

CASE REPORT

Traumatic diaphragmatic hernia complicating pregnancy

Brightson N. Mutseyekwa¹, Mordecai Sachikonye², Lameck Chiwaka², Netsai C. Changata³

1. Department of Surgery, College of Health Sciences, University of Zimbabwe, Harare, Zimbabwe

2. Department of Surgery, Harare Central Hospital, Harare, Zimbabwe

3. Department of Obstetrics and Gynaecology, Harare Central Hospital, Harare, Zimbabwe

Correspondence: Dr Brightson N. Mutseyekwa (bmutseye@gmail.com)

© 2018 B.N. Mutseyekwa et al. This open access article is licensed under a Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.



East Cent Afr J Surg. 2018 Aug;23(2):83–85
<https://dx.doi.org/10.4314/ecajs.v23i2.7>

Abstract

Intestinal obstruction in pregnancy is rare but has a high maternal and foetal mortality. We present a case of 32-year-old patient who presented in her 2nd trimester of pregnancy with signs and symptoms of large bowel obstruction. An exploratory laparotomy revealed that the transverse colon had herniated through a diaphragmatic tear as the cause of the intestinal obstruction. The delays in presentation and diagnostic dilemmas associated with intestinal obstruction in pregnancy are manifested in this case.

Keywords: intestinal obstruction, pregnancy, diaphragmatic hernia

Introduction

Intestinal obstruction in pregnancy is rare with incidence ranging from 1 – 1,500 pregnancies to 1 – 66,431 pregnancies.¹ Adhesions are the most common cause of intestinal obstruction in pregnancy although other causes have been described. Traumatic diaphragmatic herniation was first described by Sennertus in 1541 and is uncommon with an incidence of 0.5 to 5% in the general population.² The presentation of diaphragmatic hernias is rare in pregnancy with only 36 cases reported in English literature, the majority presenting in the 3rd trimester.³

Case presentation

A 32-year-old woman in her fifth pregnancy was referred to Harare Central Hospital at 17 weeks estimated gestational age with a 10-day history of generalised abdominal pain, vomiting, worsening abdominal distension and obstipation. She presented late as she assumed her symptoms were exaggerated symptoms of pregnancy; but as the symptoms worsened, she went to the local clinic and was subsequently referred to this hospital the same day. She had no fever, vaginal bleeding or urinary symptoms. She had recently been diagnosed to be infected with the human Immunodeficiency virus (HIV) but was not on treatment yet. She had no history of prior surgery or history of a chronic illness. Two years prior to this hospital presentation she was stabbed in the left thoraco abdominal region by an aunt, her relatives, however, convinced her not to report the matter.

On examination she had mild pallor, was not in any respiratory distress and her vital signs were normal. Abdominal examination revealed a globally distended abdomen, with bowel patterning and a scar on her left thoraco abdominal region (Figure 1). Palpation revealed tenderness in the left upper quadrant but no peritonism. Percussion note was tympanic and her bowel sounds were increased. Her rectal vault was empty and the symphysial height could not be estimated because of the abdominal distension. An ultrasound scan (USS) confirmed the presence of a live viable foetus 16 weeks plus 5 days, abdominal X-rays were not requested in



Figure 1. Stab wound in the left thoracoabdominal region



Figure 2. Collapsed distal transverse colon



Figure 3. Defect in the left hemidiaphragm

view of her pregnancy. Her haematology and biochemistry results were essentially normal. A clinical diagnosis of mechanical bowel obstruction due to sigmoid volvulus or adhesions was made. A decision to do an urgent laparotomy was made in view of the signs of mechanical obstruction and the delayed presentation.

Crystalloids were administered judiciously in view of the tense abdomen and a nasogastric tube was inserted. Antibiotics were administered in the perioperative period and postoperatively. Under general anaesthesia an exploratory laparotomy was done, the transverse colon was noted to have herniated through a 3 cm defect in the left hemi diaphragm (Figure 2 and Figure 3). The colon was reduced and was noted to be non-viable, a left hemicolectomy with a colo-colo anastomosis was done to restore bowel continuity. The defect in the diaphragm was repaired with number 1 nylon suture. The pleural space was drained with an intercostal chest drain. The patient was admitted in the high dependency Unit (HDU) postoperatively for 2 days and was subsequently discharged from the hospital day 9 after the laparotomy. An USS done 5 days after the laparotomy showed a single viable foetus. Unfortunately, the patient was lost to follow up despite several attempts to contact her.

Discussion

An interval between the injury to the diaphragm and clinical presentation is a common phenomenon with a significant proportion of injuries presenting at varying periods after the

injury, a lag period of 50 years has been reported.⁴ Traumatic diaphragm herniation is a culmination of three distinct phases occurring at different rates under the influence of a host of factors. The injury phase is the first event which often requires high velocity blunt or penetrating trauma to result in injury. The herniation of abdominal organs into the hemithorax follows and the last event is the obstructive phase which often results in the clinical presentation by the patient. Pregnancy is believed to influence the herniation phase making patients with pre-existing defects at risk of complicating during pregnancy. The increase in abdominal pressure from the growing uterus, relaxation of the diaphragm muscle from the increased progesterone levels and the labour-induced diaphragmatic contractions have all been postulated as predisposing factors.³

Pregnancy obfuscates the presentation of traumatic diaphragmatic hernia as the clinical signs and symptoms are largely nonspecific in the pregnancy state. The symptoms include chest pain, early satiety, dyspnoea, cough and abdominal pain all symptoms that are a common occurrence in an uncomplicated pregnancy. The lag period in time to presentation synonymous with traumatic diaphragm injuries coupled with the non specific clinical symptoms results in diagnostic delays in the pregnant patient with traumatic diaphragmatic herniation. A delay of 10 days from onset of symptoms to intervention was noted in our patient. Strategies that encourage pregnant patients to present early regardless of symptoms are therefore critical and should be developed by all health workers.

Diagnosis of a diaphragmatic hernia may be possible preoperatively with the aid of standard anteroposterior chest X-rays or a computed tomography (CT) scan; both modalities have varying sensitivities, 30% - 60% and 78% respectively.⁵ CT scan when available is the radiological investigation of choice because of its superior sensitivity. The reluctance of practitioners to use imaging with ionising radiation in pregnancy, particularly in the first trimester, results in the investigations not being used frequently, as was the case in this patient. The fears of radiation in pregnancy are exaggerated as the amount of radiation used for diagnosis purposes is not sufficient to cause harm to the unborn child.⁶ Imaging with ionising radiation during pregnancy should, however, only be used where the results will directly influence management.⁶ Surgical intervention should not be delayed when it is indicated as a delay in intervention is associated with poorer outcomes for both the foetus and the mother. The clinical signs of mechanical obstruction on the background of a prolonged history in our case made early surgical intervention necessary.

Laparoscopy is fast becoming a useful diagnostic and therapeutic modality for penetrating injuries to the low anterior thoracic region where there is trauma to the diaphragm. Its use is, however, mainly in acute trauma, where small diaphragmatic tears can be repaired in the same setting. The use of laparoscopy in a pregnant woman with a herniation through a traumatic diaphragmatic tear may be challenging. The creation of a safe pneumoperitoneum and safe use of laparoscopic instruments in a pregnant woman who also has intestinal obstruction may be technically difficult.

For the symptomatic diaphragmatic hernias in pregnancy management is surgical but with a multidisciplinary team input comprising obstetricians, paediatricians and colorectal surgeons. Surgery involves reduction of the hernia, pleural drainage and repair of the diaphragmatic defect with a number 1 mono filament permanent suture; for larger defects a prosthetic mesh may be required. Foetal monitoring should be done continuously with a cardiotocography. The decision to deliver is influenced by the gestational age of the pregnancy and the physiological state of the foetus. In the presence of foetal distress and foetal lung maturity is assumed to be present, the foetus can be delivered as appropriate at a centre with neonatal and paediatric facilities. Tocolytics may be used in a hyperactive uterus with a viable foetus to delay delivery where steroids are being instituted to promote lung

maturity; no benefit has been noted in their routine use. A normal vertex delivery is possible after diaphragm repair without any complications.³

Conclusions

Diaphragmatic hernia causing intestinal obstruction in pregnancy is a rare clinical finding. Our case highlights the need to have a high clinical index of suspicion to make this diagnosis, even in the presence of a remote history thoraco abdominal injury.

Competing interests

All authors declare that they have no competing interests related to this work.

References

1. Perdue PW, Johnson HW Jr, Stafford PW. Intestinal obstruction complicating pregnancy. *Am J Surg.* 1992 Oct;164(4):384-8. doi: 10.1016/S0002-9610(05)80910-9.
2. Christie DB 3rd, Chapman J, Wynne JL, Ashley DW. Delayed right-sided diaphragmatic rupture and chronic herniation of unusual abdominal contents. *J Am Coll Surg.* 2007 Jan;204(1):176. doi: 10.1016/j.jamcollsurg.2006.05.007. Epub 2006 Jul 3.
3. Eglinton T, Coulter GN, Bagshaw P, Cross L. Diaphragmatic hernias complicating pregnancy. *ANZ J Surg.* 2006 Jul;76(7):553-7. doi: 10.1111/j.1445-2197.2006.03776.x.
4. Singh S, Kalan MM, Moreyra CE, Buckman RF Jr. Diaphragmatic rupture presenting 50 years after the traumatic event. *J Trauma.* 2000 Jul;49(1):156-9.
5. Al-Refaie RE, Awad E, Mokbel EM. Blunt traumatic diaphragmatic rupture: a retrospective observational study of 46 patients. *Interact Cardiovasc Thorac Surg.* 2009 Jul;9(1):45-9. doi: 10.1510/icvts.2008.198333. Epub 2009 Apr 6.
6. Drost TF, Rosemurgy AS, Sherman HF, Scott LM, Williams JK. Major trauma in pregnant women: maternal/fetal outcome. *J Trauma.* 1990 May;30(5):574-8.