Thigh pain—an unusual presentation of ruptured appendicitis

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Abstract

We present a case in a 56-year-old female with a perforated retrocaecal appendicitis presenting as a large right thigh abscess. We discuss the diagnosis and treatment and the importance to refer early to a general surgeon if suspected.

Acute appendicitis is the most frequently encountered surgical condition of the abdomen, with a lifetime risk of 7%. A perforated appendix is a major complication, with an incidence of approximately 16%. There is usually a delay in diagnosis, and perforation can form an appendicular mass or retroperitoneal abscess.\(^1,2\)

Retroperitoneal abscesses often present with very subtle symptoms and signs, making early diagnosis difficult and consequently have high morbidity and mortality rates. The presenting complaint can be thigh pain and swelling with little in the way of abdominal manifestations.\(^3\)

The following case presented to the orthopaedic service with a large right thigh abscess as a result of perforated retrocaecal appendicitis.

Case report

A 56-year-old female presented with a 3-day history of increasing right anterior thigh pain, swelling and inability to weight bear, on a background of 4 weeks of fevers, sweats and intermittent diarrhoea. She denied any abdominal pain, urinary symptoms or recent weight loss.

She had seen her GP 2 weeks prior regarding her fevers, however no source was identified. At that time she was prescribed a 10-day course of roxithromycin.

On examination, she looked flushed with a temperature of 37.9°C. Her other observations were within normal range. Her right thigh was noticeably larger than the left, with no skin erythema. Hip movements were uncomfortable. The anterior thigh was tender to touch with no palpable masses or subcutaneous emphysema. There was no lumbar spinal or flank tenderness. Her abdomen was soft and non-tender. Her PR examination was normal.

She had elevated C-reactive protein (C-RP) – 400, white blood cell count (WCC) – 16 mm\(^3\) and neutrophils – 15. Plain films of her chest, abdomen, hips and right femur were unremarkable.

An MRI of the thigh showed multiple fluid collections tracking along the intermuscular fascial planes of the quadriceps down to the level of the femoral condyles and no abnormal bone signal to suggest osteomyelitis. (See Figure 1)

A CT of the abdomen was also performed to look for a psoas abscess and findings were in keeping with an inflamed perforated appendix with a peri-appendicular abscess (see Figures 2 & 3).
Figure 1. T2 weighted MRI of right thigh showing multiple abscesses within the intermuscular fascial planes of quadriceps femoris muscle

![MRI Image]

Figure 2. Coronal CT of abdomen showing large retroperitoneal collection measuring 8.2×8.3×7.4 cm with areas of rim enhancement in the right iliac fossa, which was in continuity with a thickened appendix. The abnormal signal extended inferiorly from the RIF collection over the right iliacus muscle into the right groin

![CT Image]
After consultation with the general surgeons, a CT guided percutaneous drainage of the peri-appendicular abscess was performed. A large amount of feculent material was aspirated and the drain left in situ.

Following this, an open drainage and debridement of the right thigh was carried out. Significant amounts of purulent material were encountered between the intermuscular planes of the quadriceps muscle. This was followed by five repeat washouts and application of negative pressure dressings. The thigh wound was closed after 2 weeks.

Swabs grew Bacteroides fragilis group and mixed anaerobic organisms. An antibiotic therapy consisted of a combination of IV metronidazole and imipenem. The patient was discharged from hospital 28 days after admission.

A colonoscopy was attempted one month later, but aborted due being too uncomfortable. She went on to have a CT colonography, which was unremarkable. Risks of recurrence of abscess were explained to her (10–15%) and given that she was asymptomatic, interval appendicectomy was not performed. Unfortunately a couple of months later, she developed right flank pain, fevers and sweats. Recurrence of an appendiceal mass was suspected, so she had an acute laparscopic appendicectomy. A small appendiceal abscess was found. She made a full recovery following this.

Discussion

The diagnosis of appendicitis is not always straight forward and can be missed, particularly when peritoneal or retroperitoneal signs of a ruptured appendicitis are not present. Our case presented to the orthopaedic department with a primary diagnosis of thigh abscess and the retroperitoneal appendicular abscess was only discovered later. A deep thigh collection is often secondary to pyomyositis, osteomyelitis, infected haematoma, or
thrombophlebitis. When presented with a deep thigh collection, it is important to consider an intra-abdominal cause as the underlying origin of the abscess. Referral to a general surgeon is recommended.

A retroperitoneal collection can spread to the buttocks and thigh, via the fascial investments and insertions of muscles and vessels that escape from the pelvis. These include, the Iliopsoas passing under the inguinal ligament, Piriformis and Obturator internus through the greater and lesser sciatic notches, and the Superior gluteal artery piercing the pelvic fascia in order to reach the buttocks. Other reported routes include the obturator or femoral canal.

A CT scan is the gold standard for diagnosing a retroperitoneal collection, with a sensitivity close to 100%.

Conventional radiology has a much lower sensitivity in showing signs of retroperitoneal process.

CT guided percutaneous drainage of abscesses will confirm the diagnosis and allow for minimally invasive external drainage, which in addition to antibiotics will avoid open surgery in some cases. As far as imaging of the thigh is concerned, an MRI is the procedure of choice as it will show any intra muscular collection and confirm whether there is osteomyelitis or not. In case of a painful hip an MRI will be able to differentiate between an intra-articular pathology and a psoas abscess, which has tracked down through the inguinal canal.

With regards to the thigh abscess, Rostein recommends open drainage as it allows assessment of the viability of muscle and fascia and debridement of any necrotic tissue.

The role of interval appendicectomy is controversial. The majority of studies looking at this have been small and retrospective. A recent review by Corfield, found the recurrence rate of appendiceal mass following conservative treatment varies between 3% and 25%. They found that at least 75–90% of routine interval appendicectomies in adults to be unnecessary. Corfield recommends a safe approach to management would be adequate follow up of symptoms coupled with investigations such colonoscopy or CT colonography (to look for signs of malignancy), and performing appendicectomy only if symptoms recur or persist.

In conclusion, perforated retrocaecal appendicitis presenting as a thigh abscess is a rare and life-threatening condition. For its diagnosis and treatment, it requires a high index of suspicion and a good understanding of the pathogenesis and anatomy of the retroperitoneal spaces. It can be effectively treated with percutaneous drainage of the retroperitoneal abscess and open debridement of the thigh.

General practitioners, musculoskeletal physicians, emergency physicians and orthopaedic surgeons should be aware of the potential intra-abdominal origin of a deep local infection in the groin, buttock or thigh. Moreover, abdominal examination and referral to a general surgeon should be part of the initial assessment.

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