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Case Report

Appendicular Peritonitis during Pregnancy: A Case Report

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Abstract

The most common surgical emergency encountered during pregnancy is acute appendicitis [1]. The diagnosis of acute appendicitis during pregnancy is often challenging mainly because of physiological and anatomical changes during pregnancy. From a therapeutic point of view, the approach depends on the gestational age and the evolutionary stage of the appendicitis. The maternal-fetal prognosis depends on the severity of the condition and the delay in treatment. Appendectomy should be performed in patients presenting a highly suggestive clinical and ultrasonographic picture, preferably by laparoscopy in order to avoid more severe complications which could be life-threatening for the mother or infant.

Keywords: Appendicitis, Pregnancy, Maternofetal prognosis.

INTRODUCTION

Pregnant woman is likely to present one or more abdominal pathologies during her pregnancy, sometimes with the necessity of an urgent surgical treatment.

The main difficulty in the management of a pregnant woman, is that the surgeon must balance, often in an emergency, the risks linked to the digestive pathology and those linked to the pregnancy for the mother and the child.

A multidisciplinary management is essential, specifically including an obstetrician-gynecologist and a general, digestive or visceral surgeon.

The most common surgical emergency encountered during pregnancy is acute appendicitis [1]. The diagnosis of acute appendicitis during pregnancy is often challenging mainly because of physiological and anatomical changes during pregnancy (The increased abdominal laxity, the anatomic changes of the appendix…). Also, classic symptoms and signs of appendicitis may be absent in pregnant women, particularly in the third trimester [2-4]. These factors may lead to a delay in diagnosis and treatment, which has been associated with a significant increase in the rate of maternal and fetal complications (Abdominal pain, nausea and vomiting can also be observed during a normal pregnancy) [5, 6]. Therefore, the precision of preoperative diagnosis in pregnant women with suspected acute appendicitis is crucial and imaging plays a key.

Ultrasound with a graded compression technique is currently considered the preferred initial imaging modality because it does not involve exposure to ionizing radiation [7].

If ultrasonograpy is inconclusive (up to 97% of appendices are not visualized), one should not hesitate to resort to CT or MR imaging. MRI imaging (which should be performed without gadolinium injection) offers a sensitivity of 80 to 86% and a specificity of 97 to 99% [8].

If, as in many cases, MR imaging is not easily available, CT imaging with limitation of radiation dosage to less than five rads is recommended [9, 10]. Since two lives are at risk, both mother and infant, these patients should be managed in specialized centers where surgical management can be supplemented by

specific obstetrical and/or neonatal management depending on the gestation.

CASE REPORT

We report a case of a 30 year old patient, gravida 4 para 4, pregnancy estimated at 27 SA from Morocco, with history of acute pyelonephritis with pyelocalic dilatation for which the patient was put under targeted antibiotic therapy and double J catheterization, 15 days before her admission to the obstetrical emergency room.

The patient consulted for the first time at the emergency room of the Souissi maternity hospital in Rabat, for vomiting and diffuse abdominal pain in the context of fever and weight loss estimated at 5 kg.

On clinical examination, the patient was feverish and hemodynamically stable, the body mass index was 20, and abdominal palpation was generally painful and found an abdominal contracture. The gynecological examination shows long closed posterior cervix and intact membranes.

Pelvic ultrasound confirmed the diagnosis of a monofetal intrauterine pregnancy evolving at 27weeks of amenorrhea (SA) and moderate right pyelocalic dilatation.

The iconographic assessment is completed by thoraco-abdominopelvic CT imaging, that shows pericoecal and left pericolic abscessed fluid collections with infiltration of the caeco-appendicular space (sub hepatic location) associated with pneumo-peritoneum , suggesting peritonitis of digestive (Fig 1).

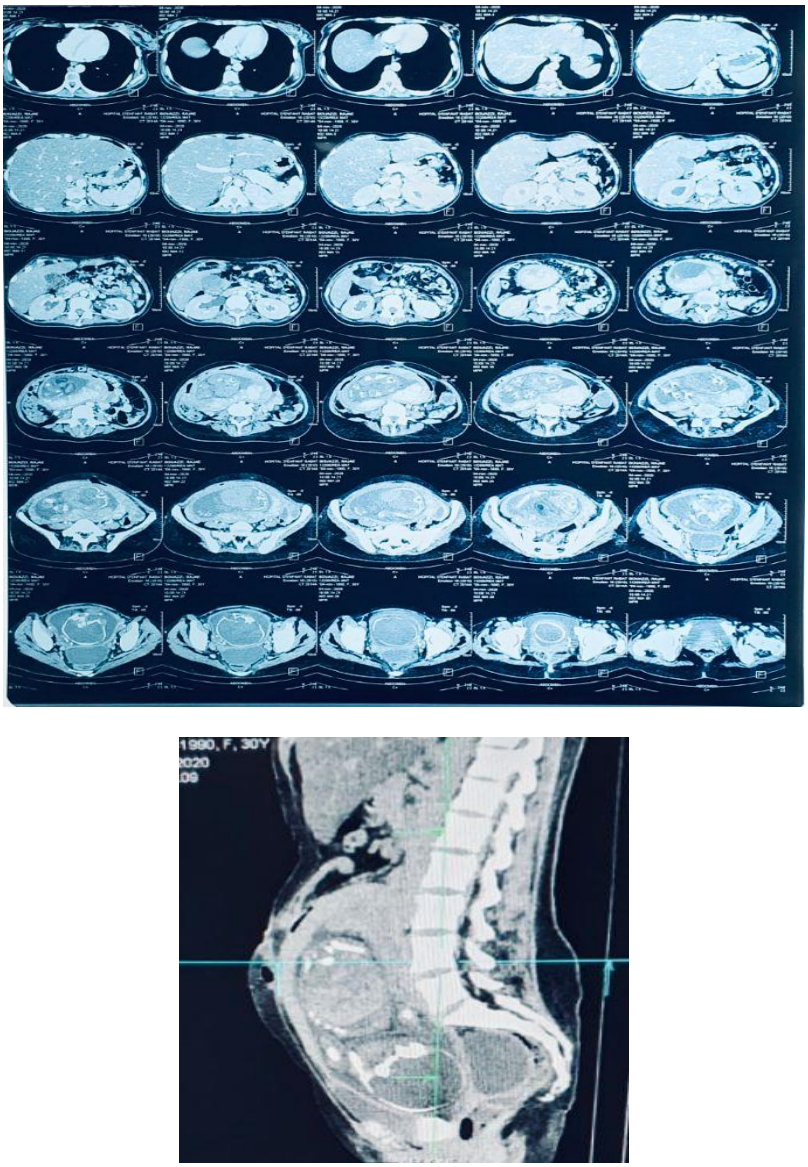

Fig 1: CT imaging showing pericoecal and left pericolic abscessed fluid collections with infiltration of the caeco-appendicular space (sub hepatic location) associated with pneumo-peritoneum, suggesting peritonitis of digestive

Biological evaluation shows an anemia with 8g/dl of Hemoglobin, 15, 8.10*^{3} of WC and a PCR at 280, the rest of biological results were without any particularity.

In view of the suspicion of peritonitis, an exploratory laparotomy was performed which revealed several collections of the left parieto-colic gutter in the retro-uterine zone and opposite the cecum, digested appendix and 4 cm perforation of the cecum. We also found several intestinal and parietal adhesions (Fig 2).

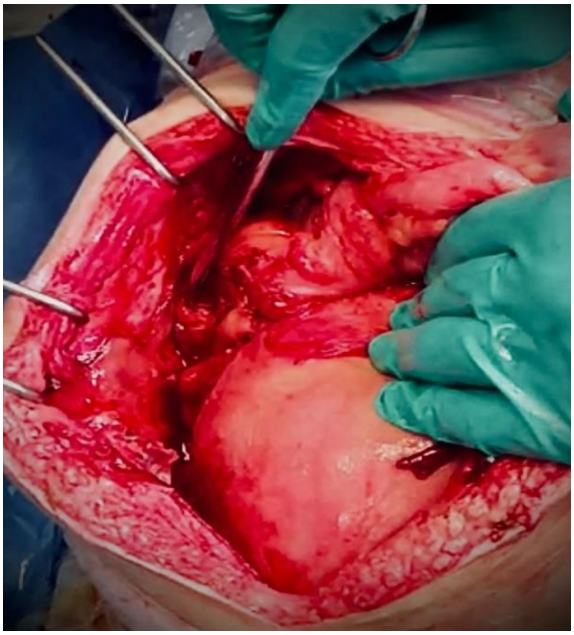

Fig 2: Surgical time of appendicular peritonitis with coecal perforation

We performed a suture of the caecal perforation, a careful adhesiolysis, an abundant washing of the abdominal cavity and a drainage by Delbet's blades.

The postoperative period was simple for the mother but unfortunately, the fetus died 10 hours after the operation and the patient was transferred to the visceral surgery department for monitoring and complementary care.

DISCUSSION

Appendicitis during pregnancy is attended by a significant obstetrical risk, as is demonstrated in this report and in other published series [11]. Thus, the risk of premature labor and delivery and of low-birth weight as well as other obstetrical complications is increased after acute appendicitis.

The diagnosis of appendicitis should always be considered in any pregnant women who presents with acute abdominal pain. If there is any clinical suspicion, the diagnosis should be thoroughly pursued to avoid surgical delay. The diagnostic delay significantly worsens prognosis. Complicated appendicitis was more often associated with fetal loss than was simple unperforated appendicitis [12].

The diagnosis of acute appendicitis during pregnancy presents variable difficulties depending on the gestational age [13-16]. In the 1st trimester, the semiology of appendicitis is not different from that observed in that observed in non-pregnant women [15]. Abdominal pain is the most constant sign. It was found in our patient.

This pain may lead to discussion of a threat of early abortion or a urinary tract infection, making obstetrical examination and ECBU important [19, 16]. Other functional signs of appendicitis (nausea, vomiting, and constipation) are usual during pregnancy at this gestational age, which makes them of no diagnostic interest [18, 16].

Abdominopelvic ultrasound confirms the diagnosis when it visualizes an incompressible appendix of more than 7 mm in diameter, aperistaltic with a parietal thickness of more than 3 mm and sometimes the presence of fluid in the appendicular appendicular cavity [16, 17]. Ultrasonography is technically difficult in this setting, it is innocuous and, should be the first diagnostic modality. If ultrasonography is inconclusive, one should not hesitate to resort to CT or MR imaging.

The haemogram is difficult to interpret because of the physiological hyperleukocytosis of pregnancy, while the CRP may be normal.

In the last two trimesters of pregnancy, the diagnosis of appendicitis becomes more difficult because the appendix is pushed up and out and reaches the costal border in the 8th month and becomes less accessible to ultrasound in the sub-hepatic position than in the right iliac fossa [20].

Laparoscopy for diagnostic purposes is not indicated after the 20th week because of the risk of uterine injury and the fetal risk related to abdominal hyperpressure and carbon dioxide pneumoperitoneum which would lead to a reduction in utero-placental blood flow .However, some authors think that laparoscopy is possible in the 2nd trimester and even beyond by exploiting the free space between the uterine fundus previously identified and the xiphoid appendix [19].

In the 1st trimester, all the complications of appendicitis can be seen. The uterus, still pelvic, does not push back the adjacent organs which may form adhesions around the appendicular focus and isolate it from the peritoneal cavity, creating an appendicular plastron. The evolution of the appendicular crisis can also be towards acute diffuse peritonitis.

In the last two trimesters, uterine contractions hinder the formation of adhesions and the compartmentalization of the infection; the high level of steroids decreases the inflammatory response and the increase in pelvic vascularization facilitates the diffusion of the infection [14, 20, 21]. All these reasons explain the more rapid evolution of peritonitis in the third trimester, as observed in our study.

From a therapeutic point of view, the approach depends on the gestational age and the evolutionary stage of the appendicitis. In the 1st trimester, a Mac Burney incision, if necessary enlarged, allows the appendectomy to be performed easily, whereas in the last two trimesters the incision must be higher, and located in the right flank.

However, in diffuse appendicular peritonitis, the median incision straddling the umbilicus allows a rapid approach and a meticulous exploration of the abdominal cavity as we did in our case. The treatment can also be done by laparoscopic surgery after the diagnostic procedure. Laparoscopy reduces uterine manipulations in relation to the need to explore and in appendicular peritonitis. It preserves the abdominal parietal capital and allows better abdominal cleansing [16].

From a surgical point of view, the treatment of acute appendicitis and appendicular peritonitis does not present any particularity in pregnant women [22].

Preventive tocolysis reduces the incidence of uterine contractions, premature deliveries and abortions.

Caesarean section should therefore only be performed for obstetrical indications such as fetal distress if the age of fetal viability is reached.

The maternal-fetal prognosis depends on the severity of the condition and the delay in treatment [16, 23, 24]. The fetal death observed in our case of peritonitis by appendicular perforation is an illustration of this. Fetal mortality is more than 35% in cases of appendicular peritonitis [16, 25] and varies between 1 and 8% in women with acute uncomplicated appendicitis [25].

Prematurity and spontaneous delivery were the main fetal risks. These risks are particularly high during the first week after appendectomy.

CONCLUSION

Appendicitis is the most frequent abdominal emergency (1/2000 pregnancies) and represents 25% of non-obstetrical emergencies occurring during pregnancy. It is a serious condition in pregnant women because of the frequency of complicated forms and the possibility of secondary peritonitis most often due to a delay in diagnosis.

In the first trimester, diagnosis is easy, treatment simple and the prognosis generally good. In the last 2 trimesters, diagnostic difficulties are responsible for severe forms and aggressive surgical treatment.

Pelvic ultrasound and cytobacteriological examination of the urine should be systematic in case of abdominal pain in pregnant women. Diagnostic doubt requires surgical exploration.

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