

Case Report

Pneumomediastinum Following Anastomotic Leakage in Colon Surgery: A Case Report and Literature Review

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ABSTRACT

We are presenting the case of a 62-year-old woman who developed a pneumomediastinum as a complication of anastomotic leakage (AL) following laparoscopic sigmoid resection due to diverticulitis. The patient presented with retroperitoneal air, pneumomediastinum, emphysematous gall bladder, air in the wall of stomach, and proximal small bowel. There were a few tiny air bubbles around the anastomosis. We discuss this unusual clinical presentation of intraperitoneal and extraperitoneal air as a presenting sign of AL.

Key Words: Anastomotic leakage, laparoscopic sigmoid resection, pneumomediastinum

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Anastomotic leakage (AL) increases morbidity and mortality after colorectal surgery. Usually the leakage occurs in the peritoneum, causing symptoms and signs of peritoneal irritation; however, other modes of unusual presentation including cardiac symptoms and unusual radiological findings can mislead the physicians and delay the diagnosis.

We are reporting here a rare case of a colonic postoperative leakage leading to spread of gas into multiple extraperitoneal and intraperitoneal areas.

CASE REPORT

A 62-year-old Saudi woman, was admitted to King Khalid University Hospital (KKUH), electively for laparoscopic sigmoid resection. The patient had previously been admitted on a number of occasions for complicated and uncomplicated attacks of diverticulitis. Initial laboratory investigations showed an increase in urea, creatinine, potassium, white blood cells (WBCs) and decreased red blood cells (RBCs), hemoglobin, hematocrit, and bicarbonate. The patient was

diagnosed to have diverticulosis. The patient was taken to the operating room for laparoscopic sigmoid resection. Intraoperative finding was diverticula in the sigmoid and distal descending colon.

On day 3 postoperatively, the patient spiked a fever with a temperature of 38.9°C and septic screening was done, the patient was diagnosed with urinary tract infection and antibiotics were started. Her hemoglobin was low, and blood transfusion was done, but the patient became hypotensive; blood pressure was 85/52 mmHg, oxygen saturation was 94%, and pulse rate of 110/min. Transfusion was stopped immediately and hydrocortisone started. The patient was transferred to surgical intensive care unit (SICU). Dopamine was given in the intensive care unit and continued for 1 week and a transfusion of 1 unit of packed RBCs was continued at a slow rate. After 2 days, the patient was transferred back to the general ward. Follow-up WBC count was 12.7, blood culture showed *Escherichia coli* and urine culture showed *Klebsiella pneumoniae*, the antibiotic was changed. On day 7 postoperatively, the patient complained of abdominal pain, distention and WBC was 13.8. Computed tomography (CT) showed very few air bubbles in the abdominal cavity mainly in the retroperitoneal with extension into the mediastinum. On the lateral site to the anastomosis, evidence of bowel air was found at the serosal surface of gallbladder and omentum due to AL. The patient was taken back to the operating room for diagnostic laparoscopy, which showed AL. Laparoscopic Hartmann's sigmoid resection was performed [Figure 1]. The patient was transferred to SICU postoperatively, intubated

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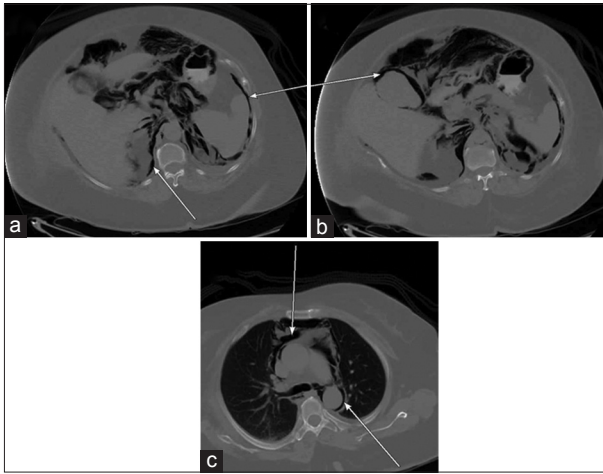


Figure 1: T abdomen showed: (a) Axial CT abdomen showed air around the aorta and few air bubbles intraperitoneally. (b) Axial CT showed air around the gall bladder and intraperitoneal free air. (c) Axial CT section showed pneumomediastinum

and started on inotrope. CT scan was done after 10 days and showed no drainable intra-abdominal collection. She was discharged without complications and has remained well until this date.

DISCUSSION

AL after colorectal resection is a dreaded complication and is reported to have a significant mortality (6%–20%).^[1] Morbidity is dramatically increased and leads to reoperation, radiological interventions, and permanent stoma in 56%.^[2] AL is the leading cause of postoperative death after colorectal surgery, increasing the risk of permanent stoma significantly. Some leaks present in a dramatic fashion early in the postoperative period, leaving little doubt about the diagnosis. However, many other patients present in a far more subtle fashion, often relatively late in the postoperative period and can be difficult to distinguish from other postoperative infectious complications.^[3] Patients who develop cardiac symptoms following restorative colorectal resection should have a water-soluble contrast enema, as there is a greater than 40% chance that they have an AL.^[4]

Souche *et al.* reported a case of colorectal AL after left colectomy, whose only physical sign was subcutaneous emphysema of thorax, neck, and face.^[5] Annas *et al.* reported

a case where a patient developed a colocutaneous fistula as a complication of AL following segmental colonic resection. This patient presented with an abscess of the abdominal wall, subcutaneous emphysema, pneumomediastinum, pneumothorax, pneumorrhachis, and pneumoscrotum.^[6] The anatomical continuity of those soft tissues explains spread of gas into the other extraperitoneal areas in our patient. It is well established that an anatomical route along the fascial planes exists between the neck, the chest, and the abdomen.^[7,8] And because fascial planes in the neck communicate through the retropharyngeal space with the mediastinum, air can track into the thorax and even into the epidural space.^[9] In conclusion, our case describes an unusual presentation of complications following colorectal surgery. Surgeons should consider in the postoperative period, unusual symptoms and signs of AL that might divert the surgeon's attention from the possibility of the presence of AL.

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