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CASE REPORT

Tension Gastrothorax Complicating Third Trimester of Pregnancy: Suspicion is the Key

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ABSTRACT

Gastrothorax is characterized by herniation of the stomach and other abdominal contents into the thoracic cavity either through the oesophageal hiatus or ruptured diaphragm. When gastrothorax causes pulmonary and hemodynamic compromise, due to compression of lungs and mediastinal structures, it is named as tension gastrothorax. Diagnosis of tension gastrothorax is often complicated during late pregnancy, because of unusual presentation, altered physiology, absence of trauma, hesitation about radiation exposure, and rarity of the condition. We report a case of a patient, in her 32nd week of pregnancy, who presented with left tension gastrothorax. Lower segment caesarean section was planned after steroid therapy, with all the preparations for thoracotomy. Intra-operatively, stomach, spleen, and colon were found herniated in the left hemithorax, through a ruptured left hemidiaphragm. Thoracotomy was done immediately after caesarean section, with reduction of herniated contents and repair of the defect in the diaphragm. The patient and her baby were discharged in stable condition 2 weeks after thoracotomy.

Key words: Tension gastrothorax, tension pneumothorax, third trimester pregnancy, thoracotomy

INTRODUCTION

Gastrothorax is a rare but serious complication associated with pregnancy. Pressure exerted by the growing uterus may cause herniation of abdominal organs such as stomach, spleen, intestine, etc., into the thoracic cavity through a defect in the diaphragm.[1,2] This defect may be inherent to the diaphragm or caused by rupture of it. Distension of the hernial content can lead to respiratory or cardiac compromise. Presentation of this rare condition mimics pneumothorax and tension pneumothorax, though the management is entirely different.

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CASE REPORT

A 28-year-old primigravida, at 31^{+3} weeks of gestation and no other co-morbidity, had an acute onset of upper abdominal pain and recurrent vomiting for one day. Her blood investigations were normal, except for a raised

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total leukocyte count (16,800/μL). She was managed symptomatically for the next 4 days. On day 5, she developed a sudden onset of breathlessness. Her chest X-ray revealed left hydropneumothorax with mediastinal shift to the right [Figure 1]. She was having hypoxemia, dyspnoea, tachycardia, even on rest, with aggravation in supine position. Intercostal drain (ICD) was placed in the left 5th intercostals space, in mid-axillary line [Figure 2]. ICD showed no air or fluid drainage. Patient was shifted to intensive care unit for further management. Thoracic surgeon was consulted and fetal well-being and fetal maturity were assessed. CT scan and MRI could not be done as patient was not able to lie down and the family expressed unwillingness to expose the patient to further radiations. Differential diagnosis of left pulmonary bulla, left pulmonary cyst, and tension gastrothorax were made. Multiple attempts for placement of nasogastric tube were made but failed, as the patient was very uncooperative and did not tolerate removal of the oxygen supply. She was becoming hypoxemic within seconds after removal of the oxygen flow. Patient and family were counselled about the need for urgent delivery of the baby by caesarean section. She was given two doses of betamethasone 12 mg, 24 hours apart. Patient was not allowed to take food through the mouth and was feed through the parenteral route. Lower segment caesarean section (LSCS) was carried out under general anaesthesia.All preparations were made for thoracotomy. Patient was intubated with single lumen endotracheal tube after rapid sequence induction and ventilated with pressure control mode. After closure of uterus and good uterine contraction, abdominal cavity was explored along with the diaphragm. There was herniation of stomach, spleen, and part of colon into the left hemithorax, due to rupture of left hemidiaphragm. Thoracotomy was performed with reduction of herniated contents and repair of the diaphragm. Left lung was fully inflated and an implantable cardioverter defibrillator (ICD) placed before closure of the thorax. She was extubated after surgery. Post-operative period was uneventful. ICD was removed after 2 days. Patient was shifted to the ward in a stable condition on the fourth day after the operation. Patient and her baby were discharged on 21st day after admission.

DISCUSSION

Herniation of stomach with or without other intra-abdominal organs into the chest is called gastrothorax. Subsequent distension of the stomach or intestine in the chest may cause respiratory distress, mediastinal shift, and hemodynamic compromise leading to tension gastrothorax.[1]

Intra-abdominal pressure (IAP) increases during pregnancy.[2] This increased IAP can force the intra-abdominal content into the chest through a defect in the diaphragm. Rupture of the diaphragm without a history of trauma is rare and can lead to lethal complication in pregnancy.[3] There is very little data regarding the incidence of gastrothorax and tension gastrothorax associated with pregnancy. Also, it is very difficult to establish the diagnosis of diaphragmatic rupture.[4]

Herniation of abdominal content may lead to intestinal obstruction or cardiopulmonary compromise. The former presents as nausea, vomiting, and abdominal distension and the latter manifests as palpitations,

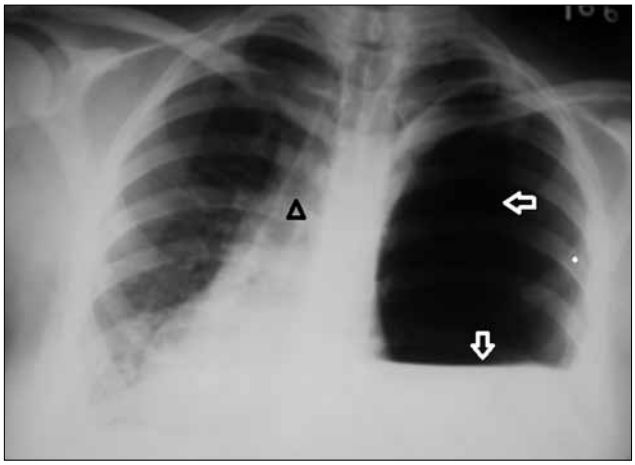

Figure 1: Left tension gastrothorax. Chest X-ray of a 28-year-old pregnant female shows herniation of the stomach into the left hemithorax (horizontal arrow), with air fluid level (vertical inverted arrow) and mediastinal shift to the right side (arrow head).

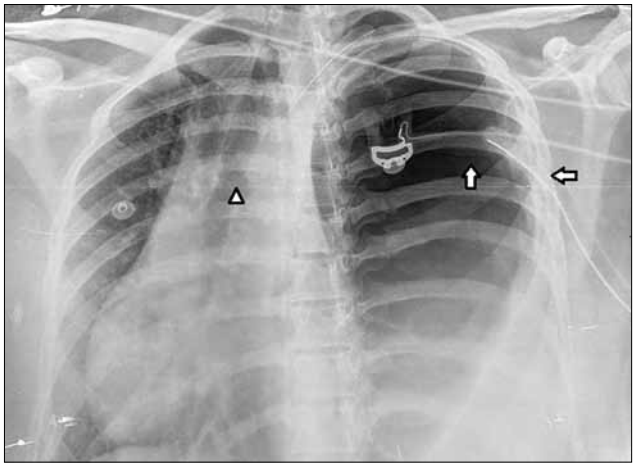

Figure 2: Left tension gastrothorax with left intercostal drain. Chest X-ray of a 28-year-old pregnant female shows herniation of the stomach into the left hemithorax (vertical arrow), with intercostal drain (horizontal arrow) and mediastinal shift to the right side (arrow head).

dyspnoea, cough, or chest pain. The variety of symptoms, rarity of the condition, and absence of trauma make the diagnosis of diaphragmatic rupture difficult.[4,5] Tension gastrothorax can even be misdiagnosed as tension pneumothorax or hydropneumothorax with subsequent placement of ICD.[6] The first chest X-ray of our patient showed an air fluid level [Figure 1] so an ICD was placed [Figure 2].

The definitive treatment for tension gastrothorax is repair of the defect, but emergent decompression with a nasogastric tube (NGT) may be required.[5,7] Placement of NGT minimizes the chance of tension gastrothorax.[1] As the patient was extremely dyspnoeic, uncooperative, and period of gestation was more than 32 weeks, we decided to perform elective LSCS after steroid therapy.[8] All the preparations for thoracotomy were completed before caesarean section. To prevent any further complications, we decided to perform thoracotomy and repair the diaphragm rupture, after uterine closure.[9] The post-operative period was uneventful. There are only a few case report of gastrothorax in pregnancy due to diaphragm rupture.[9,10]

A high index of suspicion of the possibility of tension gastrothorax should be present when pregnant patients present with respiratory distress and hemodynamic instability along with a typical chest X-ray. Early diagnosis is the key for good outcome for the mother and the fetus.

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