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Intestinal Occlusion and Pregnancy: Case Report and Literature Review

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Abstract *: Intestinal obstruction rarely occurs during pregnancy but is accompanied by high maternal and fetal morbidity and mortality often due to delayed diagnosis and treatment. We report a case of gravidial intestinal obstruction and review the literature in order to discuss the pathophysiological mechanisms, the diagnostic and therapeutic difficulties and to propose an appropriate course of action.*

Keywords: intestinal occlusion, pregnancy, surgery, conservative treatment

Introduction

Intestinal obstruction is a rare complication of pregnancy; its incidence is increasing.

The difficulty of diagnosis and the delay in management can be the source of an important fetal and maternal morbidity

The main causes of perinatal death are prematurity and fetal hypoxia secondary to maternal hypotension.

The management of intestinal obstruction during pregnancy is a real challenge for the clinician. This article proposes, in the light of this recent clinical case, this article proposes to review the data in the literature and to identify the general principles of management and treatment.

CLINICAL CASE

A 38-year-old woman, G3P1 (1EV/AVB) with a history of left salpingectomy a year ago for ectopic pregnancy, was hospitalized at her 8th month of gestation for diffuse abdominal pain accompanied by an occlusive syndrome consisting of cessation of bowel movements and gas for one week and vomiting twice in the last 24 hours. No other general complaints and in particular obstetrical complaints were reported. The general condition was not altered and the life parameters were normal (PA: 110/60 mmHg; T: 36°C; RC: 85/min).

On physical examination, the abdomen is soft with epigastric tenderness, no defensiveness, no contractures. Diffuse hyper tympany. TR: empty rectal ampulla.

On obstetrical examination a uterus spread longitudinally and perception of the 02 fetal poles, normal HU compared to GA, BCF + and Regular . In a patient out of labor, water pocket intact.

Biological examinations show a Hemoglobin at 12.4, normal Platelets normal Renal function normal Ionogram, a slight hepatic cytolysis GOT : 2.9*N GPT : 3.5*N and a CRP at 31 . Fetal monitoring showed a baseline heart rate of 140 beats/min with good variability.

At the obstetrical ultrasound we note an evolving Monofetal Pregnancy, Cephalic presentation, PFGII-IIIG, Estimated fetal weight 1900g, Amniotic fluid normal quantity, Biometry = 31-32 SA

Antibiotic therapy was initiated (amoxicillin/clavulanic acid - Augmentin® 2 g every 8 hours) in view of a discrete increase in C-reactive protein. A CT scan of the abdomen and pelvis was immediately requested, confirming the clinical impression of intestinal occlusion on double flanges without signs of digestive distress(figure 1). Conservative treatment was instituted pending a decision to induce labor. The conservative treatment consists of gentle nasogastric suctioning, intravenous hydration with basic rations, administration of anti-emetics (metoclopramide - Primpéran® 10 mg every 6 hours), analgesics (paracetamol - Perfalgan® 1g every 6 hours) and H2 antihistamines (ranitidine - Zantac® 50 mg every 8 hours) intravenously. This treatment was only moderately effective. The symptoms are partially relieved but the obstruction persists.

Prophylactic tocolysis, no adverse effects of tocolysis were noted with a corticotherapie for fetal maturation based on celesteine 12mg at 24h interval.

24 hours later, a decision was made to perform a laparotomy due to the disruption of the biological workup by hypokalemia at 2.2, and persistence of the symptomatology. This exploratory laparotomy revealed the presence of some distended gallbladder coils upstream of a flange with gallbladder and uterine adhesions, and the release of the adhesions with sectioning of the flanges, revealing an area of stricture with no signs of necrosis(figure 2).

In the postoperative period, the patient was admitted to the intensive care unit with the occurrence of a premature delivery of a stillborn male. She returned home in good health on the 3rd day of post-op with good clinical evolution.

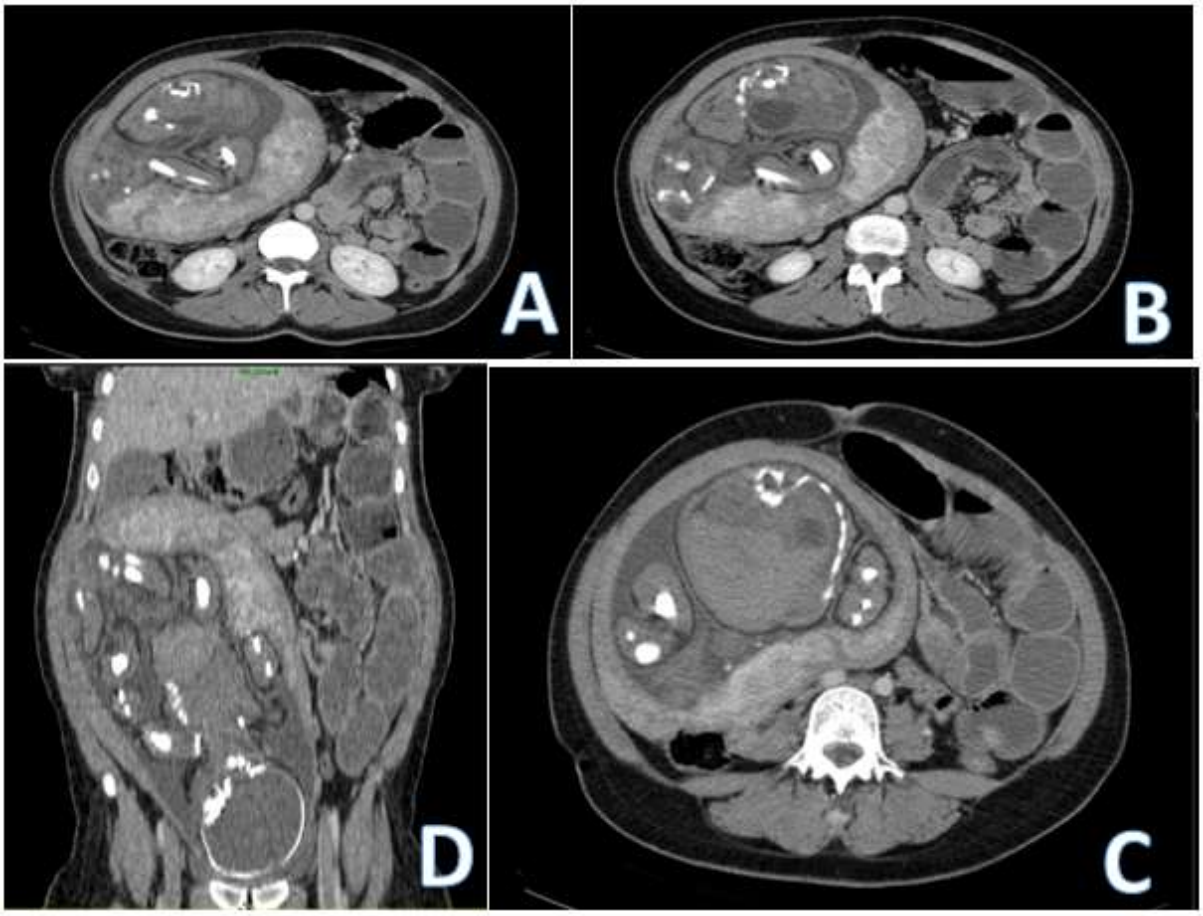

Figure 1 : Axial (A,B,C) and coronal (D) scans of intestinal occlusion on double flanges without signs of digestive suffering

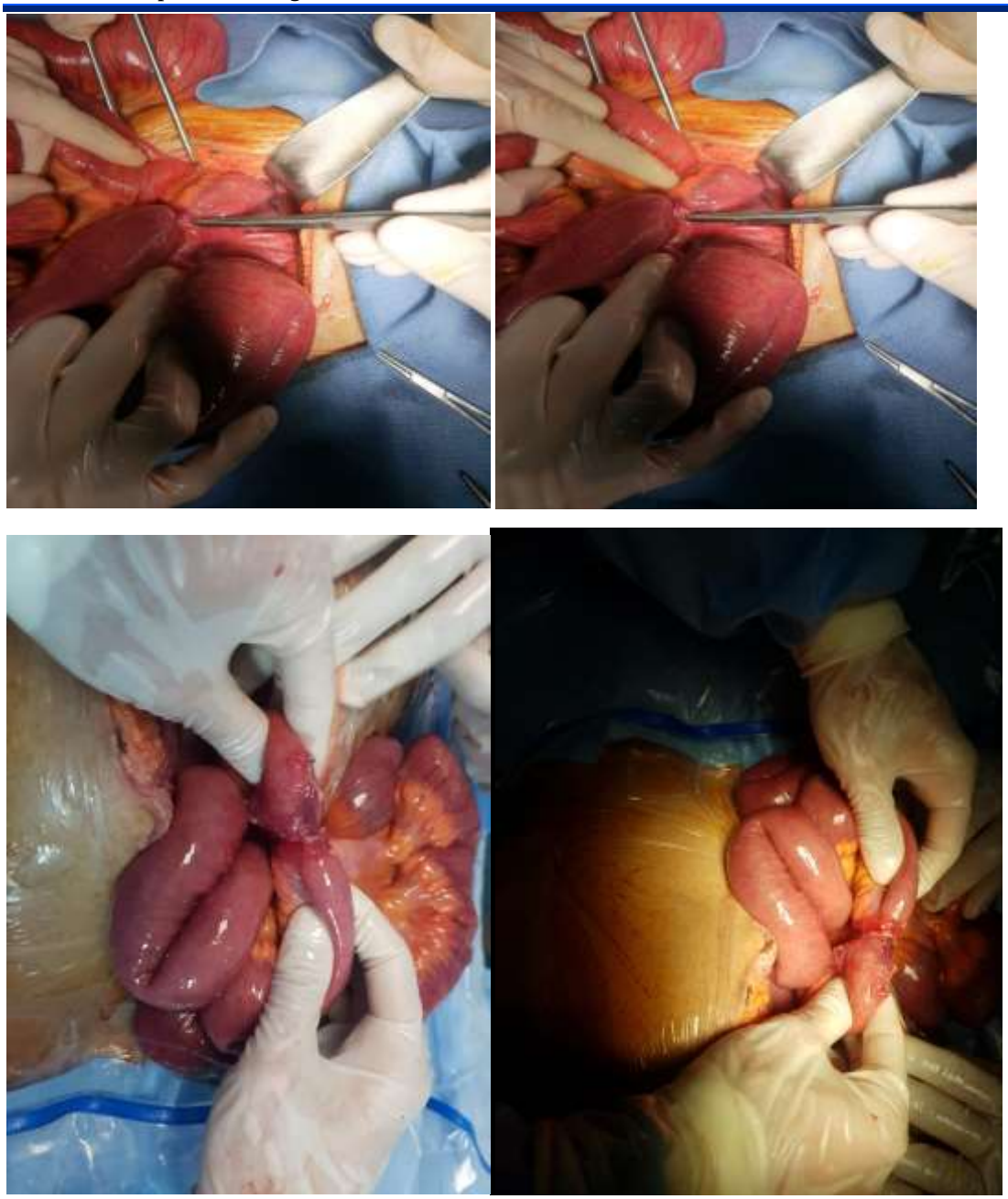

Figure 2 : Exploratory laparotomy Greilic distension upstream of the greilic and greilic-uterine flanges

Discussion

The incidence of intestinal obstruction during pregnancy is, in recent studies, 1/1,500 to 1/3,000 pregnancies (5). This incidence is increasing compared to older publications. The resurgence of pelvic inflammatory disease (PID) may be partly responsible. Approximately 53-59% of bowel obstructions are due to adhesions or adhesions secondary to surgical procedures or episodes of PID(6,7). The occurrence of intestinal obstruction due to flanges varies with gestational age: only 6% of intestinal obstructions occur in the first trimester, while 27% occur in the second trimester, 44% in the third trimester, and 21% postpartum(1-2).In our case, a history of abdominal surgery was the cause of adhesion formation.

The initial diagnosis of intestinal obstruction during pregnancy is often erroneous. The examination of the abdomen is non-specific, the biological analyses often inconclusive. An absence of leukocytosis is not sufficient to rule out the diagnosis of

intestinal obstruction. On the contrary, a hyperleukocytosis is common during pregnancy, especially in the third trimester and during labor. It should be remembered that the diagnosis of intestinal obstruction in pregnancy is based on the same clinical triad as in the general population: abdominal pain, vomiting, cessation of feces and gas. The diagnostic difficulty arises from the fact that nausea and vomiting are frequent and mostly trivial pathologies during pregnancy: around 16 weeks of gestation, 50% of patients still complain of nausea and 33% of vomiting (3,6) . Intestinal obstruction can easily be confused with hyperemesis gravidarum, especially in the first trimester. Thus the therapeutic responses to the administration of anti-emetics are crucial: according to Connoly and Perdue "A lack of response to anti-emetics requires a thorough complementary work-up and must evoke the possibility of an intestinal obstruction in the presence of a history of abdominal surgery. If this diagnosis is not evoked, it will never be made"(2,6). The complete triad is not always present. Abdominal pain and gas cessation are sufficient warning signs to evoke the diagnosis of bowel obstruction. Abdominal pain is present in 85 to 98% of cases(6,8), vomiting in 82% of cases and cessation of bowel movements in 30%(6) in our case the triad was complete.

Abdominal ultrasound in pregnancy is the first-line diagnostic test for suspected bowel obstruction (9-11). It can exclude intestinal obstruction with a sensitivity of 89% and a specificity of 100%. Its safety allows repeated examinations to follow the evolution of the dilatation of the intestinal coves as long as the abundance of gas does not interfere with the examination. This evolution allows to evaluate the relevance of conservative treatment and constitutes a determining element for the surgical decision. Ultrasound can also detect the presence or abundance of intra-peritoneal fluid, evoking peritoneal irritation and/or intra-hail stasis. It allows to determine if the collection is free or localized intra-peritoneal as well as the location of localization. It also allows to appreciate the parietal thickening of the intestine, witnessing venous stasis, incipient ischemia or infarction in case of volvulus, and even to locate quite precisely the site of intestinal obstruction. Finally, ultrasound allows a complete assessment of the abdominal sphere and pregnancy in search of other pathologies. The combination of informative abdominal ultrasound and clinical evaluation of the patient is sufficient to confirm an intestinal obstruction. The unprepared abdominal radiograph (sensitivity: 75% and specificity: 53%) is a second choice, especially since the hydroaerobic levels usually sought are only present during the first few hours when the intestinal obstruction sets in, with the aerobic side then filled by intraluminal stasis fluid. However, this imaging remains useful in the general assessment of intestinal obstruction in case of inconclusive ultrasound and the hesitation of clinicians to prescribe this imaging in pregnant women for fear of inducing fetal malformations is unjustified in view of the risk of morbidity and high mortality if the diagnosis is delayed. The major complications resulting from late diagnosis are intestinal ischemia and septic shock(2) , and the maternal mortality rate can be as high as 6-20%12 .

However, late diagnosis, due to lack of adequate complementary examination, remains the most frequent situation. It should be remembered that a dose of 0.01 Gray (10 times the dose of an unprepared abdominal X-rayon) presents a risk of congenital malformation of 1/1,000, whereas the general incidence of congenital malformation is of the order of 30/1,00013. Very early in the process of bowel obstruction, the unprepared abdomen may be negative14. In addition, more than 20% of unprepared abdominal radiographs would be misinterpreted as negative2 . Therefore, it is indicated to repeat this imaging if necessary, 12-24 hours apart. Nuclear magnetic resonance, if available or easily accessible, can be used on a case-by-case basis for differential diagnosis because of its safety for the fetus beyond the first trimester and the information it can provide.(15) Finally, there is CT scan, which can be used to assess the fetal outcome of a pregnancy. Finally, there is abdominal computed tomography (CT). It is not recommended during pregnancy, except in exceptional cases when the potential benefit justifies the risk to the fetus. In summary, abdominal ultrasound is the first diagnostic approach to suspected bowel obstruction in pregnancy. If it is clear and positive, the indication for surgery is absolute and if it is clear and negative, intestinal obstruction is excluded with near certainty. In case of doubt, either because of the abundance of gas or because of the inexperience of the operator, nuclear magnetic resonance is the examination of choice. Otherwise, the unprepared abdomen will be performed and followed by an abdominal CT scan if it is inconclusive, on a case-by-case basis and in close consultation with the obstetrician and the digestive surgeon.

In conclusion, we will discuss the treatment. medical practice aiming to institute conservative treatment in the hope of avoiding surgical treatment. This attitude does not seem appropriate. Pregnancy being in itself an additional cause of obstruction, isolated medical treatment most often ends in failure: surgical intervention is still performed in 89% of cases of intestinal obstruction occurring during pregnancy(6,7,16) in the case of our patient. However, by delaying surgical management, this attitude contributes to the increase in maternal and fetal mortality [13]. The basis of treatment of occlusion is surgery at the appropriate time, whatever the term of the pregnancy, in order to improve the prognosis and avoid the dreaded complications [14]. The principle of treatment varies according to the gestational age: Up to 26 weeks: laparotomy with removal of the occlusion, continuation of the pregnancy to term if possible; between 26 and 34 weeks : if possible fetal lung maturation followed by cesarean section with midline skin incision completed with surgical treatment of the occlusion; between 34 weeks and term: cesarean section with midline skin incision completed with surgical treatment of the occlusion; in all cases, laparotomy or cesarean section imperatively within 72 hours. The preoperative preparation of the patients must require a collegial decision including an obstetrician, a resuscitator-anesthetist and a surgeon in order to discuss prophylactic tocolysis, corticosteroid therapy for fetal maturation in the third trimester and the surgical indication on a case by case basis. The maternal-fetal prognosis depends on the speed of diagnosis and the precocity of treatment; Harer reported a maternal mortality of about 21% with a fetal mortality of 31% [15]. The development of

obstetrical surveillance means and early surgical management have allowed an improvement in maternal prognosis with a mortality rate that has become almost nil. Fetal mortality has changed little over time, in the order of 20 to 30%, probably due in large part to prematurity [16-17]. In our case, unfortunately, we had a spontaneous premature delivery with a stillbirth at one day post-op(18-19).

Conclusion :

The diagnosis of intestinal obstruction during pregnancy is often difficult and late because Digestive disorders are often put on the pregnancy; however, their persistence or onset after the first trimester should be of concern to the clinician and should prompt the clinician to ask for the adequate complementary examinations. Multidisciplinary management and timely surgery is necessary to minimize morbidity and mortality maternal and fetal mortality.

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