1. INTRODUCTION

Blunt trauma, today the commonest one due to motor vehicle accidents, cause multiple organ injuries (1). Diaphragm injuries are seen in 2 to 6% of trauma patients (2). They are diagnosed in the acute phase of blunt trauma only in 10% of cases, more often they are presented as hernia. Traumatic diaphragmatic hernia presents unique obstacles to a minimal invasive approach. However, with the proper training and equipment, most of these hernias are amenable to laparoscopic approach. These patients can expect the same well-known benefits of laparoscopic approach (4).

This paper reports the case of a 56-year-old man, admitted in hospital with symptoms of vomiting, abdominal pain and dispnea who sustained blunt abdominal trauma in a high speed motor vehicle accident nine months ago. X-ray and CT scans confirmed suspected strangulated diaphragmatic hernia which contained stomach, colon, major omentum and spleen in left hemithorax. The urgent laparoscopic procedure was performed – omentum, colon and stomach were taken back through diaphragmatic defect but the spleen was tightly fixed in thoracal cavity and splenectomy was performed. The diaphragmatic defect was repaired with interrupted sutures. This case proves that laparoscopic repair of diaphragmatic hernia is effective, but this should be carried out with caution, sometimes it needs additional complex procedure in emergency setting like splenectomy in this case.

Keywords: traumatic diaphragmatic hernia, laparoscopy, splenectomy

2. CASE REPORT

A 56-year-man was admitted to our hospital with symptoms of vomiting, abdominal pain and dispnea. From anamnestic data we found out that patient suffered severe injury in a high speed motor vehicle accident nine months ago. X-ray was performed immediately which confirmed previously suspected strangulated diaphragmatic hernia. Hernia contained stomach, colon, major omentum and spleen in left hemitorax which were overlying and compressing left lung field. Ultrasound and computed tomography (CT) scans confirmed diagnosis as well.

The urgent laparoscopic procedure was performed. After creating pneumoperitoneum we placed four trocars. The whole abdominal cavity was explored at the start so as not to overlook other injuries. Omentum, colon and stomach were taken back through diaphragmatic defect (Figure 1,2) but the spleen was tightly fixed in toracal...
laparoscopic Repair of Traumatic Diaphragmatic Hernia

The spleen was tightly fixed in the thoracic cavity (Figure 3) and its reposition was not possible to achieve and splenectomy was done (Figure 4). The diaphragmatic defect was repaired with interrupted sutures (Figure 5).

Abdominal cavity was cleaned and drainage tube was placed in the left subphrenic space. Tube was also placed in the left hemitorax to insure drainage and faster reexpansion of the collapsed left lung.

The postoperative course was uneventful. Control CT scans of the thoracic cavity showed complete reexpansion of the left lung what was also followed by gradual re-expansion of the collapsed left lung.

The postoperative course was uneventful. Control CT scans of the thoracic cavity showed complete re-expansion of the left lung what was also followed by gradual recovery of respiratory distress. We did not observe any postoperative complications and the patient was discharged from hospital on the seventh postoperative day.

3. DISCUSSION

Unrecognized diaphragmatic rupture occur in as many as 66% of patients with poly-trauma (5). If the patients are not operated in the acute phase, later the symptoms are shown in the latent or obstructive phase as it was the case of this patient. Spontaneous closure of rupture does not occur, however omental interposition may seal a tear temporarily. Therefore, the identification of a diaphragmatic defect is an indication for repair.

The rupture is usuallay left sided (70-90%) as it was in this case (3). It is generally accepted that the liver protects right hemidiaphragm (3). The most commonly herniated organ is stomach (6). The tendency of stomach to herniate is due to its location in the left upper quadrant. Multiple coexisting injuries usually occur in diaphragmatic injuries. The most commonly injured organ is the spleen. Spleen injury has been reported in diaphragmatic injury up to 40% of patients (7). Migration of the spleen due to pulling effect of stomach or elevation of pressure results in a tear of the splenic capsule or avulsion of the hilar or short gastric vessels (1). But in this case the spleen was tightly fixed in the thoracic cavity and its reposition was not possible to achieve and splenectomy was done.

Laparoscopy may be used successfully for both diagnosis and repair, but there are very few reports about laparoscopic repair of diaphragmatic hernia repair (8,9,10). Although lateral position is suggested by some authors, we used supine position because it allows a thorough abdominal exploration (9). The diaphragmatic defect was repaired with interrupted sutures. There are no data which would favour interrupted sutures, nonabsorbent over absorbent ones.

This case proves that laparoscopic repair of diaphragmatic hernia is effective, but this should be carried out with caution, sometimes it needs additional complex procedure in emergency setting like splenectomy in this case.

REFERENCES