

Case Report / Olgu Sunumu

A Rare Case of Concurrent Pneumoretroperitoneum, Pneumomediastinum,
Pneumothorax and Subcutaneous Emphysema Seen After Colonoscopy

Kolonoskopi Sonrası Nadir Görülen Pnömoretroperitoneum, Pnömomediastinum, Pnömotoraks ve
Subkutan Amfizem Olgusu

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Abstract: Coexistence of pneumoretroperitoneum, pneumomediastinum, pneumothorax and subcutaneous emphysema after colonoscopy is a rarely seen condition. We present this rare clinical condition seen after colonoscopy to contribute to the literature. A 62-year-old male patient, who was operated for acute abdomen two years ago, underwent colonoscopy due to colon stenosis. He applied with the complaints of swelling in the neck and subcutaneous swelling in the chest and abdomen after the procedure. Pneumoretroperitoneum, pneumomediastinum and subcutaneous emphysema were detected in the patient. In case of subcutaneous emphysema to be seen after colonoscopy, the possibility of pneumomediastinum and pneumothorax should also be considered.

Keywords: Cardiovascular Side Effect, Acute Myeloid Leukemia, Bradycardia, High Dose Cytarabine, Side Effect

Özet: Kolonoskopi sonrası pnömoretroperitoneum, pnömomediastinum, pnömotoraks ve subkutan amfizem birlikteliđi nadir görölen bir durumdur. Kolonoskopi sonrası görölen bu nadir klinik durumu literatüre katkı sađlaması amaçlı sunduk. Akut batın nedeniyle iki yıl önce opere olan hasta kolon darlıđı nedeniyle kolonoskopi yapılan 62 yařındaki erkek hasta işlem sonrası boynunda řiřlik, göğsünde ve karında cilt altı řiřlik řikayeti ile başvurdu. Hastada pnömoretroperitoneum, pnömomediastinum ve subkutan amfizem tespit edildi. Kolonoskopi sonrası görölecek cilt altı amfizem durumunda akla pnömomediastinum ve pnömotoraks olma ihtimalide gelmelidir.

Anahtar Kelimeler: Pnömomediastinum, Pnömotoraks, Deri Altı Amfizemi, Kolonoskopi

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1. Introduction

Colonoscopy is one of the most common diagnostic and therapeutic procedures. After the colonoscopy procedure, serious complications such as bleeding or perforation and rare complications such as pneumoretroperitoneum, pneumomediastinum and pneumothorax can be seen. Massive air in the retroperitoneal space can exit the intestine directly through extraperitoneal route or indirectly through intraperitoneal intestinal perforation (1).

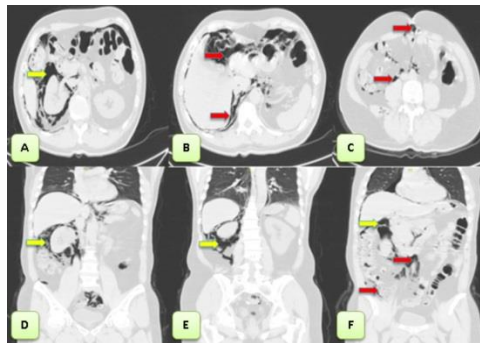
Extraintestinal free air may reach the mediastinum and pleural space upward through the esophageal or aortic hiatus and result in pneumomediastinum and pneumothorax (2). Free air can travel under the skin along the muscle fasciae, causing subcutaneous emphysema in the neck, chest, abdomen, back, and scrotum.

2. Case

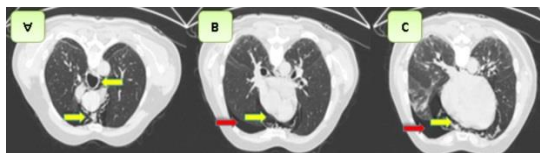
A 62-year-old male patient, who was operated for colonic perforation and had undergone sigmoid colon resection two years ago, underwent colonic dilatations four times due to colon stenosis. An experienced gastroenterologist performed colonoscopy from the anorectal area and observed stenosis and adhesions starting from the anal canal and extending to the anastomosis line. Force was used to pass the narrow areas and the stenosis was passed. The patient underwent dilatation and then the procedure was completed. The patient was discharged and 2 hours later (6 hours after the procedure, no abnormal findings were detected in the first follow-up),

subcutaneous swelling and pain were observed and he was admitted to the emergency department. In the physical examination of the patient, subcutaneous crepitations were observed in the abdomen, thorax and neck region. In the detailed abdominal examination, no signs of rebound, defense or irritation were found. On examination, he had a temperature of 100.4° F, a blood pressure of 110/78 mm Hg, and a heart rate of 105/min. The patient's blood test results were within normal limits. Thoracic and abdominal computed tomography (CT) were performed on the patient. Abdominal CT showed air densities in the retroperitoneal area, especially around the right kidney, in the abdomen, and in the psoas muscle (Figure 1). Focus of perforation could not be detected. Extensive subcutaneous emphysema, pneumoretroperitoneum, pneumomediastinum, and right pneumothorax were detected in thorax CT (Figure 2). On physical examination, palpable crepitations were observed in the neck, chest and abdominal wall.

No surgical intervention was performed for the patient's minimal pneumothorax. Oxygen therapy and medical treatment were arranged, and pneumomediastinum, pneumothorax and subcutaneous emphysema regressed in the direct radiographs taken during the follow-up of the patient. No increase in acute phase reactants was observed. The patient, whose clinical condition was stable in the follow-ups, was discharged.



Figures 1. Computed tomography of abdomen after colonoscopy (A-F); Retroperitoneal (A,D,E,F, yellow arrow) and abdominal free (B,C,F, red arrow) air.



Figures 2. Computed tomography of the thorax taken after colonoscopy (A-C); Pneumomediastinum (A,B,C, yellow arrow) and pneumothorax (B,C, red arrow).

3. Discussion

Colonoscopy has become a widely used method worldwide since the 1970s and has become the most frequently used interventional method in the diagnosis of benign and malignant events (3) Although colonoscopy is considered an extremely safe procedure, serious complications can occur following colonoscopy(4).

The reported mechanisms for pneumoretroperitoneum, pneumomediastinum, and pneumothorax seen after colonoscopy are barotrauma, thermal injury, and perforation caused by the colonoscope (2). The estimated incidence for iatrogenic intestinal perforation is 0.016-0.8% for diagnostic, and 0.02%-8% for therapeutic colonoscopies, and the most frequently perforated area is the sigmoid colon (5).

In a study, the most frequently injured area was the sigmoid colon (52%), followed by the cecum (17%), ascending colon (14%), transverse colon (7%), descending colon (8%), and rectum (1%) was detected (6).

Lahsirwat et al. reported the perforation rate as 0.016-0.2% after diagnostic, and as 5% after therapeutic colonoscopies (7). In another study, Chen et al. reported the rate of colon perforation in 29 patients as 0.04% after diagnostic and as 0.7% after therapeutic colonoscopies (3).

The patient may present with a wide range of symptoms ranging from abdominal pain, shortness of breath, peritonitis or mediastinitis (7). However, often the first finding is subcutaneous emphysema. Advanced age, female gender, diverticulosis, inflammatory

bowel disease, previous abdominal surgery and colon stenosis are important risk factors (4). Technical risk factors include placement of the colonoscope, dilatation, biopsy and use of electrocautery(8).

Treatment is made on a case-by-case basis. While the conservative approach is appropriate in stable patients without findings of peritonitis, the surgical approach is preferred in cases of peritonitis, deterioration in general condition or leakage of fecal contents. Surgical procedures to be performed include repair of intestinal defect or segmental resection using laparotomic or laparoscopic approaches (9). If pneumomediastinum and pneumothorax are contained, frequently a conservative treatment approach is preferred. However, depending on the extent of pneumothorax, the patient may be followed up after insertion of a chest tube. In their series, Tiwari et al. treated 53% (n:17) of extraperitoneal perforation cases conservatively, while 47% (n:15) required surgical treatment. (9).

4. Conclusion

Although colonoscopy is a reliable method, pneumoretroperitoneum, pneumomediastinum, pneumothorax and subcutaneous emphysema can be seen very rarely after the procedure. Treatment of these complications may require conservative, symptomatic or major surgery. Therefore, after the procedure, the clinician should evaluate the patient, subcutaneous emphysema to be seen should bring to mind pneumomediastinum and pneumothorax due to the extraintestinal air leakage.

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Ethics