"Right Sided Congenital Diaphragmatic Hernia Diagnosed in Pregnancy – A rare presentation."

1. **Dr Pankaj Gharde**, Professor, Dept of General Surgery, Jawaharlal Nehru Medical College, DMIMS(DU), Wardha, India. ORCID ID- 0000-0002-3770-9991
2. **Dr Pramita Muntode Gharde,** Associate Professor, Dept of Community Medicine, Jawaharlal Nehru Medical College, DMIMS(DU)Wardha, India. ORCID Id- 0000-0003-3670-4846
3. **Roshani S Manekk**, Senior Resident, Jawaharlal Nehru Medical College, DMIMS(DU)Wardha, India.. ORCID Id- 0000-0002-7842-7528

Corresponding Author:Dr Pankaj Gharde,
Professor, Dept of General Surgery, Jawaharlal Nehru Medical College, DMIMS(DU), Wardha, India. ORCID ID- 0000-0002-3770-9991

ABSTRACT

Diaphragmatic hernias (DH) are known to complicate pregnancy and high mortality rates have been reported due to delay in surgical intervention. The reported mortality rates in presence of strangulation ranged from 22 to 80% and almost one third of the reported cases, did not have any symptoms. A literature review suggests that, out of 43 cases of DH diagnosed during pregnancy, only six cases of right-sided BH have been reported until 2020. Prolonged maternal malnutrition affects the intrauterine growth of the foetus and increases the morbidity and mortality of both the mother and foetus, leading to maternal weight loss, electrolyte imbalances, and vitamin deficiency. In the present case study, 21-year-old primigravida female with right-sided congenital BH was diagnosed during pregnancy, 7 days after the initial presentation of symptoms of acute obstruction. On exploration ischemic bowel was noted and it was associated with foetal loss.

Key words: Diaphragmatic Hernia; Pregnancy; Right side; Congenital.

INTRODUCTION-

Diaphragmatic hernias (DH) are known to complicate pregnancy and high mortality rates have been reported because of delays in surgical intervention [1]. The reported mortality rates in presence of strangulation ranged from 22 to 80% and almost one third of the reported cases, did not have any symptoms [2]. Once, the patient develops symptoms pertaining to

gastrointestinal, respiratory, and cardiovascular systems, only then a high suspicion index helps in diagnosis of such hernias which complicate pregnancy [3]. Even though, the incidence of right sided diaphragmatic hernia is rare in pregnancy, it presents with life-threatening complications like shortness of breath, obstruction, strangulation, gangrene, and perforation of gut [4,5]. Here, we present a case of a 21-year-old primigravida female, having right-sided congenital diaphragmatic hernia diagnosed in second trimester of pregnancy due to development of symptoms suggestive of acute intestinal obstruction.

CASE REPORT-

A 21-year-old, primigravida female residing in a rural area of India, presented in the Emergency Room (ER) of our tertiary care hospital with acute abdomen, associated with intractable vomiting. On detailed history, it was noted that the patient had symptoms for 7 days and was primarily managed at a primary health centre (PHC) in her village. After initial relief of symptoms, they promptly recurred and she was referred to higher centre for further management. The patient had no abdominal or respiratory complaints in past. The patient also had 2 kg weight loss in the past 1 week due to poor nutrition and as a result of her symptoms. Clinical examination of the patient, showed respiratory rate of 22 cycles /minute, blood pressure of 124/72 mm of Hg, and heart rate of 88 beats/ minute. Urine output of the patient was decreased, and concentrated. On auscultation of the chest, decreased breath sounds were present on right side with unusual presence of gurgling sound heard on the right basal zone. Percussion was done and tympanic note was heard. Abdomen was soft and the uterine fundus was of 22 to 24 weeks.

Chest radiograph with abdominal shield was done and it revealed a right sided diaphragmatic hernia with large and small intestine as its content. (Figure 1). Nasogastric Decompression was done and the patient's general condition improved initially. The patient was monitored in Surgical Intensive Care Unit and fluid management was started. 3 to 4 hours after the initial management, patient developed tachycardia, tachypnoea with presence of nausea and vomiting despite nasogastric aspiration. Thus, emergency exploration was performed under general anaesthesia. There was foetal loss in our case. On exploration, gut was found to be adhered to the pleural part of the right side of the diaphragm so decision of right thoracotomy (Figure 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 (Figure 3). Approximately 3 feet of ileum showed features of ischaemia (Figure 4), was resected and ileo-ileal 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.

DISCUSSION-

Diaphragmatic hernias are divided into: posterolateral hernia also known as hernia of Bochdalek (BH) (most common), peritoneo-pericardial hernia and parasternal hernia of Morgagni-Larrey [6,3]. Thus, posterolateral hernias are named as BH, whereas presence of anterolateral defect is known as Morgagni hernia [7]. During pregnancy, as the size of the uterus increases in the second trimester of pregnancy and voluntary force exerted by abdominal muscles play a vital role. This increases the risk of obstruction, ischaemia and strangulation of the content of hernia [2,3].For asymptomatic patients nearing 3rd trimester of pregnancy, surgical management can be delayed until foetal lung maturity is achieved. Presence of symptoms mandate the need for immediate surgical intervention. Prolonged maternal malnutrition affects the intra uterine growth of the foetus, increases morbidity and mortality of both mother and foetus, leads to maternal weight loss along with electrolyte imbalances and vitamin deficiency [8].In a systematic review done by Choi et al in 2021 [9], 43 cases of BH diagnosed during pregnancy were studied until the year 2020. The occurrence of Right sided BH in and adult is only 20%. In the review done by the authors, out of 43 cases only 6 cases presented with right sided BH. On further analysis it was noted that, 50 % i.e., 3 cases had presence of bowel obstruction/ ischaemia with no foetal loss and only 1 of the 3 cases had presence of ischaemic changes in the bowel [7]. The patient was diagnosed early at 15 weeks of pregnancy with no delay in the diagnosis from occurrence of symptoms to diagnosis with no foetal loss [9]. In this case the mother recovered well and was discharged on 10th post-operative day.

CONCLUSION:

This case report gives an insight on high risk factors for foetal loss in patients with DH diagnosed in pregnancy, highlighting the importance of decreasing the time period between the onset of symptoms and diagnosis of DH. However further studies are required to research on newer treatment modalitiesas well as diagnostic guidelines , which can decrease maternal as well as foetal mortality in such high-risk patients.

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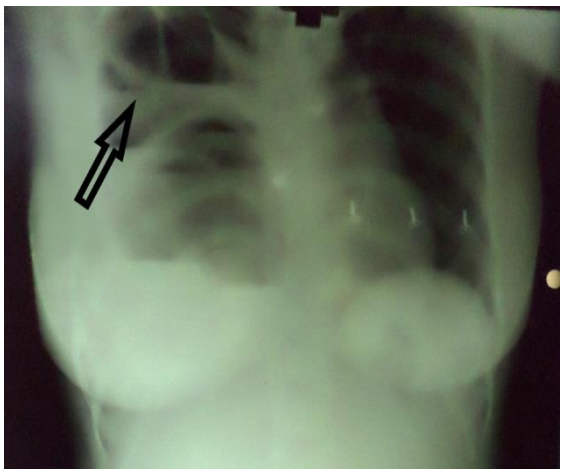

Figure 1: Chest X-ray showing air fluid levels in Right Hemithorax, suggestive of diaphragmatic hernia.

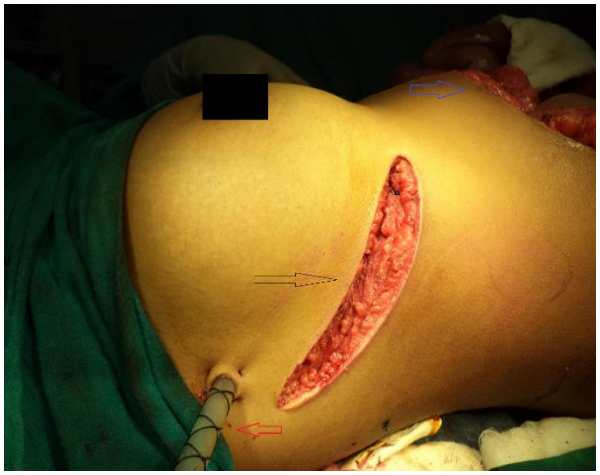

Figure 2: Black arrow- Right thoracotomy incision; Blue Arrow- Midline incision for exploratory laparotomy; Red Arrow- Intercostal drainage tube insertion.

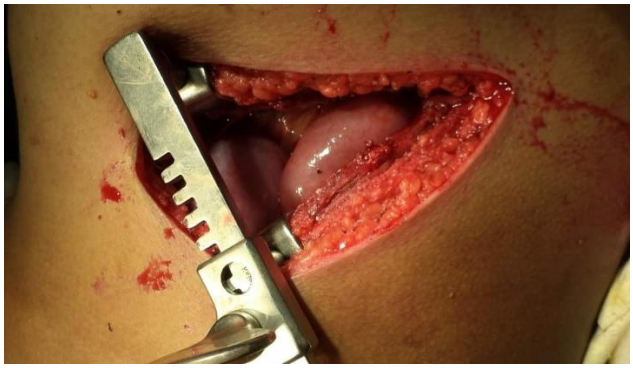

Figure 3: Thoracotomy incision showing herniated bowel loops in thorax.

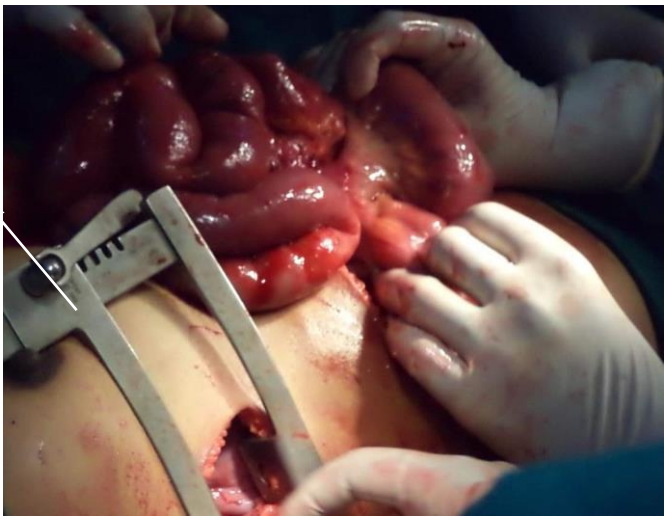

Figure 4: White arrow shows ischaemic bowel segment of ileum.