

Intermuscular Abscess Mimicking an Incarcerated Inguinal Hernia with Co-existing Direct Hernia: A Case Report

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ABSTRACT

Inguinal swelling is most commonly attributed to hernia; however, certain inflammatory and infective conditions can mimic its presentation, leading to diagnostic challenges. This is a case report of a 62-year-old male who presented to hospital with painful right inguinal swelling associated with low-grade fever. The first imaging evaluation using ultrasonography revealed a right inguinal defect through which omental fat was seen protruding. However, further imaging was suggested due to persistent pain and inflammatory signs. Upon performing, MRI pelvis, a well-defined lobulated collection measuring 5.8×5.2 cm in the right inguinal region with restricted diffusion and extension through the inguinal canal, suggestive of abscess formation. Upon incision and exploration, approximately 20 mL of thick purulent fluid was evacuated, consistent with an abscess cavity. Exploration during surgery revealed the presence of a direct inguinal hernia sac along with an intermuscular abscess and it was repaired using tissue based herniorrhaphy without mesh placement due to presence of active infection. This case is unique due to the co-existence of an intermuscular abscess with a co-existing inguinal hernia, which contributed to diagnostic ambiguity. Early recognition of such dual pathology is essential to avoid misdiagnosis and to guide appropriate surgical management. The patient had an uneventful recovery. This case highlights the importance of considering dual pathology in inguinal swellings and underscores the diagnostic value of MRI in differentiating abscess from hernia.

Keywords: Abscess, Groin swelling, Inguinal hernia, Magnetic resonance imaging, Surgical management

CASE REPORT

A 62-year-old male presented with complaints of right inguinal swelling over a duration of two weeks associated with pain and low-grade fever. The swelling had gradually increased in size and was associated with pain. There was no history of trauma, prior surgery, or any recurrent complaints. The patient had no known comorbidities such as diabetes mellitus, hypertension, or immunosuppressive conditions. There was no history of smoking, alcohol use, or previous similar complaints.

On presentation, the patient had a low-grade fever (37.8°C) with stable vital parameters: pulse rate of approximately 82 beats/min, blood pressure of 128/82 mmHg, and oxygen saturation of 98% on room air. On examination, it was found that there was a mass of approximately 6×5 cm in the right inguinal area and was associated with local warmth and tenderness. It demonstrated a positive expansile cough impulse, suggesting a possible inguinal hernia. The erythema and discomfort along with reducibility of mass were important clinical findings suggestive of an inguinal hernia. However, the presence of erythema and localised warmth raised suspicion of an underlying inflammatory or infective pathology in addition to a hernia.

Investigations

Baseline laboratory investigations revealed haemoglobin of 11.9 g/dL, total White Blood Cell (WBC) count of $8.87 \times 10^9/L$ with neutrophils 61.8%, serum creatinine 0.99 mg/dL, random blood glucose 97 mg/dL, Aspartate Transaminase (AST) 24.8 IU/L, Alanine Transaminase (ALT) 20.1 IU/L, alkaline phosphatase 142.3 IU/L, prothrombin time 11.3 seconds and INR 0.98.

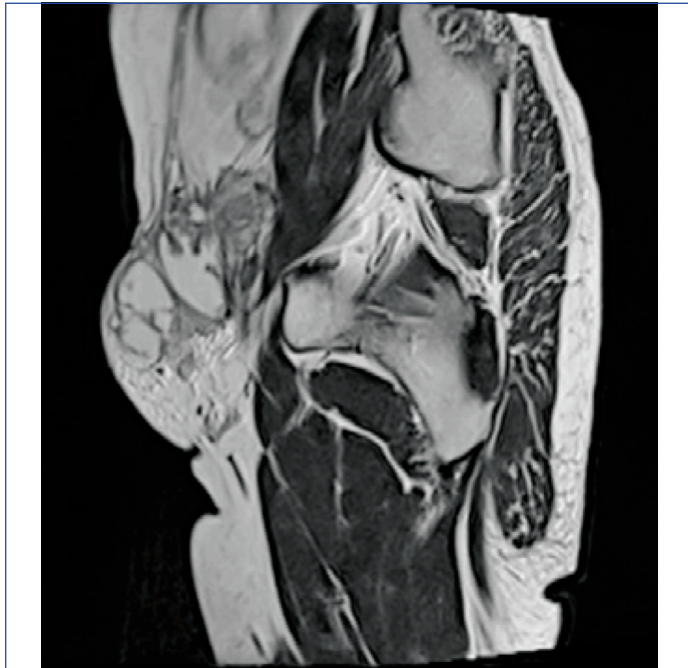
Abdominal and pelvic ultrasonography revealed a 2.5 cm defect within the right inguinal region, through which omental fat was seen protruding, consistent with an inguinal hernia. Since there had been no improvement in pain and inflammatory signs, MRI

pelvis was performed. It showed a large well defined lobulated collection that was approximately 5.8×5.2 cm in the subcutaneous plane of right inguinal region with multiple internal septations [Table/Fig-1]. The lesion appeared hyperintense on T2/STIR sequences and isointense on T1-weighted images. Diffusion-weighted imaging showed strong restricted diffusion. There was collection present near the common femoral vessels along with inflammatory changes which extended through the inguinal canal on right side into the intraperitoneal plane that also involved several lymph



[Table/Fig-1]: Axial T2-weighted MRI image showing a well-defined lobulated hyperintense collection in the right inguinal region with surrounding inflammatory changes.

nodes [Table/Fig-1,2]. These findings were suggestive of abscess formation. While imaging suggested an infective collection, the possibility of an associated hernia could not be excluded.



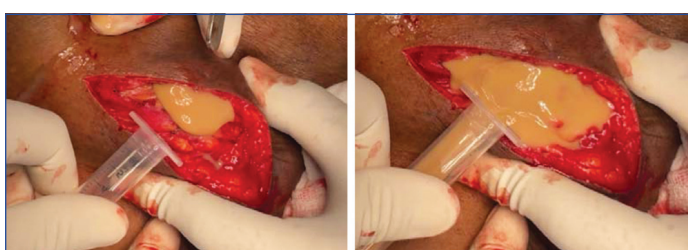
[Table/Fig-2]: Diffusion-weighted MRI image demonstrating strong restricted diffusion within the right inguinal collection, suggestive of abscess formation.

Surgical Findings

After administering spinal anaesthesia, incision was made over the swelling that penetrated through skin, subcutaneous tissue, Camper's and Scarpa's fascia [Table/Fig-3]. Upon incision of the external oblique aponeurosis, thick purulent fluid was immediately encountered and approximately 20 mL of pus was drained [Table/Fig-4]. The anatomy of abscess cavity that extended between the muscular plane was distorted [Table/Fig-5]. Adequate drainage and lavage were confirmed.



[Table/Fig-3]: Intraoperative image showing right inguinal incision made over the swelling.

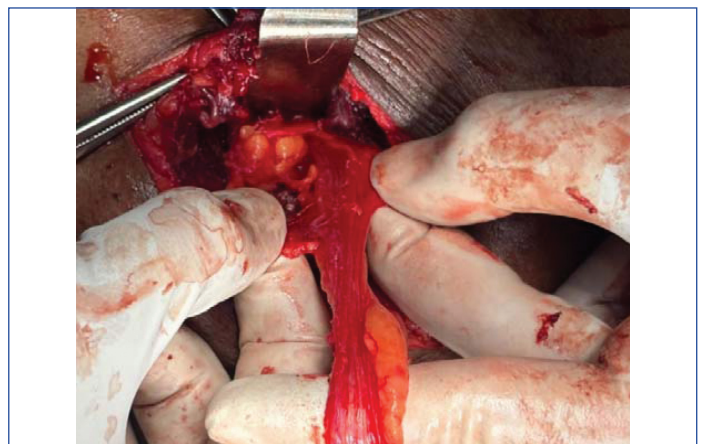


[Table/Fig-4]: Purulent material encountered after incision of the external oblique aponeurosis, confirming abscess cavity.

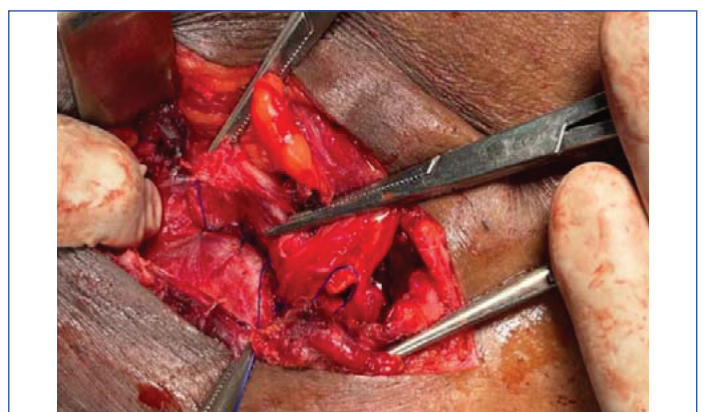


[Table/Fig-5]: Intraoperative view of the intermuscular abscess cavity with distorted muscular anatomy after drainage.

Following drainage of the abscess cavity, further exploration revealed a direct inguinal hernia sac, thereby confirming the presence of a co-existing inguinal hernia [Table/Fig-6]. Although ultrasonography suggested an inguinal hernia, the presence of an associated infective pathology was suspected due to persistent inflammatory signs. Definitive confirmation of a co-existing direct inguinal hernia was established intraoperatively during surgical exploration. It was dissected, reduced and tissue-based herniorrhaphy using 1-0 Prolene was performed [Table/Fig-7]. Mesh placement was avoided due to the risk of infection-related complications in a contaminated surgical field. A drain was placed in situ. The patient was administered broad-spectrum intravenous antibiotics (ceftriaxone and metronidazole) followed by oral antibiotics based on clinical response.



[Table/Fig-6]: Direct inguinal hernia sac identified intraoperatively following abscess drainage.



[Table/Fig-7]: Tissue-based herniorrhaphy performed using 1-0 Prolene sutures without mesh placement.

The drain was removed on postoperative day three. The patient received intravenous antibiotics for five days followed by oral antibiotics for one week. The postoperative course was uneventful. On follow-up of 15 days, the wound healed well with no evidence of recurrence.

DISCUSSION

While an inguinal hernia is usually suspected when an adult has groin swelling [1], it is not the only possibility. Infections can mimic a hernia perfectly, especially if the area is hot, red, or the patient has a fever [2].

Similar cases of inguinal abscess mimicking hernia have been reported in the literature, although they remain uncommon. Hsu WH et al., described cases of pyogenic inguinal abscess presenting as groin swelling, emphasizing the potential for diagnostic confusion with hernias [3]. However, the co-existence of an intermuscular abscess with a direct inguinal hernia, as observed in the present case, is rarely reported and adds to the complexity of diagnosis and management

Ultrasonography is usually the first imaging modality used to assess groin swellings because it is readily available and allows dynamic evaluation [4]. However, differentiating complex inflammatory collections from hernial sac contents can sometimes be challenging, particularly when there is significant surrounding inflammation [5]. In this case, the ultrasound demonstrated a defect containing omental fat, which was interpreted as a hernia and contributed to the initial diagnostic uncertainty [6].

Magnetic resonance imaging provides better soft tissue detail and is particularly helpful when clinical findings or ultrasound results are not typical [7]. Diffusion-weighted imaging adds further value, as abscesses often show restricted diffusion because of the dense cellular content and thick purulent material [8]. In this patient, MRI not only confirmed the presence of an abscess but also clearly outlined its spread into the inguinal canal and intraperitoneal plane. This information was crucial in planning the surgical approach. This highlights the importance of advanced imaging in cases where clinical and initial imaging findings are inconclusive [8]. The co-existence of an intermuscular abscess with a direct inguinal hernia, as observed in this case, is an uncommon presentation and may contribute to diagnostic ambiguity [3]. Failure to identify such dual pathology may result in incomplete treatment and persistent infection [9]. In addition, placing a prosthetic mesh in the setting of active infection carries a significant risk of mesh-related complications [10]. Therefore, in this situation, a tissue-based repair was considered the safer and more appropriate option.

The present case is particularly noteworthy due to the presence of dual pathology, which can easily be overlooked if clinical suspicion is limited to a single diagnosis. Recognition of such co-existence is crucial to ensure complete surgical management and to prevent persistent infection or recurrence [9].

Overall, this case highlights the need for careful clinical judgment when an inguinal swelling presents with inflammatory features. Even if imaging appears to support a diagnosis of hernia, the possibility of an underlying infection should still be kept in mind [11]. These findings reinforce the need for a comprehensive diagnostic approach, combining clinical evaluation with appropriate imaging modalities to avoid misdiagnosis in atypical presentations.

CONCLUSION(S)

Inguinal swellings with inflammatory features should prompt consideration of an underlying abscess. MRI is valuable in distinguishing infection from hernia and in defining disease extent. Careful intraoperative assessment is essential for complete management, and prosthetic mesh should be avoided in the presence of active infection to reduce postoperative complications.

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