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Case Report

Postoperative pyoderma gangrenosum at trocar site following laparoscopic cholecystectomy in a patient with acute myeloid leukemia: a very rare case report

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ABSTRACT

Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis that may be triggered by surgical trauma, often mimicking postoperative wound infection. Early recognition is essential to avoid unnecessary surgical interventions. Herein this report presents the case of a 71-year-old male with a history of acute myeloid leukemia in remission who underwent laparoscopic cholecystectomy for symptomatic cholelithiasis. Despite initial postoperative recovery, he presented on postoperative day 12 with erythema and purulent discharge from a trocar site. Imaging suggested a postoperative collection, but cultures remained negative, and skin ulceration progressed despite broad-spectrum antibiotics. Two skin biopsies were required to establish the diagnosis of PG. The patient responded favorably to systemic corticosteroids. This case highlights the importance of considering postoperative PG in patients with rapidly progressive ulcerative lesions unresponsive to antibiotics, particularly in individuals with underlying hematologic disease. Early biopsy and multidisciplinary evaluation are crucial to timely diagnosis and appropriate management.

Keywords: Pyoderma gangrenosum, Postoperative complication, Trocar site, Laparoscopic surgery, Neutrophilic dermatosis

INTRODUCTION

Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis characterized by rapidly progressive and painful ulcerations of the skin.[1] It is commonly associated with systemic diseases such as inflammatory bowel disease, arthritis, and hematologic malignancies, including acute myeloid leukemia.[2] Although the exact pathogenesis remains unclear, immune dysregulation and abnormal neutrophil function are believed to play a central role.[3]

A hallmark feature of PG is the pathergy phenomenon, in which minor trauma or surgical intervention triggers the development or worsening of lesions.[4] Because of this, postoperative PG is increasingly recognized, although its clinical presentation frequently mimics wound infection, abscess formation, or necrotizing soft-tissue infection.[5] Several studies have emphasized that delayed recognition and misdiagnosis often lead to unnecessary surgical debridement, which further aggravates the disease process.[6] Clinically reported cases have shown that postoperative PG may occur not only after major surgery but also following minimally invasive procedures such as laparoscopy.[7] However, only a limited number of studies have described PG arising specifically at laparoscopic trocar sites, making this presentation particularly challenging to diagnose.[8]

We present a rare case of postoperative PG occurring at the trocar site following laparoscopic cholecystectomy in a patient with a history of acute myeloid leukemia in remission. This case highlights the importance of maintaining a high index of suspicion, performing early

biopsy, and initiating appropriate immunosuppressive therapy to prevent disease progression and avoid unnecessary surgical interventions.[9,10]

CASE REPORT

A 71-year-old male patient with a history of acute myeloid leukemia in complete remission was electively admitted to our department for laparoscopic cholecystectomy, indicated for cholelithiasis and a previous history of cholecystitis. Intraoperatively, the patient was found to have gangrenous cholecystitis. The critical structures were clearly identified, and the procedure was completed laparoscopically without complications. The patient had an uneventful postoperative course and was discharged on the third postoperative day with instructions for outpatient follow-up in five days. The follow-up examination revealed no pathological findings.

On the 12th postoperative day, the patient returned to the hospital with redness and purulent discharge from the epigastric trocar site. On clinical examination, the abdomen was soft, non-distended, and mildly tender in the right upper quadrant. The epigastric and right upper quadrant trocar sites were incised and drained; purulent fluid was collected and sent for culture. The patient was then admitted to the surgical ward. Initial laboratory results showed WBC: 4,000/µl and CRP: 48 mg/l.

During hospitalization, the patient developed fever up to 38.5°C. Blood cultures were obtained, and a computed tomography (CT) scan of the abdomen revealed a collection in the gallbladder fossa with a small central air bubble. There was fat stranding between the liver and the right colic flexure, with fluid tracking into the perinephric fat. Focal thickening of the anterior abdominal wall was noted in the right paramedian region. CT-guided drainage of the collection yielded only 3 ml of bloody fluid.

Despite broad-spectrum antibiotics (meropenem and vancomycin), the area of skin erythema progressively enlarged, with ulceration of the overlying skin (day 5 of hospitalization) (Figure 1). Laboratory findings worsened (day 8 of hospitalization: WBC: 7,000/µl, CRP: 210 mg/l). A tissue culture from the ulcerated area showed no microbial growth. A skin biopsy performed on April 7, 2024, revealed acute neutrophilic dermal inflammation with no evidence of malignancy.

A repeat CT scan of the abdomen showed no significant changes. As the ulceration worsened, further evaluation by the haematology and infectious disease teams was conducted. A second skin biopsy confirmed the diagnosis of PG.

The patient was subsequently transferred to the internal medicine department, where corticosteroid therapy was initiated—initially intravenous, followed by oral administration. Gradual improvement in his clinical condition and stabilization of the ulcerative lesions was observed after 5 days of corticosteroid therapy (Figure 2). At one-month follow-up, the lesions demonstrated significant healing after initiation of corticosteroid therapy (Figure 3).

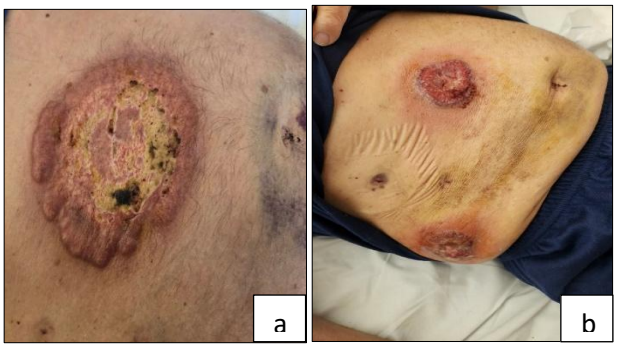

Figure 1 (a and b): Ulcerative lesions at the trocar sites on day 5 of hospitalization, showing progressive erythema and skin breakdown.

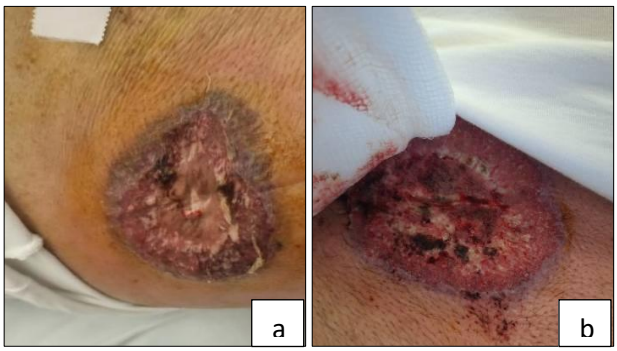

Figure 2 (a and b): Improvement of the lesion after 5 days of corticosteroid therapy, demonstrating reduced erythema and partial healing of the ulcerative area.

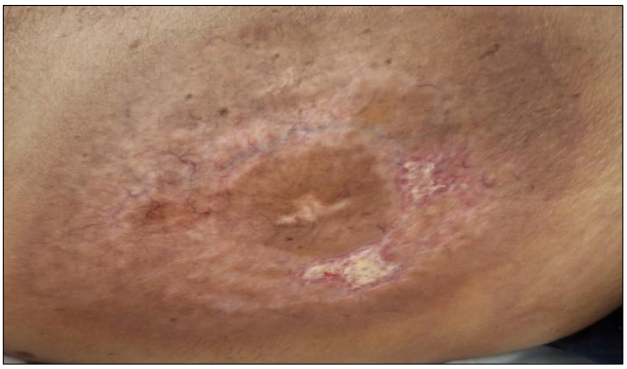

Figure 3: One-month follow-up image after initiation of corticosteroid therapy, showing significant healing with re-epithelialization and minimal residual erythema.

DISCUSSION

PG is an uncommon but serious postoperative complication, particularly in patients with underlying

systemic disease.[1-3] Postoperative PG accounts for approximately 20–30% of all PG cases and is associated with pathergy.[4] Misdiagnosis is common, as it often presents with erythema, purulence, fever, and laboratory markers suggesting infection.[5,6]

Several studies show that postoperative PG frequently follows procedures involving small incisions, including laparoscopic trocar sites.[7,8] As in our case, cultures are usually negative and lesions worsen despite broad-spectrum antibiotics. Surgical debridement typically aggravates PG.[6] Early biopsy is crucial for diagnosis, although multiple biopsies may be needed due to nonspecific early findings.[5]

Management relies on prompt initiation of systemic immunosuppressive therapy, primarily corticosteroids or cyclosporine.[4,9] Response to treatment is often rapid, supporting the importance of early recognition.

CONCLUSION

This case underscores the importance of considering PG in the differential diagnosis of non-healing postoperative wounds, particularly in patients with a history of hematologic malignancy or other immunologic disorders. Awareness of PG and its pathergy potential is vital to avoid mismanagement and unnecessary surgical interventions. Early biopsy and multidisciplinary evaluation are key in establishing the diagnosis and initiating appropriate therapy to improve patient outcomes.

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