The conservative management of acute pyogenic iliopsoas abscess in children

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We describe three cases of acute pyogenic abscess of the iliopsoas in children treated conservatively. Two patients had image-guided aspiration and one was managed with antibiotics alone. All made a complete recovery.

Acute pyogenic abscess of the iliopsoas in children can be treated effectively and safely with intravenous antibiotics and image-guided aspiration of the abscess.

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Acute pyogenic abscess of the iliopsoas is uncommon in children.^{1,2} The clinical presentation is variable and may be confused with other conditions such as septic arthritis of the hip, osteomyelitis or an appendicular abscess.³ A high index of suspicion and awareness of the varying clinical presentation are required to diagnose this condition promptly. Traditionally, it has been treated by operative drainage.³ With modern techniques of imaging such as ultrasound and CT, image-guided percutaneous drainage is now possible. We describe three cases in children who were treated conservatively.

Case Reports

Between January 1992 and December 1995 three children were admitted to our hospital with acute pyogenic abscess of the iliopsoas. Table I gives the clinical details.

Case 1. The initial CT showed a diffusely enlarged right iliacus muscle with adjacent early sacroiliitis (Figs 1a and

1b). Intravenous cloxacillin and ceftazidime were given and two days later she was afebrile. After 15 days, however, the fever returned and a further CT showed a well-defined abscess in the right iliacus muscle (Fig. 1c) with worsening sacroiliitis (Fig. 1d). The abscess was aspirated percutaneously using a 20 G needle under local anaesthesia and CT guidance (Fig. 1e), yielding thick pus which grew *Staphylococcus aureus*. Intravenous antibiotics were continued for a further four weeks, with full recovery (Fig. 1f).

Case 2. An ultrasound scan of the abdomen and hips showed a hypoechoic area $3 \times 5 \times 6$ cm in size in the left iliacus muscle suggesting an abscess (Fig. 2a). This was aspirated under local anaesthesia and ultrasound guidance using an 18 G spinal needle yielding 40 ml of pus which grew *Staphylococcus aureus* (Fig. 2b). Intravenous cloxacillin was started and the patient's temperature decreased. Repeat ultrasound investigation showed that the abscess had increased again requiring further aspiration. CT six days later showed it to be much smaller (Fig. 2c). Antibiotics were continued for six weeks leading to a full recovery.

Case 3. Ultrasound investigation of the abdomen was equivocal in that the psoas muscle was not well seen due to gas in the overlying bowel. CT showed a bulky right psoas muscle with a hypoechoic lesion 1×2 cm in size, consistent with an abscess. The hip was normal. The abscess was small and was not aspirated. Intravenous cloxacillin and ceftazidime were started and the temperature returned to normal on the third day. Further ultrasound investigation on the seventh day showed complete resolution of the abscess. Treatment with antibiotics was continued for four weeks with full recovery.

Discussion

Acute pyogenic abscess of the iliopsoas is uncommon in children and only a small number of cases have been reported.¹⁻⁵ The diagnosis is based on clinical laboratory and radiological findings. The clinical presentation is very variable and can include pain or a mass in the iliac fossa or central abdomen, pain and flexion deformity of the hip, limp and fever.³ In our patients the commonest presenting features were pyrexia and a limp. The hip was held in

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Table I. Details of the clinical presentation, investigations and treatment in three patients with acute pyogenic abscess of the iliopsoas

Case	Sex	Age (yr)	Duration symptoms (days)	Initial symptoms	Fever	Physical findings	WCC ($\times 10^9/l$)	ESR (mm/hr)	Radiological findings	Treatment	Causative organism	Follow-up
1	F	8	4	Right hip and knee pain, limp	+	Hip held in flexion Painful extension	16.6	115	US* normal CT showed enlarged right iliacus + abscess formation	CT-guided aspiration + intravenous antibiotics	<i>Staph. aureus</i>	Full recovery
2	M	4	3	Left hip pain, general irritability	+	Hip held in flexion Painful extension Unable to walk	22.6	60	US showed $3 \times 5 \times 6$ cm abscess in left iliacus	US-guided aspiration (twice) + intravenous antibiotics	<i>Staph. aureus</i>	Full recovery
3	M	3	3	Right groin + and hip pain after a fall		Hip held in flexion Painful extension Limp	19	117	CT showed bulky right psoas with 2×1 cm abscess	Intravenous antibiotics	<i>Staph. aureus</i>	Full recovery

* ultrasound

Fig. 1a

Fig. 1b

Fig. 1c

Fig. 1d

Fig. 1e

Fig. 1f

Case 1. Fig. 1a – Axial non-contrast CT shows a diffusely swollen right iliacus muscle (white arrows) with a central area of low density (black arrow) due to an early abscess.

Fig. 1b – Bone window shows early subchondral cortical destruction on both sides of the right sacroiliac joint (arrow) indicating early sacroiliitis.

Fig. 1c – Axial CT on day 13. The right iliacus muscle remains swollen and the abscess (arrow) is better defined.

Fig. 1d – Bone window shows that the sacroiliitis has progressed.

Fig. 1e – CT-guided needle aspiration (arrows), avoiding the bowel and vessels, yielded pus.

Fig. 1f – Axial CT two months later shows complete resolution of the abscess cavity and muscle swelling. Bone-window settings (not shown) confirmed reparative changes in the right sacroiliac joint.

Fig. 2a

Fig. 2b

Fig. 2c

Case 2. Fig. 2a – Transverse ultrasound image of the side wall of the left pelvis showing a large abscess within the iliacus muscle (arrows). The abscess cavity contains internal echoes representing pus and debris. Fig. 2b – After aspiration, the abscess cavity is smaller (arrows) although still easily appreciable. Four days later, further aspiration yielded more pus. Fig. 2c – Axial CT after the second aspiration shows diffuse swelling of the left iliacus muscle compared with the contralateral muscle. Only a small residual abscess cavity remains (1 cm diameter) (arrow). The sacroiliac joint was intact on bone-window settings (not shown).

flexion with pain on passive extension. It is important to differentiate between primary disease of the hip and an iliopsoas abscess as both give pain in the hip. Passive rotation in flexion was possible in all our cases whereas in primary disease of the hip resistance would have been likely.^{3,5} Further differentiating factors include posterior tenderness in hip disease and pain on rectal examination in an iliopsoas abscess.⁵ Trauma may be a predisposing factor.^{6,7}

Modern imaging techniques allow more rapid diagnosis of iliopsoas pathology.⁸ Ultrasound is quick, safe, cheap and readily available, but CT has the advantage of consistently identifying the iliopsoas muscles and also showing adjacent bony structures. It is unlikely that even coned radiographs of the sacroiliac joint would have shown the early change seen in case 1. CT is more expensive, however, and involves ionising radiation, which is particularly hazardous in children. It is also less readily available in developing countries where iliopsoas abscess is relatively more common.

In the two largest series of the condition reported by Lam and Hodgson,³ and Parbhoo and Govender⁴ all patients were treated by surgical drainage. Malhotra et al⁵ felt that early operative drainage and administration of systemic antibiotics were the best treatment.

Image-guided percutaneous drainage of an iliopsoas abscess has mainly been described in adults,⁹ although Golli et al¹⁰ reported six children with the condition, two of whom had CT-guided percutaneous drainage. This procedure is minimally invasive and avoids an operation with the need for general anaesthesia. In two of our patients aspira-

tion led to complete resolution without the need for percutaneous drainage. It also provided material for culture and thus appropriate antibiotic cover. Aspiration can be repeated if necessary and does not preclude operation at a later stage.

Acute pyogenic abscess of the iliopsoas is uncommon in children and a high index of suspicion is required to diagnose the condition promptly. Ultrasound and CT are useful in the diagnosis. It can be treated effectively and safely by intravenous antibiotics and image-guided aspiration without the need for surgery.

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