



Case report

Cecal volvulus: A rare post-partum complication

Mohamed Aymen Ferjaoui^{a,*}, Ramzi Arfaoui^b, Anis Haddad^c, Mohamed Amine Hannechi^a, Slim Khedhri^a, Khaled Neji^a

^a Department B of Gynecologic Surgery and Obstetric, Tunis Maternity Center, Tunis Medical School, El Manar Tunis University, Tunisia

^b Maternity Department, Military Hospital of Tunis, Tunis Medical School, El Manar Tunis University, Tunisia

^c Department of General and Digestive Surgery, La Rabta Teaching Hospital, Tunis Medical School, El Manar Tunis University, Tunisia

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ABSTRACT

Introduction and importance: Cecal volvulus is a rare clinical condition. It is characterized by axial twist of caecum, terminal ileum and the ascendant right colon around their mesenteric pedicles. The main pathophysiologic mechanism is cecal hyper mobility associated to precipitating factor such as colonic tumor, abdominal mass or pregnancy. Cecal volvulus during pregnancy was reported, but it remains exceptional during postpartum period. **Clinical presentation:** We report a case of cecal volvulus occurring in 37-year-old woman ten days after cesarean section delivery. She presented an acute abdominal pain associated to vomiting and nausea. X ray imaging and abdominal CT showed a large colonic obstruction, the caecum was dilated and located in the left hypochondrium. An open surgery was performed showing twisted bowels involving the caecum, the ileocecal junction and the right colon. There were necrotic areas on the colonic wall. Right hemicolectomy was performed with end to side ileo-colostomy. The evolution was marked by a serious septic shock causing patient's death.

Clinical discussion: Cecal volvulus is a rare condition. Its suggested mechanism associates cecal hyper mobility to a precipitating factor. Increased uterine volume may explain cecal volvulus during pregnancy. In post-partum period, it may be explained by rapid uterine size variation. Cecal volvulus diagnosis is challenging. In fact, its symptoms can be confused with post operative ileus after cesarean section delivery. Delayed management leads to worst prognosis.

Conclusion: Cecal volvulus during post-partum period is a rare condition, it may be serious in case of delayed diagnosis.

1. Introduction

Cecal volvulus is a rare clinical condition with incidence rate ranging from 2.8 to 7.1 per million people per year and it accounts for 1–2% of all large bowel obstruction [1]. Caecum is the second location of colonic volvulus [2]. It was first described by Rokitansky in 1837 as an intestinal strangulation [3]. Cecal hyper mobility with precipitating factor such as colonic tumor, abdominal mass, pregnancy or congenital condition (i.e. Ehlers-Danlos syndrome) [3–6], may explain the bowel axial twist around its mesenteric pedicle [1,6,7]. Cecal hypermobility results from congenital defect of cecal fixation on the posterior parietal peritoneum [8,9]. Cecal volvulus and pregnancy was reported in several publications with an incidence ranging from 1/2500 to 1/3500 [10,11]. The gravid uterus raises the mobile cecum out of the pelvis leading to cecal plication, so that distended cecum and ascending colon can twist around the mesenteric pedicle [5,6]. We report a case of cecal volvulus in the

post-partum period ten days after cesarean section delivery. The work has been reported in line with the SCARE criteria [12].

2. Case report

A 37-year-old woman, gravida 3 para3, underwent an uneventful cesarean section delivery. She left the hospital three days later. After 10 days, she presented to the emergency department with an acute abdominal pain and vomiting that began 4 days before. Clinical examination showed a slightly distended and painful abdomen. There was no clinical argument for endometritis. Blood test showed a white blood cell count of 15/nL [normal range 4–10/nL] associated with elevated C-reactive protein (180 UI/ml). Abdominal X ray showed an air-fluid level of colic type with dilated bowel (Fig. 1). Abdominal CT showed dilated caecum with twisted ileocecal junction (Fig. 2). Explorative laparotomy was performed. We found a cecal volvulus involving ileocecal junction

* Corresponding author.

E-mail address: mohamedaymen.ferjaoui@fmt.utm.tn (M.A. Ferjaoui).

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and right colon with several colonic wall necrotic areas (Figs. 3). Intraoperatively, no mechanism explaining cecal volvulus was noticed. Right hemicolectomy was performed with end to side ileocolostomy. The evolution was unfavorable. Death occurred secondary to septic shock 36 h later. Histologic examination concluded to extended colonic ischemia without signs of malignancy.

3. Discussion

Cecal volvulus is a rare condition accounting from 1 to 2% of all large bowel obstruction [1]. The caecum is the second location of colonic

volvulus after colon sigmoid [2]. The suggested mechanism of cecal volvulus associates cecal hyper mobility to a precipitating factor like pregnancy [11], uterine leiomyoma [3] or colonic tumor. Cecal hyper mobility is a congenital condition. Interaction between cecal visceral peritoneum and posterior parietal peritoneum determine cecum fixity. Four situations can be described [8]:

- 1- Free cecum with no adhesion between cecum and parietal peritoneum.
- 2- Attached cecum fixed to posterior parietal peritoneum by connective tissue



Fig. 1. X ray imaging showing an air-fluid level of colic type associated with dilated bowel.

- 3- Cecum with retrocecal fossa, secondary to a bifocal peritoneum fusion limiting a retrocecal fossa where the appendix can be located.
- 4- Cecum fixed to parietal wall by mesocecum which is a total fusion between cecal peritoneum and posterior parietal peritoneum.

Precipitating factor is essential to develop cecal volvulus. It may be post operative adhesion [3], colonic tumor or pregnancy [13]. The risk of cecal volvulus increases with duration of gestation [7,13]. In postpartum period, cecal volvulus suggested mechanism is the rapid uterine size variation. The clinical presentation is an intestinal obstruction by acute strangulation. It includes paroxysmal abdominal pain associated to nausea and vomiting [1,6,7,14,15]. Abdominal pain occurs brutally in right iliac fossa and hypochondrium before getting generalized. Physical examination shows a tympanic meteorism with painless pelvic touches. Cecal volvulus clinical presentation may be confused with post operative ileus inducing delayed surgical management.

Diagnosis is based on abdominal computed tomography and can be suggested by abdominal X-ray.

In CT imaging, axial dynamic sequences show a dilated cecum with an air/fluid level. The dilated cecum shows progressive tapering terminating at the site of torsion: the "bird's beak" sign [16,17].

The lack of normal mural enhancement of the cecum on CT, compared to normal one of nearby small bowels, is suggestive of ischemia [16].

The cecal volvulus management is based on surgery. Conservative procedure consists on detorsion and cecal fixation, however the preferred treatment is right hemicolectomy with primary anastomosis or ileostomy [2,5]. The morbidity is about 20% and the mortality is very variable depending on the series varying between 9 and 60%. The worst outcome can be explained by management delay [18]. In our case, the patient presented to the hospital four days after symptoms beginning, so that diagnosis and management were delayed.

4. Conclusion

Cecal volvulus is a rare and serious condition. In postpartum period it can be confused with post operative ileus. Gynecologists must consider cecal volvulus as possible etiology of post operative abdominal pain; CT scan must be performed in case of atypic ileus clinical presentation.

Consent

A consent was obtained from patient's husband because of fatal outcome.

Provenance and peer review

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Ethical approval

This work was approved by our institution ethical committee.

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Guarantor

Dr Mohamed Aymen Ferjaoui
Dr Ramzi Arfaoui.

Research registration number

This is not a "first in humans" report, so it is not in need of registration.



Fig. 2. Abdominal CT showing dilated caecum located in the left hypochondrium suggesting cecal volvulus (red narrow).



Fig. 3. Intraoperative view of dilated cecum and right colon.

CRedit authorship contribution statement

Mohamed Aymen Ferjaoui, Ramzi Arfaoui and Anis Haddad: surgery and study design
 Slim Khedhri and Mohamed amine Hannechi: Data collection and manuscript redaction
 Khaled Neji: Editing and final approval.

Declaration of competing interest

No conflicts of interest to report.

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