of a large-calibre drain. She needed some parenteral nutrition.

Patient 3

Admitted by the medical unit with fever, abdominal pain and a vague abdominal mass. He had a past history of carcinoma of the rectum, for which he had abdomino-perineal resection three years earlier. Abdominal ultrasound showed a mass in the left iliac fossa and CT confirmed a huge left psoas collection of 8.5cm. He then had CT-guided aspiration and biopsy showed it to be malignant. He had a colectomy and ileostomy. He had a recurrence of the abscess, which was drained by CT-guided aspiration, and radiotherapy to the abscess cavity.

Patient 4

Presented to the orthopaedic unit with a recurrent dislocated total hip replacement, with pyrexia and mass in the right flank. Abdominal ultrasound showed a large mass in the right iliac fossa and CT confirmed a large psoas abscess closely related to loops of bowel. Bone scan showed localised hip infection, not related to the abscess. He had a retro-peritoneal drainage of the abscess that turned out to be secondary to retro-caecal appendicitis.

Patient 5

Presented to the orthopaedic unit with back pain, pyrexia and a painful hip. Four years earlier he had had a right psoas abscess and was known to have hereditary telangiectasia. Bone scan showed increased activity due to spondylitis and MRI scan showed discitis. The diagnosis was not apparent until MRI scan confirmed the abscess retro-peritoneally. He was treated with only antibiotics for three months and a spine jacket.

TREATMENT

Three patients had ultrasound-guided percutaneous drainage of the abscess performed by the radiologists (patients 1, 2 and 3) (Figure 2). Patient 2 required a second drainage procedure (a larger calibre percutaneous drain) and patient 1 had a conversion to open drainage. Patient 4 had an initial open retro-peritoneal drainage operation but the abscess reaccumulated after a week, requiring re-insertion of a drain.

Patient 5 was treated with antibiotics alone for three months. All the other four patients had antibiotics as well. Ultimately, resolution of the psoas abscess was achieved in all cases.

UNDERLYING CAUSES

The cause was different in each case (Figure 2). Only one patient, with colonic malignancy, had additional treatment (radiotherapy) to that of the psoas abscess.

COMPLICATIONS

Of the five patients, three had persistent discharging sinus (patients 1, 2 and 4). Two patients developed flexion deformity of the hip, requiring physiotherapy (patients 2 and 4).

Patient 2 developed hydronephrosis. Patient 5, who was managed with antibiotics alone, developed thrombosis of the inferior vena cava, while Patient 3 developed acute renal failure. A late recurrence of psoas abscess developed in Patient 3 after eight months. All patients are currently alive and well.

DISCUSSION

Treatment of psoas abscess can be divided into three phases: treatment of the abscess, treatment of the secondary cause and supportive treatment^(1,2,3,4).

Treatment of the abscess

- antibiotics only, in very small abscesses, although this is usually not the case as the diagnosis tends to be delayed and treatment with antibiotics alone may not suffice⁽⁵⁾
- percutaneous image-guided aspiration and antibiotics. This could be ultrasound- or CT-guided aspiration⁽⁶⁾
- percutaneous drainage, catheter drain and antibiotics. Bowel pathology may be suspected if there is no improvement⁽⁶⁾
- open drainage. This is aimed at treating the underlying cause of the abscess, such as trans-abdominal resection or Crohn's or malignancy, adequate debridement of necrotic psoas muscle and external drainage of the abscess cavity^(7,8).

Treatment of the secondary cause

- trans-abdominal resection of the causal disease eg Crohn's or malignancy
- retroperitoneal debridement eg removal of dead bone in osteomyelitis.

Supportive treatment

- nutritional support. Adequate nutrition is vital to ensure recovery in this catabolic condition. All our patients received nutritional supplements and two were given long courses of parenteral nutrition.
- prophylactic anticoagulation was also given as there is an increased risk of pulmonary embolus⁽³⁾
- arthrotomy of the hip is necessary when an iliopsoas abscess lies adjacent to the hip capsule as this ensures adequate hip debridement⁽⁹⁾.

In our audit, drainage of the psoas abscess using small calibre percutaneous drains proved ineffective in two of the three patients in whom it was employed. Early use of large calibre percutaneous drains might prove to be more successful.

Open drainage was effective in two patients but patients with psoas abscess are usually debilitated and may not always be fit for open surgery.

Patient 5, who was treated with antibiotics alone, had a three-month course. He developed inferior vena cava thrombosis. This case highlights the place for prophylactic anticoagulants in the treatment of psoas abscess. The protracted course of the disease on antibiotics alone suggests that a drainage procedure might have accelerated recovery.

Adequate transabdominal resections as treatment of the secondary cause, such as in Crohn's disease, diverticular disease or malignancy, should be carried out to minimise recurrence⁽¹⁾.

CONCLUSIONS

Psoas abscess is uncommon in our district general hospital with only five cases in three years. The underlying pathology is varied, ranging from gastro-intestinal, bony and renal pathology. The diagnosis is not always immediately apparent as the presentation may vary, depending on the cause.

With appropriate treatment, including drainage of the abscess and treatment of the underlying cause, the outcome is usually favourable.

RECOMMENDATIONS

Large calibre drains (at least gauge 18) should be used when performing ultrasound-guided aspiration.

Open incision and drainage may lead to rapid recovery in selected cases.

CT provides the most specific diagnostic test for this condition and follow-up scans help to monitor the progress of treatment.

Nutritional support should be given and prophylactic anticoagulants considered.

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