

CASE REPORT

Pneumatic Rupture of Rectosigmoid; a Case Report

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Abstract

Pneumatic rectosigmoid rupture is usually occurred following the inappropriate fun by direct entering a high volume of the air through the pneumatic device to the anus. Such an event was reported for the first time in 1904 by Stone. Diagnosis and treatment of such injuries are often delayed because of some social limitations and preventing the patient from explaining the event. Colon sigmoid rupture and pneumoperitoneum is one of the most dangerous and life treating complications of entering a high volume of the air to the rectum in a short time. There are only a few reports regarding the similar cases. Here, a case of pneumatic rectosigmoid rupture was reported in a 53 year-old male following an inappropriate fun.

Key words: Pneumoperitoneum, artificial; rupture; abdomen, acute

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Introduction:

Pneumatic rectosigmoid rupture is usually occurred following the inappropriate fun by direct entering a high volume of the air through the pneumatic device to the anus (1). There are only a few reports regarding the similar cases. Such an event was reported for the first time in 1904 by Stone (2). Then Andrews in 1911 declared a patient with sigmoid rupture who was treated by resection of torn region (3). Diagnosis and treatment of such injuries are often delayed because of some social limitations and preventing the patient from explaining the event. Colon sigmoid rupture and pneumoperitoneum is one of the most dangerous and life treating complications of entering a high volume of the air to the rectum in a short time (4). Here, a case of pneumatic rectosigmoid rupture was reported in a 53 year-old male following an inappropriate fun.

Case presentation:

A 53 year-old patient with complaining of faint and abdominal pain referred to the emergency department. His problem was suddenly initiated with rectoragy and lower abdominal pain in the admission morning. At first he referred to the outpatient clinic, underwent supportive treatment, and then discharged without a clear diagnosis. After a short time, he experienced non-bloody vomiting of eaten stomach content as well as rectoragy, again. Also the abdominal pain exacerbated and expanded to across the abdomen. Shortness of breathing was gradually add-

ed to other problems of the patient, too. By increasing the patient's symptoms, he was referred to the emergency department by his colleagues. The patient did not explain anything regarding his trauma event and stated that he had has these symptoms since the morning. In the arrival time the patient was alert but complained from severe abdominal pain and rectoragy. During visiting the abdomen was distant with general guarding and tenderness. The abdomen was tympan in palpitation and dullness of the liver wiped out. Visiting of the rectum showed no signs of trauma or injury. After comprehensive history taking and physical examination, laboratory tests as well as a simple standing chest radiography was requested. The patient's vital signs at the time of admission were as follow: Blood pressure= 120/80 mmHg, pulse rate= 100/minutes, respiratory rate= 20/minutes, temperature= 37.5 °C oral, and saturation oxygen= 91% on room air. Plain chest radiograph revealed a high volume of free air under the both sides of diaphragm (Figure 1). Then, the patient experienced fever during hospitalization (39 °C oral). Considering to the signs, the subject underwent laparotomy after the initial resuscitation. Immediately after opening the peritoneum, the air quickly exited and abdominal distension relieved rapidly. The exploration showed a gangrene and about six centimeters perforation at anti-mesenteric border of the rectosigmoid. In careful observation of the peritoneal space no other injuries were found. After clearing the peritoneal cavity, the patient underwent Hartmann's colostomy and also Hemovac drain was placed. After full consciousness of the patient and his informing from the occurred event, he stated that in the refer morning before beginning of the symptoms, his colleagues for the fun entered

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the compressed air through the tube air compressor (with pressure lbs 50) into his anal. Two weeks after surgery, the patient was discharged in a good condition.

Discussion:

Pneumatic rectosigmoid rupture usually happen following the joke and in work places using compressed air. Among pneumatic traumas, colon injury is very serious due to entering a high volume of the air to the rectum in a short time. The symptoms are different depend on the intraluminal pressure and level of colon injury. Colon rapture can be occurred in one or more sites but as shown in the subject of the present study, the most current region of the rapture is the rectosigmoid location especially in the recto-sigmoid Junction (5). The high pressure air which is entered to the rectum exercises a large force to the rectosigmoid Junction which leads to rapturing the anti-mesenteric wall of the rectosigmoid (3). The abdominal distension and pain are suddenly initiated and peritoneal symptoms like abdominal rigidity and tenderness presented as the subject of our study. Due to hampering the movement of diaphragm by pneumoperitoneum, in most of times respiratory distress occurs, too (4). Zechel divided the shock of pneumatic injuries in to two groups (6). The initial shock is because of entering the compressed air and colon rapture while the second shock arises from the pressure pneumoperitoneum. In the pressure pneumoperitoneum too much pressure in the peritoneum forces to the cardiovascular and respiratory system and leads to hypotension and respiratory distress. After resuscitation of the initial shock, peritonitis due to fecal contamination should be evaluated and quickly treated (1). The inflamed colon filled with air or large amount of free air in peritoneal space was seen in radiography. When the respiratory distress associates with such radiological presentation, arterial blood gas (ABG) shows hypoxia and respiratory alkalosis. Increasing the air pressure inside of the peritoneal space can affect superior vena cava (SVC) and collapse the blood flow, severe impairment of blood flow leads to rhabdomyolysis (7). Although patients with pneumatic rapture of colon were diagnosed in the initial visit, some cases with delayed diagnosis were also reported (8-10). Such patients firstly did not show any peritoneal symptoms or air trapped in the peritoneal cavity in the simple chest radiography, but after three to five days the peritoneal symptoms would gradually appear. Shiels and colleagues showed that a pressure of 120 mmHg is required to colon perforation by hydrostatic enema (11); also in the present subject such a pressure was occurred by injecting the air to the anus. Of course determining the reason of perforation, arisen from the direct trauma or hydrostatic pressure, is difficult. Treatment of pneumatic injury has two aspects: Pressure pneumoperitoneum and colon injury. Pressure pneumoperitoneum mostly causes to acute respiratory distress with



Figure 1: The upright posterior-anterior chest x ray of patients

or without cardiovascular collapse and in the absence of emergency peritoneal paracentesis it will lead to death. Colon perforation should be separately treated. For the perforated colonic ulcer, the primary repair or segmental resection with or without colostomy would be performed, too (4). It could be concluded that despite uncommonness of pneumatic rectosigmoid rupture, it should be considered as one of the differential diagnosis in the presence of free air in abdominal cavity and sign of peritoneum.

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