

Compound Volvulus in Pregnant Lady with Intra-Uterine Fetal Death-A Case Report

Harunani S*

Moi University, Eldoret, Kenya

***Corresponding author:**

Shazim Harunani,
Moi University, Eldoret, Kenya

Received: 26 May 2024

Accepted: 01 July 2024

Published: 06 July 2024

J Short Name: ACMCR

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Citation:

Harunani S, Compound Volvulus in Pregnant Lady with Intra-Uterine Fetal Death-A Case Report. Ann Clin Med Case Rep. 2024; V13(20): 1-4

Keywords:

Compound volvulus; Surgical Emergency; Pregnancy

1. Abstract

Compound volvulus or double volvulus, is a rare surgical emergency causing a closed-loop intestinal obstruction that involves the sigmoid and ileum. In pregnancy, compound volvulus is very rare, ranging from 3.2% to 5.9% of all compound volvulus cases. The mean mortality rate in compound volvulus is 35.5%. This report presents a 17-year-old pregnant female, gestation by date 21 weeks, who presented with peritonitis and intrauterine fetal death. There was a diagnostic dilemma which resulted in an explorative laparotomy and a gangrenous compound volvulus was found. There was also a management dilemma as reported in the case presentation.

2. Introduction

Compound volvulus is the twisting of the ileum around the base of the sigmoid or vice versa, it is also called ileosigmoid knotting [1,2,3]. It is an unusual aetiology of intestinal obstruction however due to its rapid progression to gangrene, it is associated with very high morbidity and mortality. Literature reports of only 84 cases of compound volvulus in pregnancy [1]. The aetiology is not known however some anatomical and secondary factors have been linked with it. Anatomical factors include long mesentery of small bowel, freely mobile small bowel and a long sigmoid colon on a narrow pedicle and secondary factors include late pregnancy, trans-mesenteric herniation, Meckel diverticulitis with band, and ileocecal intussusceptions [4]. Clinically, patient may present with peritonitis and intestinal obstruction. Imaging like x rays and ct scans are used infrequently thus making it difficult to diagnose [5]. If a CT scan is done, a “whirl sign” is highly suggestive of a compound volvulus [6]. The most common procedure performed is il-

eal and sigmoid resection with primary enteroenteric anastomosis or creation of a stoma if both ileum and sigmoid are gangrenous [2,7]. Therefore, compound volvulus in pregnancy is both a diagnostic and a management dilemma. In our case report, we present a 17-year-old pregnant female, gestation by date 21 weeks, with compound volvulus that occurred after ingestion of misoprostol in order to terminate pregnancy.

3. Case Presentation

A 17-year-old pregnant female, para 0+0, gravida 1, gestation by date 21 weeks, presented with abdominal pain for 2 weeks, abdominal distension for 2 days and vomiting for 1 day. The abdominal pain was of sudden onset, started in umbilical region but later became generalized. It was colicky in nature and had no aggregating or relieving factors. The pain was radiating to the back and was progressive in nature, increasing from scale of 6/10 to 10/10. Abdominal distension was of gradual onset and progressive. Vomiting [2 episodes] was postprandial, non-projectile, non-bilious, non-bloody. Patient reported of constipation for 1 day however she said she was passing flatus. There was no history of anorexia, weight loss or any urinary symptoms. There was a failed attempt at medical induction of an abortion 1 month prior to admission. There is no other drug history. Past medical history, family social history and gynaecological history was unremarkable. On examination, she was sick looking, not pale, no dehydration, jaundice, edema or lymphadenopathy. Her vital signs were all normal [blood pressure of 101/62, pulse rate of 88 beats /minute, respiratory rate of 16 breaths/minute and temperature of 37.6 degrees celcius. Per abdomen, it was grossly distended with no surgical or therapeutic marks and umbilicus was inverted. She had generalized tender-

ness with guarding and rebound tenderness. Bowel sounds were markedly reduced. Fetal heart sounds were not heard. On digital rectal exam, rectum was empty and no blood found. Patient was investigated as follows (Figure 1 and 2).

Note that there was no report on the uterus or uterine rupture but on bowel loops suggesting intestinal obstruction. Urea, electrolytes and creatinine levels were normal. Patient was resuscitated with 2 litres of normal saline and a start dose of ceftriaxone, flagyl and tramadol given. Patient was seen by gynecologist and general surgeon and was taken to theatre for an emergency laparotomy. A midline abdominal incision was made and findings were: gangrenous bowel noted and necrotic uterus as shown in (Figure 3) below. On further exploration, a compound volvulus was found between ileum and transverse colon. There was no perforation of bowel noted and no uterine rupture noted. Resection of whole ileum up to transverse colon and jejunostomy was done. The dead fetus was removed from uterus and uterus sutured. The patient at

that point was haemodynamically unstable. Patients' reversal was difficult and was admitted to intensive care unit.

Photo of compound volvulus could not be taken due to bulk of gangrenous bowel on the aetiology. One week after surgery, patient was noted to have stoma complications like necrosis and patient was taken to theatre. Findings were that the whole jejunum was necrotic and perforated throughout and uterus was still necrotic bit intact. The fourth part of duodenum was ligated and whole of jejunum excised. There was no parenteral nutrition in the facility and approaches to referral of the patient to a higher-level facility had failed. The patient therefore was managed only on intravenous fluids and electrolyte replacements. Patient went in for a third surgery [2 weeks after her 2nd] after she developed burst abdomen. A frozen abdomen was found and after difficult separation, an abscess was found on the uterus and after draining it, a perforation through uterus was noted. Anatomy of remaining intestines was lost. Patient stayed in the hospital for 3 more weeks on intravenous fluids before finally succumbing due to sepsis and malnutrition.

Parameter	Result	Unit	Ref. Ranges	Parameter	Result	Unit	Ref. Ranges
WBC	H 32.45		4.50 - 10.00	HGB	L 10.4 g	g/dL	11.5 - 16.5
Neu#	H 24.84 R	10 ⁹ /L	2.00 - 7.00	HCT	L 27.4	%	37.0 - 47.0
Lym#	H 7.39	10 ⁹ /L	1.00 - 4.30	MCV	L 70.7	fL	77.0 - 93.0
Mon#	H 0.20 R	10 ⁹ /L	0.20 - 1.00	MCH	L 26.9 R	pg	27.0 - 33.0
Eos#	L 0.02	10 ⁹ /L	0.02 - 0.50	MCHC	H 38.0 R	g/dL	31.0 - 35.0
Bas#	L 0.00 R	10 ⁹ /L	0.02 - 0.10	RDW-CV	L 15.0	%	11.9 - 15.5
Neu%	H 78.6 R	%	45.0 - 75.0	RDW-SD	L 41.3	fL	35.0 - 56.0
Lym%	L 22.8	%	25.0 - 40.0	PLT	308	10 ⁹ /L	150 - 400
Mon%	L 0.8 R	%	2.0 - 12.1	MPV	8.8	fL	6.0 - 10.0
Eos%	L 0.0	%	1.0 - 6.0	PDW	76.0	fL	9.0 - 17.0
Bas%	L 0.0 R	%	0.0 - 2.0	PCT	0.272	%	0.108 - 0.282
RBC	3.87	10 ¹² /L	3.80 - 5.80	P-LCC	85	10 ⁹ /L	30 - 90

Figure 1: Full haemogram showed marked leucocytosis and neutrophilia with low haemoglobin and haematocrit level as shown in figure 1 above.

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The liver appear coarse in echotexture its outline obscured by gas shadows from bowel loops. Both kidneys appear normal in sizes and echogenicity. Right kidney ≈ (10.7 × 4.3) cm. Left kidney ≈ (9.1 × 4.9) cm. Spleen not visualized. Bowel loops appear dilated filled with fluid their walls appear oedematous. No obvious bowel movements noted. There is minimal free fluid noted in peritoneum. The pelvic region shows a single intrauterine fetus with no fetal tone, breathing movts, body movts and fetal cardiac activity. Con features of - IUD, peritonitis, IUD at 20wks 6 days. Raj

Figure 2: Abdominal ultrasound was suggestive of peritonitis and intrauterine fetal death as shown in figure 2 above.



Figure 3: Gangrenous bowel

4. Discussion

Compound volvulus or double volvulus, is a rare surgical emergency causing a closed-loop intestinal obstruction that involves the sigmoid and ileum [1,2,3]. In the case above, it involved transverse colon and ileum. Secondary factors like late pregnancy, trans-mesenteric herniation, Meckel diverticulitis with band, and ileocecal intussusceptions [4]. Our patient had early pregnancy and had used misoprostol 800 micrograms orally to terminate it. However there have been no studies to prove relation of overdosage of medical agents for terminating pregnancy to compound volvulus. In pregnancy, compound volvulus is very rare, ranging from 3.2 % to 5.9 % of all compound volvulus cases. It is more common in African and Asian males in the third and fifth decades [3]. Our patient though African, is a female and does not fall in this age group.

Compound volvulus is classified based on surgical and clinical findings as follows:

1. No risk factor [such as advanced age, co-morbidity], non-gangrenous bowel.
2. Risk factor, non-gangrenous bowel.
3. Shock, non-gangrenous bowel.
4. Gangrene of ileum or sigmoid, no shock.
5. Gangrene of ileum or sigmoid and shock.
6. Gangrene of both ileum and sigmoid [8]

The higher the classification number, the higher the mortality. Our patient had class 6 compound volvulus which predicted high risk for mortality. Our patient had stoma complications and underwent a second laparotomy where whole jejunum was found necrotic and

perforated. Had the compound volvulus caused superior mesenteric artery thrombosis? This was not assessed surgically but is just an afterthought. Risk factors for superior mesenteric artery thrombosis include atherosclerosis, arrhythmias [specifically atrial fibrillation], hypovolemia, cardiac disease [including CHF, recent MI, and valvular disease], advanced age and intra-abdominal malignancy [9]. The mortality rate in compound volvulus ranges from 0% to 48% (mean, 35.5%) and is dependent on duration of symptoms, the presence or absence of gangrene and the general status of the patient, including the presence of septicemic shock [10]. In the case above, the patient presented late, had gangrene and sepsis too. Our patient passed on due to sepsis and not receiving parenteral nutrition.

5. Conclusion

Compound volvulus in pregnancy is very rare and has high morbidity and mortality rates. Late presentation leads to bowel gangrene and poor outcomes.

6. Limitations

The facility lacked investigations like ct scan, laboratory tests like blood gas analysis and treatment options like parenteral nutrition, all of which impacted negatively on the outcome.

7. Ethical Consideration

Informed consent was acquired from patient's guardian for the publication of the case report.

8. Conflict of Interest

None

9. Funding

None

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