

Case Report

Suprlevator Abscess - A Diagnostic Dilemma

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ABSTRACT

Suprlevator abscesses are the rarest manifestation of anorectal suppurative disease and are thought to originate from extension of ischioanal or intersphincteric abscess. These abscesses pose a diagnostic dilemma because of their occult nature. A thorough knowledge of relevant anatomy and high index of suspicion is needed for its diagnosis. It is important to consider the possibility of suprlevator abscess if a patient presents with rectal, pelvic or back pain and signs of infective process. Adequate diagnosis is done with CT scan or MRI scan. It is imperative to make sure that the suprlevator abscess is adequately managed upon first presentation. We report a case of suprlevator abscess in a 33-year-old male who presented with right ischioanal abscess. Following the initial drainage of the abscess, patient developed suprlevator abscess which later extended into the anterior extraperitoneal compartment. Patient underwent multiple drainage procedures including suprlevator space exploration and bilateral inguinal canal exploration to facilitate adequate drainage of abscess.

Keywords: Suprlevator abscess, anorectal abscess, drainage, debridement, perianal abscess.

Introduction

Anorectal abscesses are one of the common surgical emergency conditions which can be potentially debilitating and life threatening. There is no clear documentation of their incidence as only patients with symptoms and those needing incision and drainage of the abscess present to the hospital or the emergency department [1]. Another factor for the lack of its true incidence is the fact that some of the anorectal abscess spontaneously discharge and heal themselves. In United Kingdom, anorectal abscess account for approximately 14000 to 20,000 emergency admissions annually, of which roughly 12,500 undergo incision and drainage [2]. Anorectal abscess is usually caused by infection of the cryptoglandular epithelium and are classified broadly into five categories based on their location, namely, perianal, ischioanal, intersphincteric, suprlevator and submucosal.

Risk factors for the development of anorectal abscesses includes male gender especially in their third through fifth decade, obesity,

diabetes, immunodeficiency, malignancy, foreign bodies, tuberculosis, trauma, and inflammatory bowel disease. Of the five documented regions of anorectal abscess, perianal and ischioanal are the most common accounting for approximately 57% of anorectal abscesses [3, 4]. Suprlevator abscess is a rare form of anorectal abscess, accounting for only 3-4% of total disease incidence and can be a manifestation of cephalad extension of the suppurative process from perianal or ischioanal abscess into suprlevator space and extraperitoneal compartments. Because of the occult nature of this morbid infection, a thorough knowledge of relevant anatomy and high index of clinical suspicion is required for its diagnosis and management. We present a case report of an anorectal abscess that evolved into suprlevator abscess and pelvic sepsis despite initial surgical drainage.

Case Presentation

A 33-year-old male patient presented to the emergency department with progressive worsening of pain and swelling in the

right perianal region for 10 days. On local examination, there was a 6x5 cms indurated swelling in the right perianal region situated approximately 4 cms from the anal verge at 7 o'clock position. A diagnosis of right ischioirectal abscess was made. At admission, his leucocyte count was found to be 15,820 cells/mm³. Patient underwent incision and drainage of right ischioirectal abscess. A cruciate incision was taken and approximately 120 ml of foul-smelling pus was drained (Figure 1). Broad-spectrum intravenous antibiotic was started.

On post-operative day 2, patient started complaining of increased pain around the operated site along with pain and swelling in the scrotum. The leucocyte count was 15210 cells/mm³. On examination – there was swelling and edema of the scrotum with loss of scrotal rugae, induration and tenderness of the scrotum with crepitus. A suspicion of Fournier's gangrene was made, and patient underwent emergency exploration of the ischioirectal wound. Approximately 100 ml of foul-smelling pus was drained out from the wound and scrotum. He underwent extensive debridement of the necrotic scrotal wall (Figure 2). The pus culture revealed *Escherichia coli* which was susceptible to Meropenem and Amikacin. Antibiotics were appropriately changed, and regular dressings were continued. After initial improvement, patient developed pain and tenderness in bilateral inguinal and suprapubic region while pus discharge continued from the previous wounds. An urgent Magnetic Resonance Imaging (MRI) scan of pelvis was performed, which revealed edematous anterior abdominal fat extending up to the inguinal region and scrotum with numerous pockets of collection. There was localized collection in the left extraperitoneal plane along the superior surface of pelvic floor measuring approximately 2 cms in thickness (Figure 3). Patient underwent exploration of bilateral inguinal region and drainage of inguinal and supralelevator abscess and debridement (Figure 4).

Pus was sent for culture and sensitivity which revealed multidrug resistant (MDR) *Klebsiella Pneumoniae*, susceptible to Cefoperazone-sulbactam and Piperacillin-Tazobactam. Antibiotics were appropriately changed. Blood investigations were done to rule out Human Immunodeficiency Virus (HIV) and Hepatitis B surface antigen (HBsAg) which came out negative. After the 3rd procedure, patient showed enormous improvement. Patient developed fever spike a few days later. Ultrasound of abdomen done at this time did not show any residual collection or extension of the abscess. He was later discharged home. Regular dressings were continued on outpatient basis. One month later, as patient improved clinically, scrotal, and inguinal wounds were closed (Figure 5). Following this, patient had an uneventful recovery.

Discussion

Perianal abscess spreading into the deeper compartments



Figure 1: Right ischioirectal abscess-Incision and drainage with cruciate incision.



Figure 2: Extensive debridement of necrotic scrotal wall on post-operative day 2.

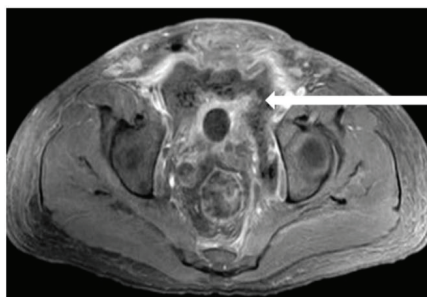


Figure 3: MRI suggested collection in supralelevator space and ischioirectal space extending into left extraperitoneal space.



Figure 4: Drainage of inguinal and supralelevator abscess and debridement.



Figure 5: Closure of bilateral inguinal and scrotal wounds.

especially in the supralelevator space represents one of the most morbid entity in anorectal disease spectrum. The rarity and insidious manifestation of the supralelevator abscess poses a diagnostic dilemma. It may lead to delayed diagnosis, fulminant and severe sepsis and may also result in increased mortality. Co-morbidities such as inflammatory bowel disease, obesity, malnutrition, immunocompromised state, and diabetes, increases the risk of complications. The clinical course, complicated by the absence of typical signs and presence of lower abdominal pain, may confuse clinicians to search for abdominal pathology [6].

Diagnostic work up of any suspected anorectal abscess involves thorough history and physical examination. Patients present with signs and symptoms of pain (gluteal, perianal), tenderness, erythema, induration, fever, leukocytosis, and sometimes spontaneous drainage. These, however, entreat truly little clinical suspicion of supralelevator involvement, although, additive complaint like urinary retention, deep pelvic/sacral and/or sciatic pain may be important cues to suspect supralelevator space involvement [7]. Imaging modalities, including computed tomography (CT) scan or MRI scan, should be utilized to make the correct diagnosis.

Anatomically, the supralelevator space, situated above the levator ani muscle, communicates anteriorly with the space of Retzius, bilaterally with the retro-inguinal spaces, and posteriorly with the retroperitoneum. The pubo-rectalis muscle acts as a barrier and prevents further spread of the abscess. However, rarely, infection or abscesses may involve the muscle and can spread in the supralelevator space and through this space, infection can spread to involve both anterior and posterior extraperitoneal compartments.

Adequate control of source is imperative to treatment of anorectal abscesses. However, it is also vital to continue a thorough clinical evaluation and vigilant monitoring of improvement of clinical signs of infection, as this would help in early recognition of spreading of infection into deeper planes like supralelevator space or anterior and posterior extraperitoneal space. Initial empirical therapy with antibiotics is also important in treatment of complicated infections, but it is essential to obtain cultures and antibiotic sensitivity to have more targeted antibiotic therapy.

It is imperative that adequate drainage be performed, even if this necessitates aggressive surgical intervention. Drainage can be attempted through many approaches. It is difficult to access supralelevator abscess rectally and drain it adequately [4]. If drained through levator ani muscle through ischioirectal fossa a complex fistula can result, and recurrences are common [6]. This leaves percutaneous drainage or open transabdominal drainage.

While percutaneous drainage has several advantages and is minimally invasive, it can often lead to inadequate results and might prolong sepsis [4], as in this case. Open transabdominal approach may facilitate good visualization of the abscess and ensure adequate drainage. An important point to note is, in abscesses with pre- or retroperitoneal extension, like in our case, access to the peritoneal cavity must be avoided due to the high risk of contamination and secondary peritonitis. Optimal treatments have been proposed by different authors, including abdominal stab-like incisions [8] or extraperitoneal drainage with lower midline abdominal incision with excellent outcomes [9].

In the present case, after initial drainage of the ischioirectal abscess, the infection spread into the deeper planes to involve

the supralelevator space and ultimately involving the anterior extraperitoneal compartment. The patient needed multiple drainage and debridement procedure including inguinal canal exploration and access into space of Retzius (retropubic space) to control the spreading infection.

Conclusion

Despite their rarity, extended anorectal abscesses should be considered in differential diagnosis for a septic patient especially in presence of multiple comorbidities. Spread of infection is unpredictable and can involve various anatomic planes. The diagnosis of supralelevator abscess is not easily made clinically due to anatomical location and requires imaging like CT or MRI. It is important to recognize the possibility of a supralelevator abscess whenever a patient presents with rectal, pelvic, or back pain and signs of infective process. A thorough knowledge of anorectal anatomy and heightened index of suspicion in the face of a somewhat subtle presentation can prevent delay in diagnosis and may result in reduced morbidity for patients with this complex disease. The message of this case report is to highlight the fact that surgery is not only what happens in the operating room, it also involves having high degree of scientific suspicion and paying attention to cues postoperatively in terms of subtle signs and symptoms which ultimately dictates the overall recovery of patient from a complex disease process like the supralelevator abscess.

Authors' contributions: All the authors contributed substantially to the conception of the study, design, literature search and write-up of the manuscript.

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