

## Car Accident, ARDS, Chest Heteropleural Atelectasis

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### Abstract

**Introduction:** Woman had a car accident as she was co-driver and used a seat-belt. After the accident she transferred in a provincial area hospital and made all the necessary control as a trauma patient. She entered in a surgical department with mainly trauma injury of the chest with small pneumothorax right and left of the lungs, fractures of the two firsts ribs at the anterior chest cage on the right lung and at the anterior chest cage of the row's ribs at the left lung also had lungs contusion after the accident. The next two days the lungs contusion organized ARDS and the patient intubated and enters the ICU area. Mainly with the assisted of mechanical ventilation she recovered the ARDS, extubated and after 12 hours of spontaneous breathing she intubated again because of an atelectasis of the left lung. The cardio-chest surgical consulting was asked for the trauma case and the patient transferred in the nearest 3<sup>rd</sup> degree hospital.

**Discussion:** The multi trauma patients with chest trauma are dealing with serious health complications, the chest fractures and the lungs contusion as they are managed in a special care unit or in the intensive care units, recovery under continuous observation of vital functions, they entering not so often in the operating room so this case report shows. That woman after car accident using seat belt, her chest contusions led to ARDS and intubation. Although the first chest complication where managed with the mechanical ventilation, the patient did not pass the further problems as very soon after extubating she intubated again, because she failed to managed the atelectasis of her left lung. The longer hospitalization required a transdermal tracheostomy to be made at this patient. A 43 days stay in hospitals with no operation on the chest and the patient return home with full rehabilitation.

**Conclusion:** Necessary as any singer case order, a unique personal management is in the patient best interest. The use of seat-belts are important as the low sets, but sometimes complicates the trauma as the bibliography search show in females. The management of serious multi trauma patients in special unit are in benefit of the patient. The complications of a chest contusion with ARDS can further complicate with total atelectasis of a lung and need more intensive interventions as it showed in this case report. The bibliography search needs further evidence to the best treatment of chest trauma.

**Keywords:** ARDS; Atelectasis

### Introduction and Case Report

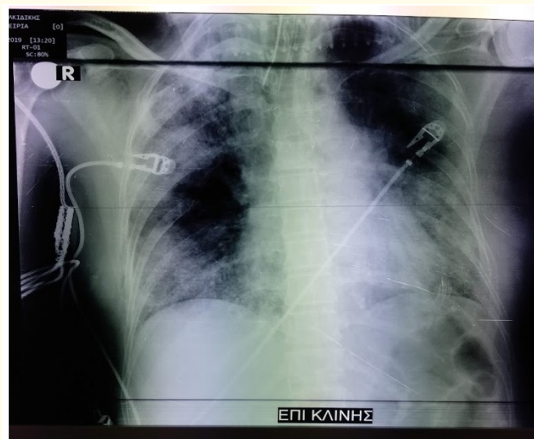
Woman 59 years of age transferred by an emergency ambulance in a provincial general hospital of her leaving area, she was on a car co-driver used seat-belt. Her medical history, housewife, smoker p/20 y, COPD on medication as for osteoporosis too. In the Emergency department, she was checked with X-ray of head, neck, chest, pelvis and abdominal area (Figure 1). The control showed a fracture of

1<sup>st</sup>, 2<sup>nd</sup>, ribs also a small pneumothorax on the top of the right hemithorax, 3<sup>rd</sup>, 5<sup>th</sup> and 6<sup>th</sup> ribs fractures on the left hemithorax and small pneumothorax too. She did a CT scan of the chest and abdominal area. The control showed fracture also of the Th12 vertebral of the anterior and middle line as well of the ribs as it was showed in the X-rays. In the rest of the control of internal organs, no other disorder was diagnosed. As from the chest, it hats elements of contusion of the lungs in both sides and pneumothorax in a small area right and left.

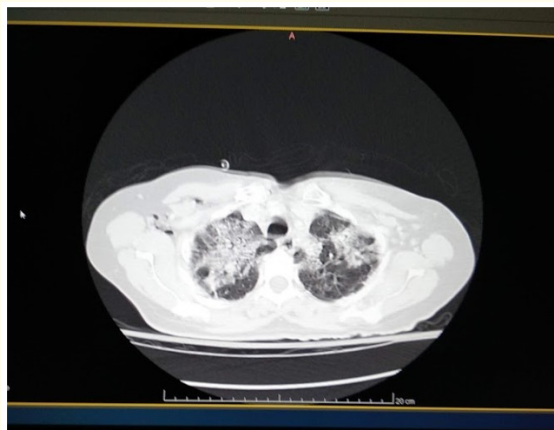


**Figure 1:** X-ray in the emergency department shows the ribs fractures left and right also an early lung contusion.

She registered on the hospital in the 21<sup>st</sup> of July in the surgical department, 24 hours later she complained of dyspnea, a new chest X-ray was made which revealing no new pathology signs or bigger pneumothorax. The medical pharmaceutical treatment covered pain, infection, bed lying and bronchodilatation. For the next 24 hours, the dyspnea was worst, adding with Sinus Ride tachycardia. Cardiology consulting was made with trans thorax echocardiography which reveals no pericardial fluid or sights of cardio contusion and the ejection fracture was over > 50%. A new CT chest scan made that show heteropleural Acute Respiratory Distress Syndrome (Figure 2-4).



**Figure 2:** Organized ARDS of the lungs after the chest contusion



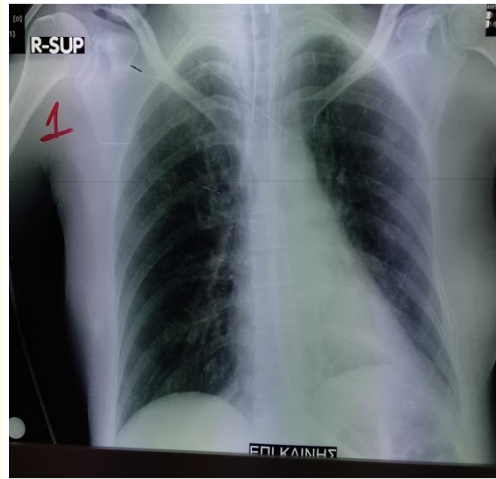
**Figure 3:** CT-scan of the lungs, infiltration of the tops of the lungs



**Figure 4:** ARDS with infiltration of the lung's parenchyma as well in the lowers part of the chest.

She transferred in ICU intubated and put in mechanical ventilator under sedation, hemodynamic support, antibiotic, bronchodilatation, corticosteroid (solu-medrol in dose 250 mg/24h), gastroprotection and protection for phlebothrombosis. She stayed in the ICU from the 24<sup>th</sup> of July until the 30<sup>th</sup> of the month, 6 days. The first 24 hours the fracture of  $pO_2/fiO_2$  was under 150 but in the next 48 hours the fracture improved and passed in support ventilator model with excellent gas exertion for the next 24 hours (Figure 5). In the 29<sup>th</sup> she extubated and passed in  $O_2$  mask for 12 hours. Mostly after 8 hours of self-spontaneous breathing, she was in tachypnea and slowly constantly in clinical left hemithorax atelectasis. After 12 hours she intubated again (Figure 6). Put in mandatory mechanical ventilation, sedation and the rest medication as it was. In the next 12 hours and as the breathing fraction was normalizing in mechanical ventilation a

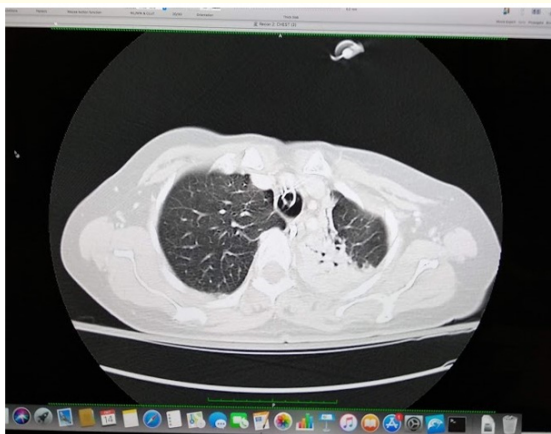
new CT chest scan was made (Figure 7 and 8) and a chest tube in the left hemithorax was placed, giving almost nothing of air or fluid. The scan shows total atelectasis of the left lung while the right lung recovered from the earlier ARDS. A chest-surgical consulting was asked from a 3<sup>rd</sup> - degree hospital which was closed and the transfer of the patient was to enter in general ICU with cardio-chest surgical support.



**Figure 5:** The X-ray of the patient after 24h support ventilation before the extubating.



**Figure 6:** The X-ray after the 2nd intubation and the failure of the left lung to respond in spontaneous breathing. The left lung has a severe hypoventilation and almost total left atelectasia.



**Figure 7:** CT-scan after the second intubation as it shows of the upper part of the lungs. On the right parenchyma the infiltration hat recovery but the left lung hats a very small part of the parenchyma which ventilated. Small content of air was in the mesopneumonio in the upper side.



**Figure 8:** The lows part of the lungs also hat recovery on the right from the ARDS but hats severe hypoventila-tion on the left. From the scan on the left shows no pneumo- or hemothorax, as the chest-tube which was placed on the left and hat to content given

Bronchoscopy of the lungs was made, no specific result from the cultures or the tissue samples that was examined, hat diagnostic value. Transdermal tracheostomy was made. No other surgical intervention was necessary to be made. And the patient after 43 days of hospitalization, recover and went home with no tracheostomy and full mobile rehabilitation.

Contusion of a chest, through the bibliography.

**Discussion**

The multiple trauma patients compared with chest trauma or not are dealing with serious health complications especial those with chest contusion and chest fractures [1]. When chest contusion is connecting with multi trauma the complications can be fetal (Table 1) but as the years pass the chest complications are not entering in the operation room [2].

Thoracic		Associated	
Chest fracture	87,00%	Brain injury	37,00%
Pleural collection	83,00%	Limb fracture	35,00%
Contusion/friar chest	34,00%	Abdominal	14,00%
Cardiovascular rapture	27,00%	Genitourinary injury	4,00%
Diaphragmatic rapture	8,00%	Spine	2,00%
Tracheobronchial injury	1,00%		

Table 1

And the latest review with a very small number of patients shows that the entrance in the operation room maybe gives better recovery change to trauma chest patient [3].

The association of body injury in car accidents and seat belts show that do, injury can be more severe because of the seat belt [4] abdominal and at thorax with sternum and ribs fractures. All the facts are considering the conditions of the accident and the forces of the heat. The gent of the passenger also is important as the women are more vulnerable in that kind accidents with seat belt associated, especially in the chest wall.

**Conclusion**

Necessary as any singer case order, a unique personal management is in the patient best interest. The use of seat-belts are important as the low sets, but sometimes complicates the trauma as the bibliography search show in females. The management of serious multi trauma patients in special unit are in benefit of the patient. The complications of a chest contusion with ARDS can further complicate with total atelectasis of a lung and need more intensive interventions as it showed in this case report. The bibliography search needs further evidence to the best treatment of chest trauma.

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