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• Case Report •

Simultaneous Surgery on Jejunum perforation with Pelvic Ring Fracture: A Case Report

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Patients with pelvic bone fractures with gastrointestinal perforations are reported in 4.4% of the cases and in very rare cases jejunum (0.15) is involved. However, intestinal perforations are often undiagnosed on the first examination before peritonitis is evident. We are presenting a report where a patient with anteroposterior compression injury, who was expected to undergo an internal fixation procedure, did not show any jejunum perforations on abdominal CT or other physical exams but was found on abdominal CT 1 week after right before surgery, therefore excision and anastomosis surgery, pelvic open reduction and internal fixation was simultaneously done with favorable results. In our case, we present a 61 year old male patient with liver trauma, adhesion at the abdominal cavity, with a past history of gallbladder excision, but without abdominal pain, fever, or infection symptoms. Therefore, this was a case that was difficult to initially diagnose the patient with jejunum perforation and peritonitis. The diagnosis was further supported during laparotomy when peritonitis around the area of intestinal perforation was observed. Generally, it is understood that pelvic bone fracture surgery is not immediately done on patients with peritonitis. However, this kind of patient who had peritonitis with intestinal adhesion and other complications could undergo surgery immediately as infection or other related symptoms did not coexist and the patient was rather stable, and as a result the treatment was successful. [J Trauma Inj 2016; 29: 56-59]

Key Words: Pelvic ring injury, Jejunum perforation, Abdominal-pelvic trauma

I. Introduction

Severe traumatic patients with pelvic bone fractures usually arise from car accidents, falling, and etc. where high energy injury is involved. Patients with pelvic bone fractures with gastrointestinal perforations are reported in 4.4% of the cases and in very rare cases jejunum (0.15) is involved. In addition, when intestinal perforations and urinary system damage are involved, fracture treatment is generally started after other organs are first treated and the vital signs have recovered. However, intestinal perforations are often undiagnosed on the first examination before peritonitis is evident. We are presenting a report where a patient with anteroposterior compression injury, who was expected to undergo an internal fixation procedure, did not show any jejunum perforations on abdominal CT or other physical exams. 1 week after right before surgery, perforation of the jejunum was found on abdominal CT and therefore excision and anastomosis surgery, pelvic open reduction and internal fixation was simultaneously done and favorable results were obtained.

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II. Case

61 year old male patient with gall bladder excision history had a car accident and was transported to the ER, and symptoms that followed were hypotension, abdominal pain, pelvic pain. At the time the patient arrived at the ER, he had clear consciousness and the vital signs were BP 88/52 mmHg, HR 70 beats/min, respiration 22 times/min, body temperature 35.2 Celsius. Physical exam showed anterior abdominal pain and subsequent ultraonography (FAST) showed positive results. Hemoglobin level was 11.9 g/dL, lactate was 4.3 mg/dL, and to prevent hemorrhagic shock fluid treatment was initiated. Pelvic plain x-ray showed left upper and lower pubic ramus fracture and sacroiliac joint space had widened. Furthermore, liver laceration and pelvic ring injuries were confirmed on the CT scan (Fig. 1). After 1 week vitals were stabilized, open reduction and internal fixation was planned. Right before the operation abdominal-pelvic x-ray showed free air shadows and pain was observed in the upper abdominal area. However, symptoms were not severe as fever and increased CRP levels were not observed and furthermore physical examinations did not show evidence of diffuse peritonitis which indicated that the peritonitis from perforation was limited to the upper abdomen. It was interpreted that the intestinal perforation manifested as localized inflammation and since infection risk from surgery seemed low, pelvic ring injury surgery and surgery for the perforation were done simultaneously. Initially the jejunum perforation closure surgery was done and the jejunum perforation area was at the upper abdomen 15 cm below the Treitz ligament, and because there was adhesion in the surrounding area pruritic intestinal substance leaked through and the size was around 5 cm in diameter. The intestinal perforation was 5 mm in size at the antimesenteric border (Fig. 2). At the orthopedic surgery department anatomical reduction was done through the modified stoppa approach. Then the left upper/lower

Fig. 1. APC type II injury and liver laceration on image study.

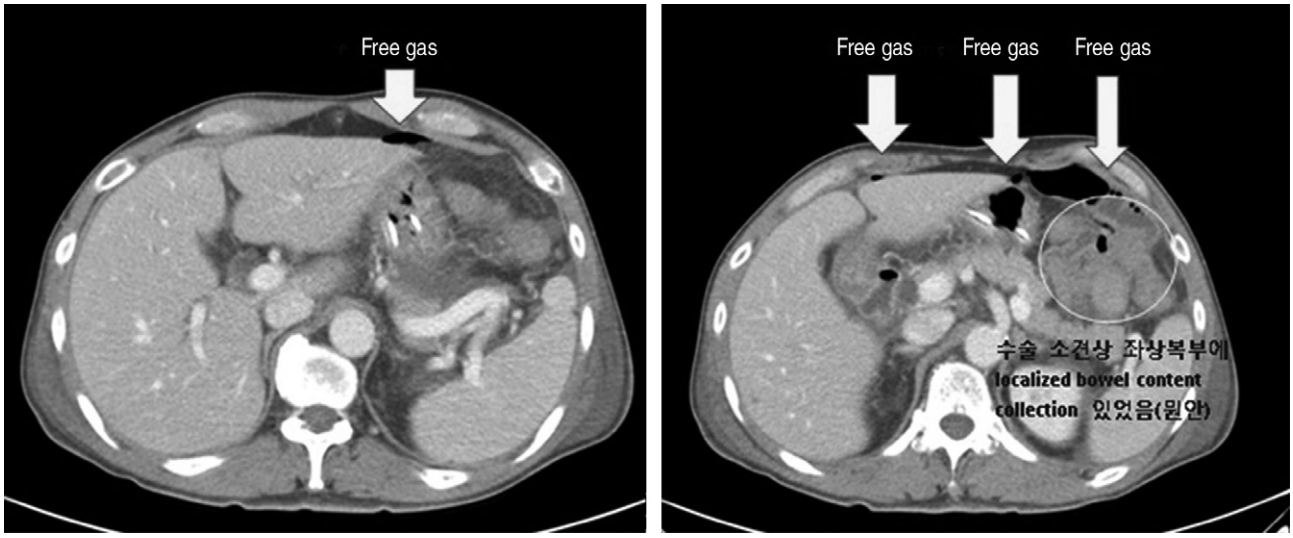

Fig. 2. Free gas in abdomen-pelvic CT.

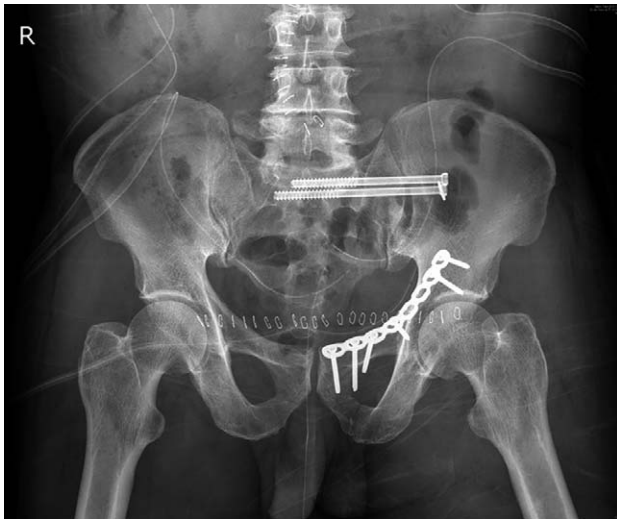

Fig. 3. Postoperative pelvis AP view.

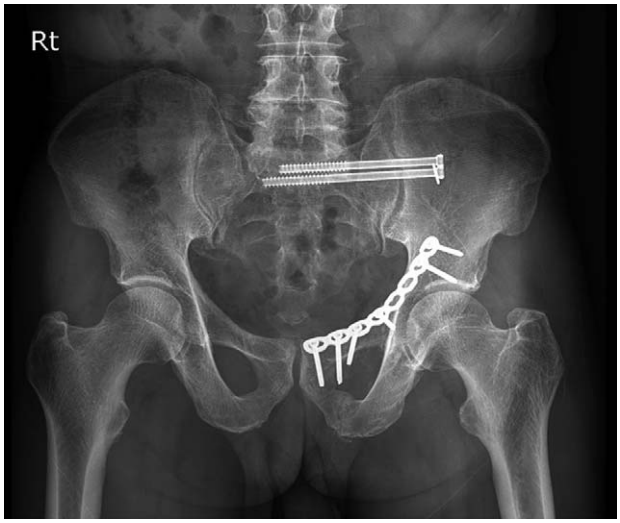

Fig. 4. Postoperative 12 weeks pelvis AP view.

pubic ramus was fixed and to fix the left sacroiliac joint, 2 percutaneous iliosacral screws were inserted (Fig 3). Sitting was practiced five days after the surgical treatment, and crutch walking under non weight bearing was started two weeks after the surgery. 12 week follow up, VAS score was 1 and crutch walking under bilateral weight bearing was implemented after bone union was fully confirmed (Fig. 4).

III. Discussion

Pelvic fracture makes up around 3% of the total fracture cases, and in the US there is an occurance of 36 patients per 10000 annually. It occurs most commonly at the age between 15-28.(2) Among pelvic bone fracture categorizations, Tile categorization(3) or Young-Burgess categorization(4) are commonly used. According to these classifications, conservative treatment, external fixation, open reduction, internal fixation, percutaneous fixation, and various treatment choices are determined. Pelvic fracture complications include bleeding, fixation loss, malunion, nonunion, nerve damage, infection, coexisting organ damage, and when bleeding occurs with pelvic bone fracture, mortality rate is quite high with 30%.(5) Accordingly, Balogh et al.(6) proposed an initial primary guideline to do pelvic

binding within 15 minutes, angiography within 90 minutes the patient is admitted, and within 24 hours minimal invasive orthopedic fixation on patients with decline in general condition but without abdominal organ damage. Also, there were many articles that presented favorable results when peritoneal pelvic packing was done on patients with hemodynamic unstable pelvic bone fracture.(7,8)

Most common traumatic injury that coexists with pelvic injury is the posterior peritoneal cavity bleeding and nerve damage. Damage to the jejunum is quite rare with 0.1%.(2) Also, there are times with the symptoms are ambiguous and hence diagnosis becomes difficult.(9) In relation to this, Demetrio et al.(2) stated that the Abbreviated Injury Scale could be used to asses a patients risk factor for abdominal injury.

In our case, we present a patient with liver trauma, adhesion at the abdominal cavity, with a past history of gallbladder excision, but without abdominal pain, fever, or infection symptoms. Therefore, this was a case that was difficult to initially diagnose the patient with jejunum perforation and peritonitis. The diagnosis was further supported during laparotomy when peritonitis around the area of intestinal perforation was observed.

Generally, it is understood that pelvic bone fracture surgery is not immediately done on patients with peritonitis. However, this patient who had peritonitis with intestinal adhesion and other complications could undergo surgery immediately as infection or other related symptoms did not coexist and the patient was rather stable, and as a result the treatment was successful.

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