

Left diaphragmatic hernia after pneumonectomy

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ABSTRACT

Patients undergoing pneumonectomy can suffer by cardiovascular and respiratory postoperative complications that can affect patient's outcome by increasing morbidity and mortality. We describe a diaphragmatic hernia occurring after pneumonectomy, with late presentation and with epidural analgesia confusing the scenario suggesting that anesthesiologists should remain aware on this complication even in the late post operative period.

Keywords: *thoracic surgery, cardiothoracic intensive care, diaphragmatic hernia.*

INTRODUCTION

The altered postoperative physiology after pneumonectomy interventions can cause severe implications, especially in patients receiving adjuvant therapy for advanced lung cancer (1).

We report a case of left diaphragmatic hernia after left pneumonectomy.

CASE REPORT

A 60 year-old man with malignant pleural mesothelioma underwent a thoracotomy through double incision (5th and 7th intercostal spaces) for left pleuro-pneumonectomy and diaphragmatic resection after chemotherapy. The pre operative chest computed tomography scan showed a pat-

tern of centrolobular emphysema. Forced expiratory volume was 82% preoperatively and 70% as predictive post operative value. Cardiac function was assessed by an echocardiogram which showed an ejection fraction of 64%. A thoracic epidural catheter was placed before anaesthesia induction and a mixture of ropivacaine 0.375% and fentanyl was used during the intervention and postoperative period.

Parietal pleural dissection produced a significant blood loss and red blood cells and fresh frozen plasma transfused. Reconstruction was obtained with a pericardial patch, diaphragm plastic and suture. Chest drains were placed and not connected to suction. The patient did not meet the extubation criteria and was transferred to the intensive care unit.

On intensive care unit admission the patient was hypotensive (blood pressure = 90/60 mmHg) and treated with fluids. Chest X-ray was normal (*Figure 1*) and the patient was extubated 40 minutes thereafter. An hypotensive episode (blood pres-

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sure 60/40 mmHg) and tachypnea (respiratory rate = 32 breaths per minute) were treated with fluids, dopamine (5 mcg/kg/min) and interruption of the epidural infusion. A transesophageal echocardiogram and cardiac troponin were normal. A chest X-ray with contrast administration through nasogastric tube was performed. Respiratory arrest and asystolia were treated following advanced life support guidelines including chest compressions, atropine e.v. bolus and tracheal intubation. The chest X-

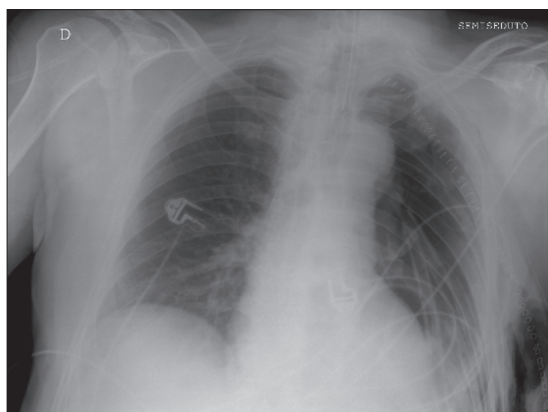


Figure 1 - This figure shows the first chest X-ray (immediately after the admission in the intensive care unit).

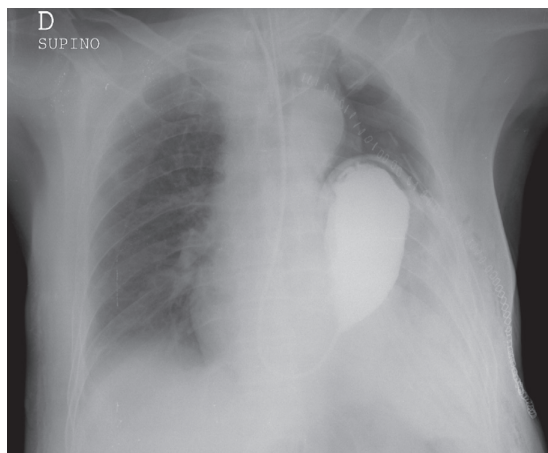


Figure 2 - This figure shows the diaphragmatic herniation (the chest X-ray was performed immediately before cardiorespiratory arrest).

ray showed gastric and spleen herniation through a diaphragmatic breach (*Figure 2*). Gastric hernia was surgically reduced and the diaphragm repaired with a prosthesis. Dopamine infusion was interrupted during the operation, the patient was extubated in the intensive care unit six hours later discharged from the hospital on the 6th postoperative day without further complications.

DISCUSSION

The mortality rate after pneumonectomy is 6%, the major causes of death being pneumonia, pulmonary edema, pulmonary embolism, myocardial infarction, empyema and bronchopleural fistula. Gastric hernia is a rare postoperative complication usually diagnosed at the first postoperative chest X-ray (1,2).

In our case the diagnosis was challenging because the hernia became evident only after intensive care unit admission and because the epidural analgesia confused the clinical scenario: this technique was considered the cause of persistent hypotension. The left pneumonectomy likely created a vacant space into which the stomach acutely herniated compressing the heart and creating a cardiac tamponade.

CONCLUSIONS

In patients with hypotension after left pneumonectomy a high index of suspicion should be observed for diaphragmatic hernia during the whole postoperative period.

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