# A Case of Necrotizing Soft Tissue Infection Following Mesh Infection from Perforated Diverticulitis

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## Introduction

- Colonic diverticulitis is an extremely common disease process affecting 5-10% of those over 45 years old and close to 80% over 85 years old.[1] One of the most feared complications is perforation, which commonly occurs into the peritoneal cavity. It is far less common for the diverticulitis to perforate into the retroperitoneum and even more rare to perforate into the subcutaneous tissue causing subcutaneous emphysema.
- We present here a very interesting and rare case of diverticulitis perforating through previous abdominal wall mesh into the subcutaneous space resulting in wide spread necrotizing soft tissue infection. The diagnosis, treatment, and previous literature will be discussed.

## Case Description

71-year-old male with a past medical history of rheumatoid arthritis recently started on methotrexate who presented to the emergency department with 2 weeks of abdominal pain.

- Imaging demonstrated extensive subcutaneous gas overlying the abdomen/pelvis with tracking up the right chest and noted colonic thickening with communication to the anterior abdominal wall (Figures 1 and 2).
- Operative findings:
  - Subcutaneous tissues and abdominal fascia were necrotic with purulent drainage
  - Multiple diverticula and a phlegmon of the sigmoid colon were adhered to a previously placed sublay mesh
  - Sigmoidectomy with end colostomy and debridement of necrotic tissue
- Cultures were polymicrobial, though predominately E. Coli and Clostridium species
- Subsequent operative debridements were completed throughout the patient's hospital course. Ultimately, the skin and subcutaneous tissue from the right ASIS up to the scapula and from posterior midline to anterior midline was excised. Twice daily wet-to-dry dressing changes were completed at bedside.
- The patient required multiple vasopressors, CRRT and continuous mechanical ventilation throughout his entire hospital course. Despite maximal interventions and debridements, the patient remained critically ill. He was eventually placed on

## Results

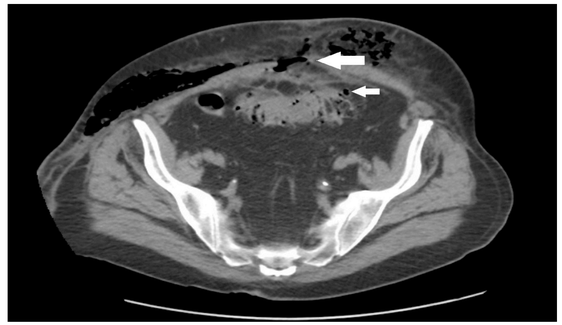


Figure 1: Fascial defect with air communicating between the intraperitoneal cavity and subcutaneous tissue (large arrow), and colonic thickening with diverticula (small arrow).

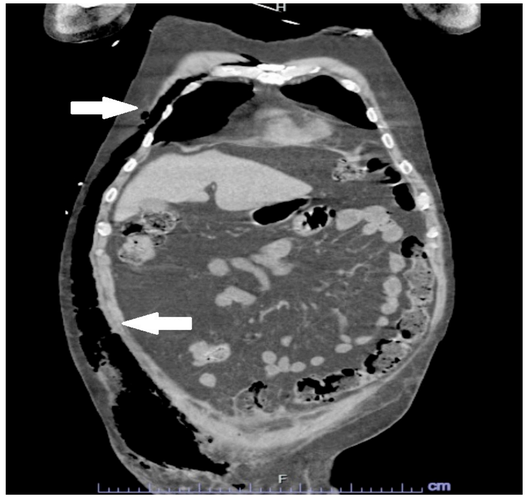


Figure 2: Extensive subcutaneous emphysema throughout the right abdominal and chest wall (arrows).

## Discussion

- This report outlines a rare and devastating complication of necrotizing infection secondary to perforated diverticulitis.
- We hypothesize the etiology of this necrotizing soft tissue infection was via the sublay umbilical hernia mesh which created a pathway for spread of the intra-abdominal infection to extra-peritoneal tissues.
- A handful of other case reports describe extra-peritoneal or subcutaneous emphysema secondary to colon perforation. Presenting signs included subcutaneous emphysema[2] pneumomediastium and pneumoscrotum[3] and NSTI of the lower extremity[4] through the inguinal canal. Additionally, there have been instances of sigmoid perforation into incisional and inguinal hernias[5].
- The mechanism of extra-peritoneal air is thought to be secondary to either 1. gas-forming bacteria, or 2. the air-pressure difference between the colon and subcutaneous tissue.

## Conclusion

- Our case represents a rare complication of perforated diverticulitis and rare etiology for necrotizing soft tissue infection.
- Our patient is unique in that the route between the intra-abdominal infection to the subcutaneous tissue was suspected to be via pre-existing umbilical hernia mesh.
- The extent of the infection (anterior abdominal wall, chest, flank and back) lead to difficulty in achieving or maintaining source control.
- For patients in whom NSTI is diagnosed secondary to intra-abdominal source, we recommend early operative exploration, debridement of infected tissue and resection of involved bowel and foreign bodies (i.e. hernia mesh) for source control.

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