Acute diverticulitis masquerading as unilateral sciatica-like symptoms
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ABSTRACT
A 66 year-old female presented with Systemic Inflammatory Response Syndrome (SIRS), severe left thigh pain, and localized edema. Non-contrast Computed Tomography (CT) suggested the presence of air in the left thigh and no evidence of an acute intra-abdominal process. Blood cultures grew an anaerobic gram-negative microorganism identified as Bacteroides fragilis. Repeat CT imaging with intravenous (IV) contrast revealed acute diverticulitis and the presence of a retroperitoneal abscess with extension to the thigh muscle. Along with antimicrobial therapy, surgical intervention was needed. The patient required a sigmoid resection with end-colostomy which led to clinical improvement.

1. Introduction

Four percent of patients with the presence of diverticulosis develop acute diverticulitis [1]. Abdominal pain is the most common symptom and is seen in 70–85% of cases [2]. Nausea, vomiting, constitutional symptoms, constipation/obstipation, and bloating have all been reported [1–3]. Complications of acute sigmoid diverticulitis include perforation, abscess formation, obstruction, and fistula.

Retroperitoneal perforation may present with misleading symptoms. Subcutaneous emphysema of the upper chest and right abdomen has been described in patients with multiple myeloma on corticosteroid treatment [4]. Inflammation of the spermatic cord and ipsilateral testicle has also been reported, requiring sigmoid resection with diversion, right orchiectomy, and debridement of the right inguinal area [5]. Descending iliopsoas muscle abscess involving the thigh musculature is rare.

2. Case

A 66 year-old female with a history of sciatica presented to an Urgent Care clinic with left thigh pain and swelling described as a ‘muscle pull.’ This had caused pain described as similar to prior sciatica episodes. She had tried conservative treatment without success. The patient had developed fever, chills, and diarrhea. She did not have symptoms of abdominal pain. In light of the clinical findings of Systemic Inflammatory Response Syndrome (SIRS) with hypotension, fever, and tachycardia the patient was transferred for admission to the hospital.

Upon presentation, the patient remained relatively hypotensive with a Mean Arterial Pressure (MAP) range of 66–71, with blood pressures of 108/54 to 120/56. She was tachycardic with a heart rate of 120 bpm and febrile with a temperature of 102.3 F. Physical examination revealed a benign abdomen, but was positive for point tenderness of the back in the area of L4, L5 & S1 without any neurological deficits. There were severe tenderness and soft tissue edema of the lateral left thigh. Laboratory findings were significant for marked leukocytosis (54.2, normal 4.4–10.7 ×10^9/L) with neutrophilic shift (95%), elevated lactate (2.8, normal 0.5–2.2 mmol/L), and acute kidney injury with an elevated creatinine (1.7, normal 0.57–1.11 mg/dL) and blood urea nitrogen (BUN) (30, normal 9.8–20.1 mg/dL). Furthermore, there was an elevation of Alkaline Phosphatase which was 339 (normal 40–150 U/L), and Aspartate Aminotransferase of 42 (normal 5–34 U/L). The Alanine Aminotransferase was normal. Urinalysis was positive for the presence of pyuria and bacteriuria. Blood cultures grew Bacteroides fragilis after 4 days.

Further imaging studies included a Magnetic Resonance (MR) imaging of the lumbar spine which revealed chronic degenerative changes. A CT scan of the abdomen and pelvis without IV contrast revealed air throughout the left thigh musculature. Ultrasound of the left thigh did not reveal any fluid collection. The abdominal and pelvic CT scan was repeated with IV contrast in 4 days after positive blood culture results and that study demonstrated acute sigmoid diverticulitis with a left pelvic peri colonic abscess in addition to the presence of abscesses in the left iliopsoas, left abductor, and left gluteal muscles. CT of the left thigh with IV contrast confirmed multiple abscesses involving several muscles of the left thigh.

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The patient required a laparotomy with sigmoidectomy and end-colostomy (Hartmann Procedure). Antimicrobial treatment was adjusted and was continued for a total of three weeks.

3. Discussion

Several case reports of acute diverticulitis presenting as lower extremity pain with local clinical signs have been previously published [7–10].

In one of the reported cases by Murphy and Beliveau, a patient with right hip pain diagnosed with sciatica progressed to sepsis [7]. The patient’s X-ray revealed air in the right thigh. Surgical exploration was performed and the tissue microbiology showed gastrointestinal-related microorganisms.

Another case report, Underwood et al. described a patient with left knee pain and sepsis [8]. CT without contrast revealed extensive gas collection in the left thigh muscles extending up to the iliopsoas muscle and perinephric inflammation consistent with pyelonephritis. Extensive surgical debridement including left hip disarticulation was required. Additional abdominal cavity exploration through a flank incision exposed a normal proximal sigmoid. Drainage of the retroperitoneal cavity revealed fecal matter. In this case, there was a delay of seven days before the correct diagnosis of Acute Diverticulitis was made.

Another patient presented with left hip pain after a fall and was described by Rao et al. [9]. This was followed by septic shock six weeks later. Localized peritonitis in the left iliac fossa was described as well as fixed flexion deformity of the left hip and knee and diffuse edema in the left lower extremity. An X-Ray of the left lower extremity showed emphysema within the muscle. This was initially thought to be artifactual. With a progressive deterioration in the patient’s clinical condition, a CT of abdomen and pelvis was performed which revealed fluid collections with gas in the iliopsoas, gluteal, and thigh muscles. The patient underwent Hartman procedure and drainage of the thigh.

Singh described a patient with Myasthenia Gravis who presented with left buttock and thigh pain associated with swelling [10]. Examination showed severe left lower extremity edema without fever. Deep venous thrombosis was present on the right lower extremity without evidence of thrombosis on the left. The reading of a hip x-ray described extensive gas in the left thigh muscles. Acute Sigmoid Diverticulitis with associated abscess formation was discovered on a CT of the abdomen and pelvis. Bowel resection and fasciotomy were required.

In all these cases, recognition of a serious intra-abdominal process was delayed. In our patient, further investigation for a possible intra-abdominal source of infection followed results of anaerobic bacteremia, which is typically associated with a gastrointestinal process. In previously published cases, there also was delay in proper diagnosis and treatment until intraoperative microbiological data consistent with stool bacteria were seen.

Classically, suspicion of acute diverticulitis is based on history, physical examination, and laboratory data [11]. Based on our patient experience and literature review, the presence of air in lower extremity musculature seen on X-ray and/or CT scan should prompt further imaging of the abdominal cavity. CT imaging with both IV and oral contrast has shown a sensitivity of 98% and specificity of 99%, respectively, for the diagnosis of acute diverticulitis [12,13]. As was evident in our patient, the non-contrast CT scan of the abdomen and pelvis may not confirm the presence of diverticulitis. Oral and/or rectal contrast could be used with IV contrast to improve accuracy of the study. If there are significant contraindications for IV contrast at least oral and/or rectal contrast should be used [14]. According to the American Society of Colon and Rectal Surgeons, MR imaging or ultrasound (US) should be performed if CT with contrast is contraindicated [11]. US has shown sensitivity of 77–98% and specificity of 80–99% whereas MR imaging demonstrated 86–94% and 88–92% respectively for diagnosis of acute diverticulitis [11,12,14].

4. Conclusion

As a result of our review, more than 21 case reports of acute diverticulitis presenting with lower extremity pain and swelling have been published in English literature. In the absence of clinical signs and symptoms of an intra-abdominal process, significant delay in diagnosis can lead to unfavorable outcomes. The findings of unexplained thigh edema or the presence of air on imaging should prompt clinicians to further investigate an intra-abdominal etiology despite lack of symptoms. Microbiological data can also help to point clinicians in the right direction, although these results are often delayed. An IV contrast CT study remains the best option available to reach a timely diagnosis.
Table. Comparison of cases of acute diverticulitis (7-10).

| Demographics     | Main complaint | Local changes of lower extremity | Abdominal pain | SIRS | Microbiology | Initial dx | Delay in Dx | Dx based on | Treatment | Outcome   |
|------------------|----------------|----------------------------------|----------------|------|--------------|------------|-------------|-------------|-----------|-----------|
| 58 yo, M (7, Murphy and Beliveau) | Right hip pain | Edema, Erythema, Decreased sensation | -   | +   | Blood: negative Wound intestinal flora | Necrotizing, fascitis | 3 w | Culture Imaging | Sigmoid resection, colostomy, I&D | Recovery |
| 51 yo, F (8 Underwood et al.) | Left knee pain, edema | n/a                              | -   | +   | Blood: n/a Tissue: G + cocci, G – bacilli | Necrotizing, fascitis, pyelonephritis | 7 d | Fecal drainage | Disarticulation, I&D Hartman procedure | Recovery |
| 63 yo, M (9 Rao et al.) | Left hip pain | Fixed flexion hip, knee, pain with hip flexion No edema | +   | +   | n/a | Septic arthritis | 6 w | Surgery consultation imaging | Hartman procedure Drain of L thigh, no incision | Recovery |
| 72 yo, F (10 Singh) | Left buttock/leg pain, edema | Edema                           | -   | -   | Blood: n/a Wound intestinal flora | Deep venous thrombosis | No delay | Imaging | Sigmoid resection, fasciotomy, I&D | Recovery |
| 67 yo, F (Novoselova and Lacasse) | Left thigh pain | Edema, Erythema | -   | +   | Blood: intestinal flora Wound: intestinal flora | Infected hematoma | 4 d | Culture Imaging | Hartman procedure Drain of the thigh without incision | Recovery |
Disclosure statement
No potential conflict of interest was reported by the authors.

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