A Congenital Right Sided Diaphragmatic Hernia Presented in Pregnancy: Rare Case Report

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Case report

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Abstract

Background: Diaphragmatic hernias are infrequent and remain undiagnosed till the symptoms arise. One third of these patients are asymptomatic. Its diagnosis is only established on the emergence of gastrointestinal, respiratory or cardiovascular complications. Surgical intervention is needed if complications arise. These Diaphragmatic hernias usually involve the left side of diaphragm either through a congenital defect or from a trauma over abdomen or chest as the right side has a type of protective gear which is the Liver lying below the diaphragm. The occurrence of right sided diaphragmatic hernia is rarest of rare. Patients may present with shortness of breath, obstruction, strangulation, gangrene and perforation of gut. The mortality is very high. Symptomatic diaphragmatic hernia in pregnant females is a matter of greater concern.

Case Report: A 21-yr-old female, primigravida, primipara, with 22 weeks gestation, complained of severe abdominal pain and intractable vomiting since the last 7 days and for this acute intestinal obstruction was admitted to the emergency department. At the local Primary Health Center her symptoms were partially relieved by symptomatic management, but due to recurrence of symptoms she was referred to our rural hospital.

Her chest radiograph revealed a right sided diaphragmatic hernia with large and small intestine as its content. She had no abdominal or respiratory complaints in past. Initially the patient's general condition improved by nasogastric aspiration but then she developed tachycardia, tachypnoea, nausea and vomiting despite nasogastric aspiration, so emergency exploration was done. Exploratory laparotomy along with right thoracotomy was performed. As the gut was gangrenous, resection anastomosis was done along with diaphragmatic hernia repair.

Conclusion: Diaphragmatic hernia in adults and pregnancy is a very rare entity. The right sided diaphragmatic hernia is rarest of rare that too in pregnancy.

What makes this case even extraordinary is, it being the first case in studied literature showing specific right sided presentation during pregnancy, as the rest are left sided. Even though the risk of morbidity and mortality is high, once complications arise, but early intervention improves the outcome.

Introduction

Diaphragmatic hernias are infrequent and remain undiagnosed till the symptoms arise. [1]One third of the patients are symptom-less. [2] The diagnosis of a diaphragmatic hernia is only established on the emergence of gastrointestinal, respiratory or cardiovascular complications. [3]Surgical intervention is needed if complications arise. [4]These hernias usually involve the left side of diaphragm through a congenital defect or from a trauma over abdomen or chest as the right side has the Hepatic shield below the diaphragm. But the incidence of right sided diaphragmatic hernia is rarest of rare and that too in pregnancy as it presents with life-threatening complications like shortness of breath, obstruction,

strangulation, gangrene and perforation of gut. [5, 6, 7, 8, 9]Once initiation of strangulation of intestine sets up then the mortality may shoot up to 22%-80%.[2, 3, 4] Symptomatic diaphragmatic hernia in a pregnant female is a matter of greater concern and also a surgical emergency associated with high morbidity and mortality.[10]Our case is of a patient with right-sided congenital diaphragmatic hernia presented in primigravida in her second trimester with the features of acute intestinal obstruction.

Case Report

A 21-yr-old, primigravida and primipara female was admitted to our Rural Hospital's emergency department for acute intestinal obstruction presenting as severe abdominal pain and intractable vomitings. On eliciting history, it was found that since 7 days she was under symptomatic treatment at the primary health center in her village. She had some relief but then her symptoms promptly recurred for which she was referred to our centre. Her weight had reduced from 57 to 55 kg.

On clinical examination, respiratory rate was 22 per minute, blood pressure was 124/72 mm of Hg and heart rate was 88 per minute. Urine output of the patient was reduced and concentrated. On physical examination, there was tympanic note on percussion and gurgling sound was heard on auscultation, indicating reduced breath sounds over the right side of chest. Abdomen was soft and the uterine fundus was of 22 to 24 week.

Her chest radiograph revealed a right sided diaphragmatic hernia with large and small intestine as its content. (Fig. 1) No history of previous trauma or any laparotomy. She had no abdominal or respiratory complaints in past. The patient's general condition improved initially by nasogastric aspiration. The patient was transferred immediately to the Surgical Intensive Care Unit and fluid management started. After 3–4 hours, patient developed tachycardia, tachypnoea, nausea and vomiting despite nasogastric aspiration, so emergency exploration was performed under general anesthesia. Exploratory laparotomy findings were; gut was found to be adhered to the pleural part of the right side of the diaphragm so decision of right thoracotomy (Fig. 2) was taken and 7cms x 4cms defect was noted in the right posterolateral aspect of right diaphragm with herniation of the small gut and right colon. As approximately 3 feet of ileum was gangrenous, resection anastomosis was performed. The hollow viscus was deposited back to the peritoneal cavity and abdominal cavity was closed in layers with abdominal drains kept in situ. The defect in the diaphragm was repaired with polypropylene along with polypropylene mesh fixed to the pleural surface of diaphragm with intercostal chest tube drain insertion. Postoperative pain was managed with Fentanyl. The drains were removed on the 10th postoperative day.

Discussion

The primary fetal development of the diaphragm starts in the initial 8 weeks of gestation. It is rare that these findings remained unnoticed in childhood and presents during adult life. [9]

Diaphragmatic hernias are divided in to 3 types: Congenital, Hiatal and Traumatic types. [3, 5] Congenital diaphragmatic hernias are divided into: posterolateral hernia also known as hernia of Bochdalek (most common), parasternal hernia and peritoneo-pericardial hernia. It hardly presents beyond neonatal period and its incidence during pregnancy is even rarer.

Occurrence of Diaphragmatic hernia may be due to the rise in intra-abdominal pressure in the 2nd and 3rd trimesters of pregnancy, with the occurrence rate of 18% and 5% in multipara and primipara respectively. It is so rare that there are only 34 cases of right sided Diaphragmatic hernia have been reported since 1928 and only 30 cases reported in pregnancy till 2009. [2, 3, 5, 6, 7]. 'This is the first case of right side Diaphragmatic hernia reported during pregnancy'.

Mostly it results directly from blunt trauma, which increases intra-abdominal pressure which inadvertently tears diaphragmatic fibers.[8] The liver guards on right side so, 90% of these hernias are present on the left side. [4] While, in pregnant females intra-abdominal pressure increases as a consequence of nausea and vomiting till 16th week. As the size of the uterus increases in the second trimester of pregnancy and voluntary force exerted by abdominal muscles play a vital role.[7]As the uterus enlarges with progression of pregnancy, it pushes more amount of viscera into the pleural cavity, which in turn increases the risk of complications like strangulation and gangrene of herniated viscera. [2]The morbid complications are acute dyspnea caused by ipsilateral atelectasis and mediastinal shift. Half of such cases are associated with increased morbidity and mortality of mother and fetus in postpartum period with 24% cases resulting in premature birth. [1, 3, 4]

The survival rate of individuals, with an asymptomatic congenital diaphragmatic hernia is unknown as such cases remain hidden from a clinician or a surgeon. Incidence of asymptomatic congenital diaphragmatic hernia is 0.17%, with a female to male ratio of 17:5. [1, 6]

The clinical features in symptomatic patients are chest pain and respiratory distress or shortness of breath. On auscultation there is diminution of breath sounds with gurgling sounds on the affected side.

In our patient, intra-abdominal viscera herniated into the right side of the chest and caused dyspnea due to collapse of the right lung. Persistent vomiting, constipation and tachycardia were the signs of obstruction. The symptoms of heartburn, nausea, vomiting and malaise are common during pregnancy. The failure of symptomatic treatment especially in women with advanced pregnancy would lead the clinician to suspect gastrointestinal pathology. [9]

The management depends on presentation; asymptomatic patients on diagnosis should undergo elective surgery in the first and second trimesters. [1] These hernias are commonly repaired with simple suturing and/or Meshplasty depending on the size of the defect. Thoracotomy makes easy repair of the defect, especially when the viscera is adhered to the pleural cavity while laparotomy helps in stress-free dealing of incarcerated viscera which may need resection and anastomosis. [3]

The patient presented with the symptoms of abdominal pain followed by vomiting. On X-ray intestinal loops were seen protruding in the right side of the chest pushing the lung towards the apex. Surgical repair of the defect via right lateral thoracotomy and resection anastomosis was done through laparotomy. It is always better to repair a diaphragmatic hernia electively. However, it was not possible in our patient as she was diagnosed after the hernia was complicated. And a vaginal delivery after the ante-partum repair of congenital diaphragmatic hernia in the mother is a better alternative to immediate cesarean delivery and is a better approach [10]

Conclusion

Literature has no mention of any case of Right sided Diaphragmatic Hernia in Pregnancy. Presentation of Congenital Diaphragmatic hernia in adults and that too during pregnancy is a rare event.

Rarity of the disease and the vague presentations, mimicking the symptoms seen in primigravida female, high index of suspicion is needed to diagnose the disease which presents as sudden onset of tachypnoea and associated symptoms. Surgical intervention becomes need of the hour as the complications are set in pregnancy. Even though the risk of morbidity and mortality is high, once complications arise, prompt successful repair of the diaphragmatic hernia improves the outcome.

Declarations

Ethics approval and consent to participate: It is a case report

Consent for publication: Consent Obtained from the Patient and her Relative

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Authors' contributions:

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Pankaj Gharde- Compiled the Data and written the Case Report.

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Figures

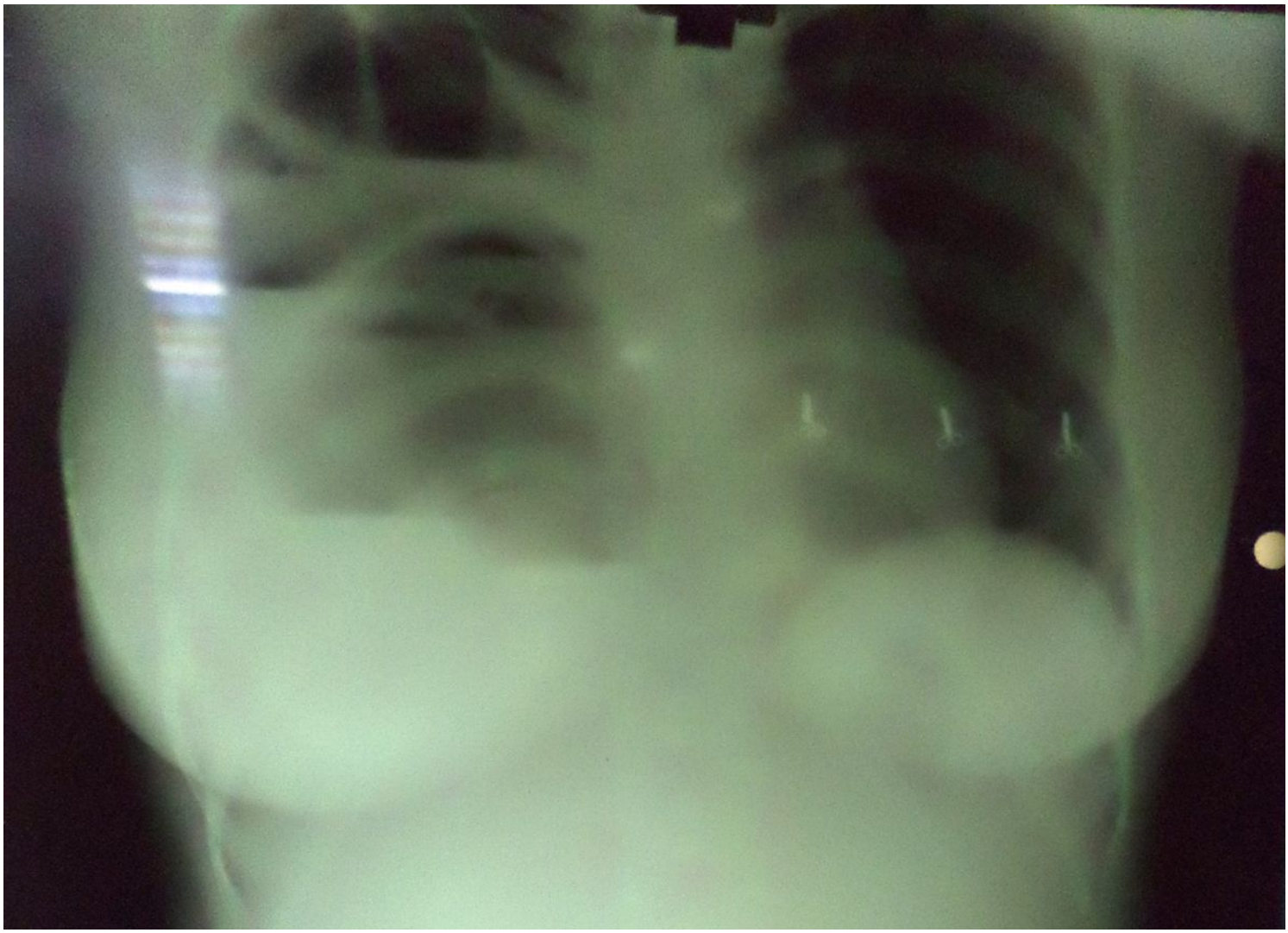

Figure 1

X-ray abdomen standing showing colon and small intestine in right side of lung field

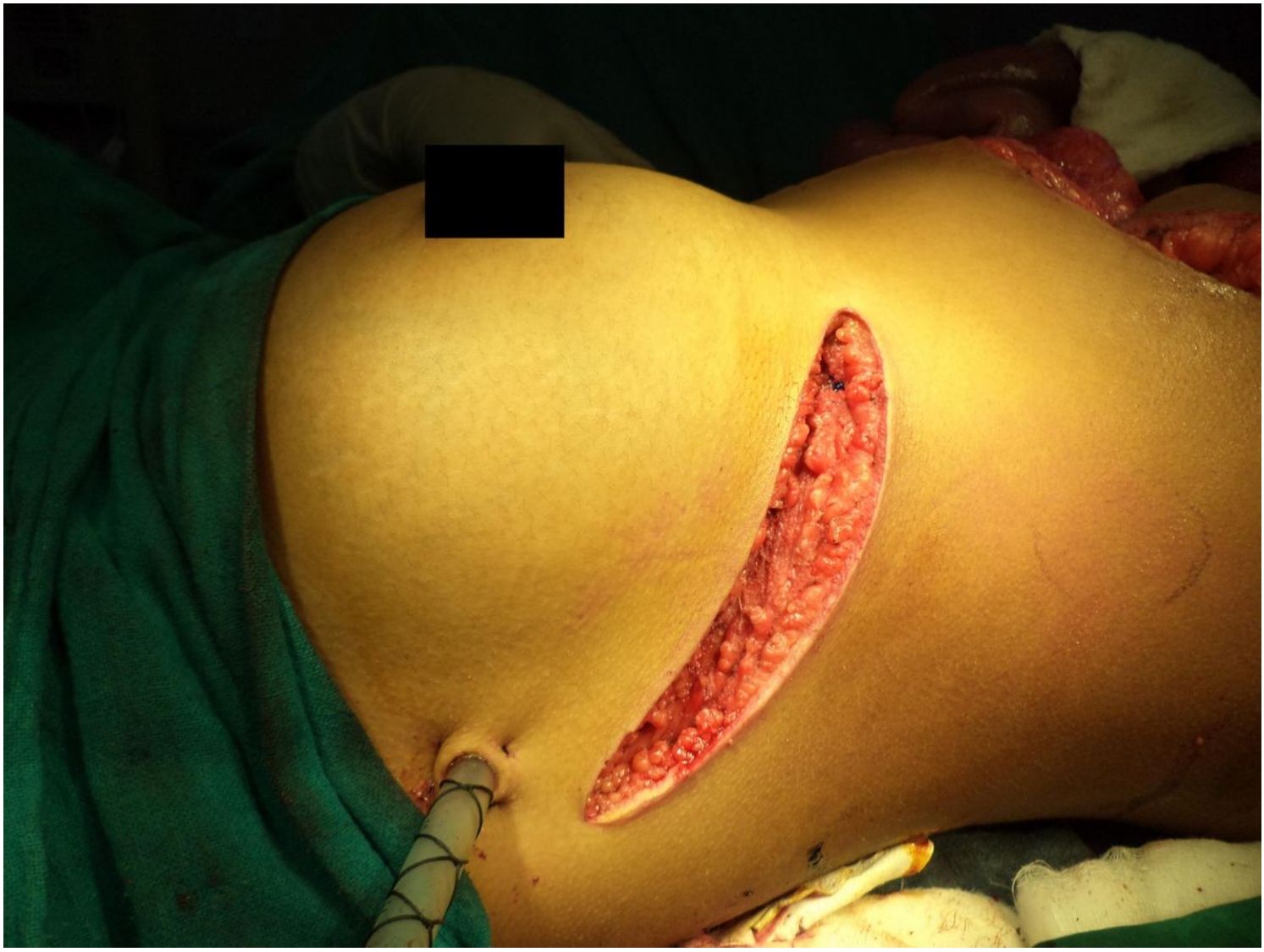

Figure 2

Closure of thoracotomy and chest drain in situ and Laparotomy incision showing abdominal viscera

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