

Pneumomediastinum as a Rare Complication of Diagnostic Colonoscopy: Case Report

Diagnostik Kolonoskopinin Ender Bir Komplikasyonu Olarak Pnömomediasten

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Geliş Tarihi/Received: 09.03.2012
Kabul Tarihi/Accepted: 29.05.2012

This case was presented at 14th Annual
Congress of Turkish Thoracic Society,
13-17 April 2011, Antalya

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ABSTRACT Pneumomediastinum can be described as presence of free air in mediastinum as a result of perforation of trachea-bronchi or digestive system organs following blunt, penetrating or barotrauma. Colonoscopy is the most used diagnostic and therapeutic method for lower gastrointestinal system diseases and colonic perforation is rare complication of colonoscopy. We report a 72 years old male who had been suffering abdominal pain, constipation and lack of gas flatulence for 5 days and colonoscopy was performed with presumptive diagnosis of subileus. Chest pain developed right after colonoscopy and subcutaneous emphysema was observed on his face, neck and chest wall on physical examination. Explorative laparotomy and primary repair of sigmoid colon defect was performed. A rare case who developed subcutaneous emphysema, pneumomediastinum and pneumoperitoneum due to iatrogenic sigmoid colon perforation after diagnostic colonoscopy was presented. The mediastinal emphysema regressed spontaneously following repair of colon.

Key Words: Mediastinal emphysema; colonoscopy; subcutaneous emphysema; pneumoperitoneum

ÖZET Pnömomediasten künt, penetran ya da barotraumayı takiben trakeobronşial sistemin ya da sindirim sistemi organlarının bütünlüğünün bozulması sonrası mediastende hava bulunması olarak tarif edilebilir. Kolonoskopi alt gastrointestinal sistem hastalıklarının tanısında en sık kullanılan tanı ve tedavi yöntemi olup, kolonoskopi sonrası kolon perforasyonu ender olarak ortaya çıkmaktadır. 72 yaşındaki erkek olgumuzda 5 günlük karın ağrısı, konstipasyon ve gaz çıkaramama şikayeti ve subileus öntanısıyla kolonoskopi yapılmış, kolonoskopi sonrasında göğüs ağrısı ve fizik muayenede yüzde, boynunda ve göğüs ön duvarında subkutanöz amfizem saptanmış idi. Olguda tanısal laparotomi ile sigmoid kolon hasarı saptandı ve kolon primer tamiri uygulandı. Olgu tanısal kolonoskopinin iatrojenik sigmoid kolon perforasyonu ve subkutanöz amfizem, pnömomediasten ve pnömooperiton ile sonuçlandığı ender bir durum olup, subkutanöz amfizem ve pnömomediasten kolon hasarı onarımı sonrası spontan olarak gerilediği gözlenmiştir.

Anahtar Kelimeler: Mediastinal amfizem; kolonoskopi; subkutanöz amfizem; pnömooperitoneum

Türkiye Klinikleri Arch Lung 2012;13(2):72-4

Pneumomediastinum is presence of free air in mediastinum as a result of perforation of trachea-bronchi or digestive system organs. Symptoms such as dysphagia, dysphonia, difficulty at swallowing, dysphonia, cyanosis, distant of neck veins, fever and hypotension may accompany substernal pain. A precordial crackling sound is diagnostic of pneumomediastinum. Air can be seen around the esophagus, main bronchi and vascular structures on chest radiographs. The most sensitive test for diagnosis is chest computed tomography (CT); air can be shown between mediastinal structures.¹

CASE REPORT

A 72 year old male patient was referred to our hospital with chest pain right after diagnostic colonoscopy. He had been suffering abdominal pain, constipation and lack of gas flatulence for 5 days and colonoscopy was performed with presumptive diagnosis of subileus. Subcutaneous emphysema was observed on his face, neck and chest wall on physical examination. There were abdominal distension and tenderness and his bowel sounds were hypoactive. Blood pressure, pulse rate and fever were 140/80 mmHg, 120/min, 38.5 C° respectively. Free air in subdiaphragmatic area was observed on his chest x-ray. There was widespread pneumomediastinum on thorax computed tomography (Figure 1). Distension in whole colon segments, subcutaneous emphysema at upper abdomen and pneumoperitonium can be seen on abdominal computed tomography (Figure 2). The patients's white blood count was $15.49 \cdot 10^3/\text{mL}$. Explorative laparotomy and primary repair of sigmoid colon defect was performed. The case was reoperated on postoperative 5th day because of suspicion of leakage of primary repair and loop ileostomy was performed. Mediastinal emphysema was followed conservatively with chest radiographies and physical examination. Mediastinal emphysema was stabilized after first operation without progression, and rapidly regressed after



FIGURE 1: Thoracic computed tomography showed pneumomediastinum and subcutaneous emphysema.



FIGURE 2: Computed tomography of the abdomen shows retroperitoneal air.

second operation in a few days. No further complication was observed in postoperative period and case was discharged after 7th day following reoperation.

DISCUSSION

Although colonoscopy is a safe diagnostic procedure, complications are seen frequently because of increased number of the procedures. Most common complications are bleeding and perforation; their incidence in diagnostic colonoscopy is less than 0.2%.

Cause of presence of air in retroperitoneum can be direct passage of air as a result of retroperitoneal perforation or dissection of air through colonic wall (pneumotosis coli) and subsequent passage along the mesentery. Air reaches to mediastinum between fascias, and may lead to pneumothorax if there is damage in mediastinal pleura. Except these routes, air can reach to thoracic cavity by small fenestrations in diaphragma when air pressure rises in peritoneal cavity.²

Partial defects can develop in the colonic mucosa, allowing the passage of air when the pressure increased, without causing perforation. The defects leading to pneumoperitoneum without visible damage are not indication for surgical exploration.³

Treatment offer at least 24-36 hours. Approach to pneumomediastinum with extrapulmonary causes in which there is no injury in esophagus, tracheobronchial tree and pulmonary paranchyma should be conservative such as bed rest, medication for pain, antibiotics and avoiding valsalva's maneuver.⁴

Spontaneous regression of pneumomediastinum can be seen in about 48 hours after reparation of primary damage as our case. O₂ and

antibiotherapy can be given if dyspnea and infection develops.¹ Mediastinal fine needle aspiration, mediastinotomy, tracheostomy should be performed for decompression. An urgent thoracotomy may be needed for serious complications such as mediastinitis.⁵

Acknowledgement

We thank Fisun Karadağ, MD, for her help in language, No conflict of interest.

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