Risk factors of delayed diaphragmatic ruptures

Abstract

In contrast to the world thoracic literature, less attention has been paid to blunt diaphragmatic ruptures in Hungarian surgical literature. Based on 12 cases of blunt traumatic diaphragmatic rupture at Thoracic Surgical Clinic (1981-2001), circumstances of late recognition are evaluated. In majority of patients history of thoracic and/or abdominal trauma has been totally forgotten, resulting in false diagnosis of tension pneumothorax in one. In 3 others the diaphragmatic tear was missed during the previous laparotomy in one or considered as a hiatal hernia in the second and a really recurrent hernia was confused with a posttraumatic diaphragmatic palsy in the third. A subgroup of this entity, the two-steps rupture of one patient, may considered as a life-threatening urgency, when early approach is mandatory. In this series for diaphragmatic reconstruction in dominantly left-sided ruptures (10) a similar sided postreolateral thoracotomy were used, and right-sided in the remaining 2, buttressed in only one, without mortality and recurrence. The delay of diagnosis may be considered as the primordial factor of mortality. Even in long-lasting occult cases all efforts are necessary to solve the diagnostic dilemma, before fatal visceral strangulation, before development of feco-pneumothorax, gastric necrosis or tension pneumothorax. Suspicion of the thoracoabdominal trauma may be considered as an important factor of true diagnosis and for prevention of iatrogenic surgical events.

Keywords: Diaphragmatic rupture; Missed thoracic and/or abdominal trauma; Delayed recognition; Risk factors

Introduction

In close connection with increasing traffic and car accidents - phenomenon of modern life - large series of diaphragmatic ruptures, including even right sided ones were published in world literature.

The aim of this retrospective analysis is to evaluate the difficulties of accurate diagnosis of blunt traumatic ruptures of diaphragm and to call attention on serious complications of delayed recognition.

Material and methods

From 1981 to 2001 12 patients with chronic occult diaphragmatic disruption have been managed at our Clinic. All but two were left-sided hernias with delayed presentation, at least 6 months after injury. In the majority of the cases the fact of blunt thoracic and/or abdominal trauma have been forgotten and the injuries to the diaphragm were not suspected before admission, resulting in false diagnosis of tension pneumothorax. In one. In 3 other cases rupture of the left-sided diaphragm was missed at prior laparotomy, a recurrent left-sided hernia was interpreted at the previous institution as posttraumatic diaphragm disruption in mostly left-sided rupture. In case of a young patient the left-sided rupture with gastric stangulation developed 7 days after trauma, representing a veritable two-steps rupture.

The correct diagnosis of occult diaphragmatic hernia was established preoperatively in all instances. The left posterolateral thoracotomy was the preferred approach, except 3 cases when a left thoracolaparotomy or right thoracotomy were required for hernia repair. We used interrupted suture, buttressed with vicryl mesh at only one patient. In almost all cases a visceral herniation (stomach, intestine, spleen, liver and omentum) into the chest cavity was present, most commonly through the paracardiac area in left and central tendon on right side.

Discussion

The delay of diagnosis in latent blunt diaphragmatic ruptures may be attributed to several factors such as superficial history, false or erroneous diagnosis of some thoracic x-ray findings. On contrary suspicion of a thoracoabdominal trauma may be considered as an important factor toward to a true diagnosis of occult diaphragmatic ruptures. Majority of the authors stress the importance of the delayed diagnosis in the development of the life threatening complications, including fatal visceral strangulation with stomach necrosis, colopleural fistula with pneumothorax, tension feco-pneumothorax. Also this is an important factor for prevention of iatrogenic surgical events. Even in long-lasting occult cases, careful history, abnormalities of plain chest roentgenogram, CT scan and barium meal studies of digestive tract may solve the diagnostic dilemma.

However spontaneous or postoperative phrenicus nerve palsy or a strangulated Bochdalek type diaphragmatic hernia may represent a veritable differential diagnostic problem. Extensive adhesions between the herniated viscera and the lung or pericardium are difficult to be taken down through laparotomy so transthoracic approach for diaphragmatic repair seems to be the best approach. This series like other large series reflects that delayed recognition of diaphragmatic rupture may be considered as primordial factor of mortality.

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Conflict of interest

Author declares that there is no conflict of interest.
References


