

A RARE CASE OF COLONIC PERFORATION PRESENTING AS SUBCUTANEOUS EMPHYSEMA OF LOWER CHEST, ANTERIOR ABDOMINAL WALL AND SCROTUM

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ABSTRACT

A 30-yr-old man presented with history of not passing motion and flatus for 4 days, painful abdominal distention and vomiting for 1 day with extensive subcutaneous emphysema of lower chest, anterior abdominal wall and scrotal wall. X ray chest PA view revealed no pneumothorax. X ray abdomen demonstrates multiple air shadows on right side of abdomen with dilated small bowel loops with no gas under diaphragm. CECT scan abdomen showed the outline of ascending colon is ill defined with large pockets of air surrounding the ascending colon with extensive pneumoperitoneum. Diagnoses of retroperitoneal colonic perforation were made. Exploratory laparotomy revealed large cecal perforation with retroperitoneal ascending colon perforation. The parietal peritoneum on right lumbar and right iliac fossa was sloughed. Right hemicolectomy with end ileostomy was done. Despite multiple operations the patient died 20 days after admission due to multiple organ failure. Patient presenting with subcutaneous emphysema of abdomen and scrotum without an obvious thoracic course should be scrutinized for retroperitoneal hollow viscus perforation to achieve successful early management.

Keywords: Colonic perforation; subcutaneous emphysema

INTRODUCTION

We are using "subcutaneous emphysema" for every state in which air or gas is found within the soft tissues. Subcutaneous emphysema of the chest is mostly associated with pneumothorax following major trauma. Intra-abdominal disease is a rare cause of subcutaneous emphysema. This may be the result of an enteric fistula following gastrointestinal tract perforation that dissects along the anatomic planes. Or there may be extension of a retroperitoneal or subperitoneal abscess with gas-forming organisms along the fascial planes. On the other hand, there may be a hematogenous spread of gas-forming organism to the abdominal wall. Few cases of retroperitoneal leakage have been described. Perforation may be manifested in different ways. Acute abdominal symptoms and peritoneal irritation signs are the most common manifestations.[1,2] In rare clinical conditions, when perforation is oriented toward retroperitoneal area, subcutaneous emphysema may occur. This phenomenon has been scarcely reported previously.[2-4]

CASE REPORT

A 30-year-old man admitted with the complaints of pain in abdomen, distention of abdomen, bilious vomiting (10-12 times) all since 1 day and non passage of feces & flatus since 4 days. In the past history he had upper abdominal surgery in 2001 and no history of trauma. He was afebrile, pulse-92/m, BP – 100/60 mm of Hg, no pallor, icterus or lymphadenopathy. In local examination he had right upper paramedian scar mark, abdominal distension, no erythema or color change in skin and no dilated bowel loops or visible peristalsis. Abdomen had mild tenderness present all over with

extensive subcutaneous emphysema present over lower chest, anterior abdominal wall and scrotum. There was no rigidity, guarding or rebound tenderness, free fluid was absent and bowel sound was normal.

Chest had bilateral equal air entry with no evidence of pneumothorax. On per rectal examination there were hard feces. Combining all of above we made a clinical expression of Retroperitoneal perforation of hollow viscus or intraabdominal abscess due to gas forming organisms. Laboratory investigations were within normal limits except for TLC which was 3420/cumm. Chest PA view shows no pneumothorax and lung fields were normal. X ray abdomen AP view shows multiple loculated air shadows on right side of abdomen with dilated small bowel loops, no gas under diaphragm and evidence of subcutaneous emphysema. He was put on intravenous fluids and antibiotics and advised CECT abdomen for confirmation of diagnosis. CECT abdomen showed multiple loculated fluid collections in peritoneal cavity with air specks within & extensive pneumoperitoneum and free fluid in pelvis.

Evidence of extensive pneumoperitoneum in CECT abdomen, patient planned for exploratory laparotomy. Intra operative finding reveals cecal perforation with fecal contamination in pelvis. Friable posterior wall of ascending colon with multiple perforations, large collection of air and fecal matter in retroperitoneum. Peritoneum and posterior rectus sheath in right lower abdomen sloughed. Transverse colon was adhered to right upper abdominal scar. No growth palpated in large bowel. We did right hemicolectomy with end ileostomy. In post-operative course, patient required reexploration for copious discharge from drains. On 2nd

laparotomy, no new source was found, thorough peritoneal lavage was done. Patient expired after 10

days of 2nd exploration due to uncontrolled sepsis.

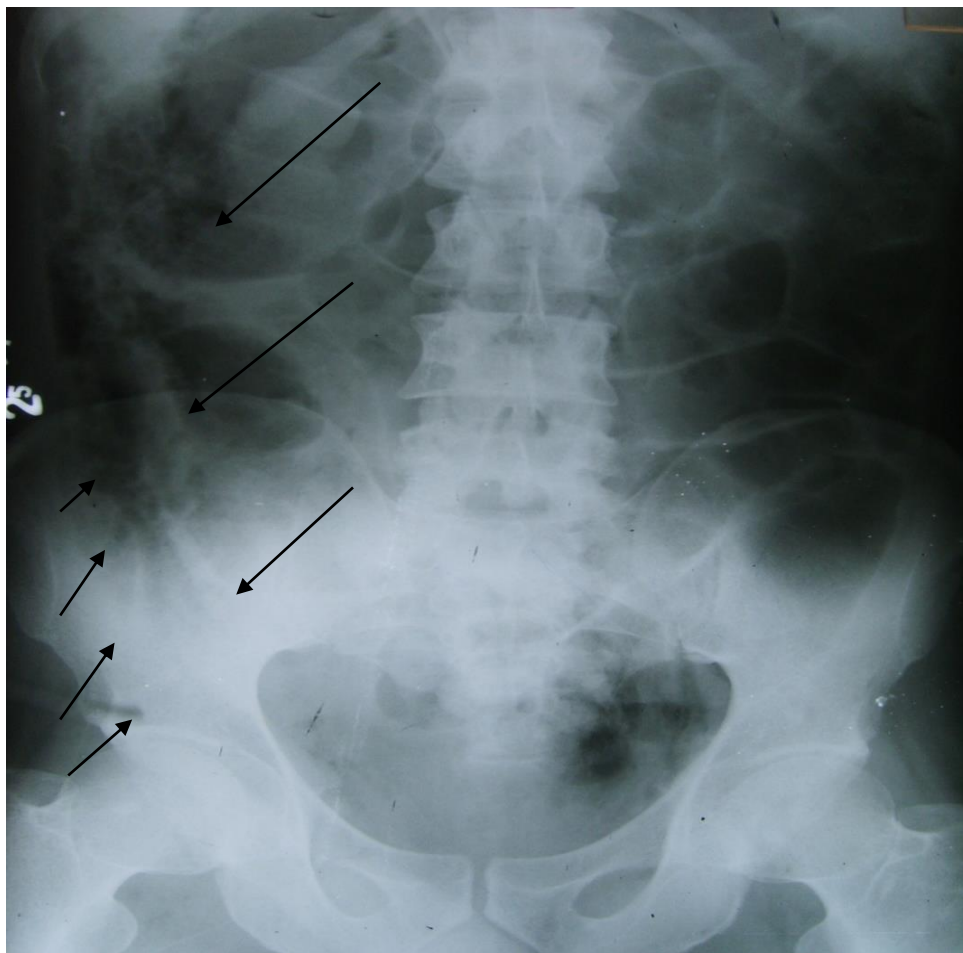


Fig 1. Extensive subcutaneous emphysema in anterior abdominal wall (arrow)

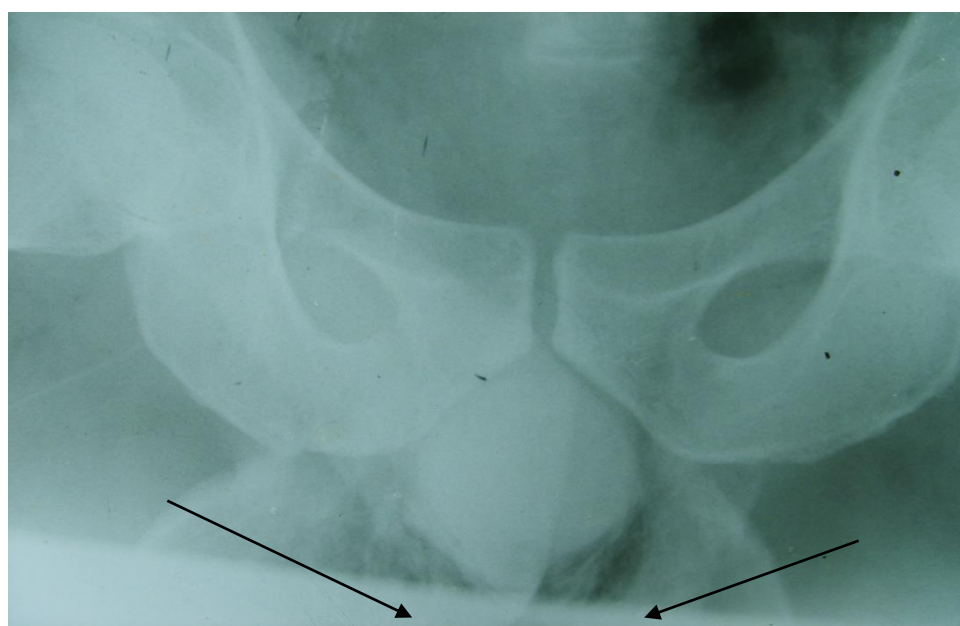


Fig. 2 Subcutaneous emphysema in scrotum.

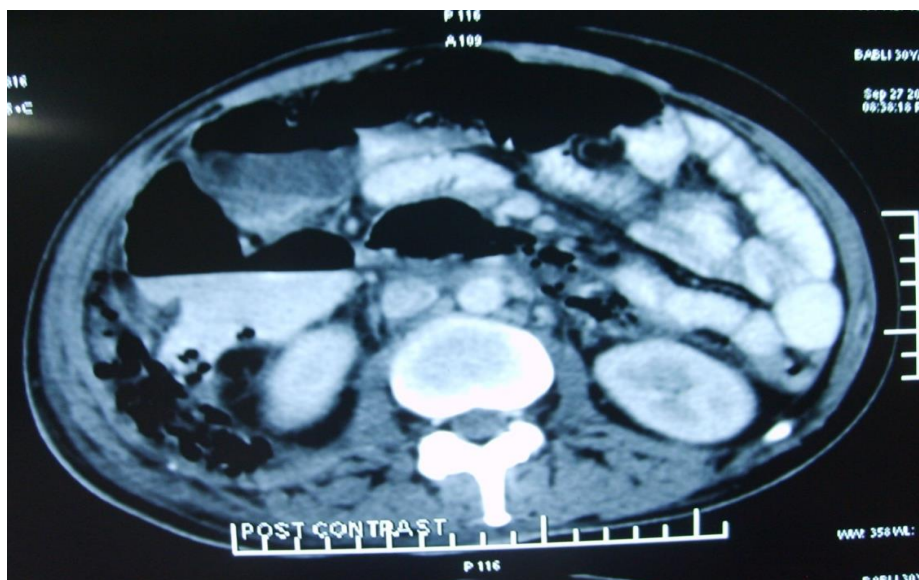


Fig 3. CECT abdomen shows subcutaneous emphysema with retroperitoneal perforation and air around right pararenal space.

DISCUSSION

The subcutaneous emphysema, secondary to perforation of the gastro-intestinal tract was first described by Abeille,' in 1853.[5] Stahlgren and Thabit emphasized that subcutaneous emphysema is an important sign of intra-abdominal abscess containing gas-forming bacteria, and recorded six cases of this association[6]. More uncommon is an involvement of the scrotum in such processes. Oetting et al. [7] stated that the accumulation of gas was dependent on three basic factors: (a) perforation of the bowel, (b) an adequate pressure gradient between the lumen of the bowel and the surrounding tissues, and (c) the anatomic site of perforation. They considered infection as an additional gas-forming factor. A ruptured viscus may: (1) give rise to a localized abscess or peritoneal gas and fluid;(2) cause necrosis of adjacent tissue; (3) cause fistula formation which may act as a safety valve mechanism; or (4) give rise to dissection of gas through soft tissue planes. This dissection may be intramural within the bowel, in the immediate subcutaneous tissues, or through the interstitium of muscle. Dissection of gas is frequently accompanied by retroperitoneal perforation. Pneumosrotum occasionally can be associated with retroperitoneal or intraperitoneal perforation [8]. In fact the presentation of emphysema is determined largely by the anatomical location of the primary perforation. Generally, emphysema of the anterior abdominal wall is associated with perforation of the small intestine, appendix and colon; emphysema of the scrotum, perineum, or thigh is usually associated with tears in the anorectal area or colon.

The diagnosis of retroperitoneal perforation is usually impeded by the lack of signs of peritoneal

irritation. The anatomical site of perforation largely determines the route of escape of the gas to the subcutaneous position. Therefore, the current case, with spontaneous lower chest, whole abdomen and scrotum emphysema resulting from the perforation of the retroperitoneal part of ascending colon is quite original. Patient presenting with subcutaneous emphysema of abdomen and scrotum without an obvious thoracic course should be scrutinized for retroperitoneal hollow viscus perforation to achieve successful early management.

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