



# Rupture of the Left Hemidiaphragm after a Motor Vehicle Accident

Ljiljana Gvozdenović\*, Dejan Ivanov, Olivera Ivanov, Mišo Dukić and Vladimir Dolinaj

Department of Anesthesiology and Intensive Therapy, Medical University Novi Sad, Clinical Center Vojvodina, Novi Sad, Serbia

## Editorial

Overall, blunt thoracic injuries are directly responsible for 20-25% of all deaths, and chest trauma is a major contributor in another 50% of deaths [1]. We reviewed clinical signs and diagnostic findings of three patients admitted to the emergency department of our hospital after a motor vehicle accident. Upon admission, all three patients complained of pain and tenderness in the upper abdomen and on the left side of the chest. On auscultation, breath sounds were diminished on the left side. Diagnosis of ruptured left diaphragm was made by Computed Tomography (CT) scans of thorax and abdomen. First patient had prolaps of the stomach and lienal flexure of the colon through an 11 cm long ruptured left hemi diaphragm. Rupture of the left hemi diaphragm in the second and third patient was 8 cm and 13 cm long, respectively. Apart from a ruptured left hemi diaphragm, patients also sustained fractures of the eighth, ninth, tenth and eleventh left rib posterior, while one patient had fracture of the upper branch of the left pubic bone without dislocation. Chest X-ray PA view revealed a heterogeneous opacity in left lower zone. Barium meal examination of stomach and intestine revealed presence of loops of intestine within the left hemi thorax. USG of abdomen revealed empty left renal fossa and no free fluid in abdomen. Computed tomography scan of thorax showed presence of bowel loops and kidney in the left hemi-thorax. They were diagnosed to have traumatic left Diaphragmatic Rupture (DR) with herniation of the intestine and left kidney. The diaphragmatic laceration was managed surgically. In one patient, splenectomy was performed due to iatrogenic injury. At the end of the procedure, all three patients had left chest drains in place, initially draining 100 ml, 300 ml and 150 ml of blood. The patients were transferred to the intensive care unit and were extubated several hours afterwards. Their postoperative chest X-ray findings were normal. Reda found that the incidence of Blunt Diaphragmatic Injuries (BDI) was 1.1 % among patients with thoracoabdominal trauma [2]. BDI must always be taken into account when the patient suffers a traffic accident with multiple injuries. Physical examination in BDI reveals absence of respiratory sounds, audible enteric sounds in the chest and tympany or dullness on chest percussion [1,3]. In our patients, respiratory sounds were diminished on the left side, but no intestinal sounds were audible in the chest, most likely due to paralytic ileus. In the study by Hanna, which included 105 patients with diaphragmatic injury over a period of 13 years, only 22.8 % of the diaphragmatic injuries were diagnosed or suspected using the initial chest radiograph by the physician [3]. Somford and coworkers presented a case of a right-sided diaphragmatic rupture with a delayed diagnosis [4]. Missed initial diagnosis of BDI can result in Traumatic Diaphragmatic Hernia (TDH) which is usually diagnosed several months after the trauma [5]. A high index of suspicion together with selective radiologic evaluation is necessary for early detection and easy surgical management of diaphragmatic trauma.

## OPEN ACCESS

### \*Correspondence:

Ljiljana Gvozdenović, Department of Anesthesiology and Intensive Therapy, Clinical Center of Vojvodina, Novi Sad, Serbia, Tel: +381 63529 409; Fax: +381 21 423 902; E-mail: profgvozdenovic2010@hotmail.com

Received Date: 13 Dec 2017

Accepted Date: 08 Jan 2018

Published Date: 16 Jan 2018

### Citation:

Gvozdenović L, Ivanov D, Ivanov O, Dukić M, Dolinaj V. Rupture of the Left Hemidiaphragm after a Motor Vehicle Accident. *Clin Surg*. 2018; 3: 1863.

**Copyright** © 2018 Ljiljana Gvozdenović. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## References

1. Sangster G, Ventura VP, Carbo A, Gates T, Garayburu J, D'Agostino H. Diaphragmatic rupture: a frequently missed injury in blunt thoracoabdominal trauma patients. *Emergency Radiology*. 2007;13(5):225-30.
2. Reda E. Al-Refai, Ebrahim Awad and Ehab M. Mokbel. Blunt traumatic diaphragmatic rupture: a retrospective observational study of 46 patients. *Interact Cardio Vasc Thorac Surg*. 2009;9:45-9.
3. Hanna WC, Ferri LE, Fata P, Razek T, Mulder DS. The current status of traumatic diaphragmatic injury: lessons learned from 105 patients over 13 years. *Ann Thorac Surg*. 2008;85:1044-8.
4. Somford MP, Nuytinck HKS, Vos DI. A Case of delayed diagnosis of a right-sided diaphragm Rupture with a review of the literature. *Eur J Trauma Emerg Surg*. 2009;35:499-502.
5. Kuo IM, Liao CH, Hsin MC, Kang SC, Wang SY, Ooyang CH, et al. Blunt diaphragmatic rupture-a rare but challenging entity in thoracoabdominal trauma. *Am J Emerg Med*. 2012;30(6):919-24.