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Case Report | **Obstetrics and Gynecology**

Acute Pancreatitis and Pregnancy: A First Trimester Case and Review of the Literature

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Abstract

Acute pancreatitis associated with pregnancy occurs mostly in the 3rd trimester of pregnancy or during the immediate postpartum period, mainly caused by biliary lithiasis. Its incidence is approximately 1 in 1000 to 3000 pregnancies [1]. Maternal and fetal mortality due to acute pancreatitis occurring during pregnancy has fallen in recent years thanks to medico-technical advances in intensive care units with better management of severe attacks and better management of premature newborns. The clinical presentation is often atypical in pregnant women and the possibilities of imaging and surgery are limited. Acute pancreatitis can be treated medically but surgery becomes necessary if there is no improvement under medical treatment.

Keywords: Acute pancreatitis, pregnancy, Maternal and fetal mortality, premature newborns, surgery.

INTRODUCTION

Acute pancreatitis (AP) in pregnancy is a rare condition, occurring between 1/1000 and 1/12000 pregnancies. Biliary etiology is the most frequent, its diagnosis during pregnancy is difficult, given the non-specificity of the clinical picture and given that very often pain and vomiting can be attached to sympathetic signs of pregnancy, especially in the first trimester, which can delay the diagnosis. Amylasemia and lipasemia confirm the diagnosis. Imaging helps to make the diagnosis of severity. We report a case of acute pancreatitis stage B of balthazar of the 1st trimester whose initial diagnosis was vomiting in pregnancy.

CASE REPORT

A 29 years old primiparous female, with no notable pathological history, was admitted to the clinic at 12 months' gestation for the management of incoercible vomiting in a context of weight loss that had not been quantified for one week. The clinical examination revealed a BMI of 24, a BP of 12.6, a heart rate of 100 bpm, a supple abdomen, and the rest of the somatic examination was unremarkable. An obstetrical ultrasound scan showed an evolving pregnancy corresponding to the gestational age, a biological check-up showed a hydro-electrolytic disorder with a hepatic cytolysis 3 times normal, the hepatic serologies were negative, the patient was hospitalized and her diet was stopped.

An abdominal ultrasound scan was carried out but did not reveal any abnormality, the lipasemia was three times normal, in view of the teratogenic risk of the CT scan in the first trimester, an abdominal MRI was carried out which revealed an acute pancreatitis, Balthazar stage B, with a gall bladder containing a sludge. She was hospitalized in the intensive care unit and put on a basic ration, stopped feeding and analgesic with a good clinical and biological evolution. After her discharge, the pregnancy was followed up until term without incident, and the delivery took place by caesarean section for fetus-pelvic disproportion with no abnormalities in the post-partum period.

DISCUSSION

Acute pancreatitis remains a rare condition in pregnancy with an incidence of 1 in 1000 to 3000 pregnancies [1]. Previously, it was associated with a high fetal and maternal risk, but more recent studies have found no maternal mortality and only 0.57-4.7% fetal mortality [2,3]. This clear reduction in maternal-

fetal morality can be explained by the improvement of our imaging techniques and the progress of current therapeutics, thanks to the multidisciplinary management of severe pancreatitis and the better management of prematurity [4].

Positive diagnosis

The presence of at least 2 out of 3 criteria confirms the diagnosis of acute pancreatitis: sudden transfixing abdominal pain, often epigastric, radiating to the right shoulder or to both hypochondria, lipaemia>3N (>600IU/L), concordant imaging (hypoechoic oedematous pancreatitis, necrotic-hemorrhagic pancreatitis) [5].

Diagnosis of severity

The clinical examination for complications must be done urgently and repeated during the first few hours. The presence of signs of hypovolemic shock on creation of a 3rd sector, a surgical abdomen, peri-umbilical ecchymosis (Cullen's sign) or infiltration of the flanks (Grey Turner's sign) which are clinical signs of poor prognosis, organ failure (dyspnea and acute respiratory failure on reactive pleural effusions; disturbance of consciousness; digestive haemorrhage with acute anaemic syndrome, haematemesis, melena).

Etiologies

The most common etiology of acute pancreatitis associated with pregnancy is biliary pathology (almost 70%), followed by alcohol abuse (10%), hypertriglyceridemia (4%), hyperparathyroidism (1.5%), and other rarer causes are sometimes found [6]:

- Bacterial (mycoplasma pneumoniae), viral (EBV, urlian virus), parasitic (ascaris) infections ;
- Pancreatic ischemia secondary to shock, acute hypoxia, vasculitis
- Drugs: diuretics (furosemide, thiazides) and antibiotics (sulfonamides, tetracyclines);
- Postoperative or abdominal trauma;
- Congenital pancreatic malformations or dysfunction of the sphincter of Oddi.

Risk factors

Multiparity, a body mass index (BMI) > or equal to 30kg/m2 before the start of pregnancy, insulin resistance, and elevated serum leptin are known factors for gallstone disease. A personal history of hypertriglyceridemia or a history of familial hypertriglyceridemia are also risk factors for acute pancreatitis in pregnancy [7,8].

Imaging methods during pregnancy

Abdominal ultrasound is the ideal imaging test for the detection of biliary tract dilatations, but it is operator and patient-dependent. Abdominal-pelvic CT (APCT) should be avoided because of fetal radiation exposure. Echo-endoscopy (EE) is the most specific examination to visualize vesicular and choledocholithiasis with a positive predictive value close to 100%, but it requires expensive equipment and sedation of the patient. Magnetic resonance cholangiopancreatography (MRCP) is also a good diagnostic test that does not require irradiation or sedation and allows a better overview of the biliopancreatic tree, but remains less specific than EE and is controversial in the first trimester of pregnancy because of the risk of radiofrequency pulses on fetal development.

The combination of these two examinations currently seems to be the most effective technique for understanding the etiological diagnosis and prognostic factors [9,10]. Endoscopic retrograde cholangiopancreatography (ERCP) as a diagnostic tool has lost its interest due to the risk of radiation and the availability of other safer diagnostic techniques (EE or MRCP).

Impact of acute pancreatitis on pregnancy

Moderate forms of acute pancreatitis that respond to medical treatment are associated with an excellent maternal prognosis. The main risk factor for maternal mortality is infection of the necrosis. Only a recent American study by Tang et al. in 2010 of 96 cases of pregnancy-associated pancreatitis reported one maternal death directly related to necrotic flow infection. In the literature, acute non-biliary pancreatitis is associated with an increased risk of maternal and fetal complications. However, several authors have shown that acute pancreatitis in pregnancy is associated with a risk of preterm delivery, IUGR, and spontaneous first trimester abortions.

Eddy *et al.* from Wisconsin conducted a multicenter retrospective study over a 10-year period (1992-2002), reporting 23 preterm deliveries (32.1%), 3 MFIU (3.6%) and 3 first-trimester spontaneous abortions (3.6%) out of 89 cases of acute pancreatitis in pregnancy [23]. Another retrospective study conducted over a period of 6 years (2000-2006) by Tang et al. in Texas reported 11 preterm deliveries (11%), 1 MFIU and 6 spontaneous abortions of which 5 in the first trimester and 1 in the second trimester of pregnancy out of 96 cases of acute pancreatitis during pregnancy. There were no neonatal deaths in either of the two previous studies [11,12,13].

Therapeutic management

Medical treatment must be initiated as a matter of urgency with fasting, fluid and electrolyte rebalancing, and the use of IV analgesics of level I to III according to the VAS, followed by early enteral re-feeding as soon as the pain is sedated with a low-fat diet. The interest of antibiotic prophylaxis has not been proven. Currently, the use of antibiotics is only justified in case of complications such as superinfection of necrosis, pancreatic abscess, cholecystitis or angiocholitis [14].

Biliary pancreatitis

If the acute pancreatitis is moderate and preferably occurring in the 2nd trimester of pregnancy, cholecystectomy after 48 hours of hospitalization (even if pancreatic enzymes are still elevated and pain is present) is preferred to conservative treatment because, in case of medical treatment alone, the recurrence rate of acute pancreatitis during pregnancy approaches 50%. According to several authors, very early cholecystectomy avoids recurrence of acute pancreatitis, does not increase the risk of perioperative complications, does not increase the intraoperative difficulty and induces a length of hospitalization similar to conservative medical treatment. Several authors suggest that laparoscopy in the 1st and 3rd trimester of pregnancy is feasible without increasing fetal morbidity [15,16,17].

In cases of severe acute pancreatitis of biliary origin, early retrograde cholangiopancreatography ± sphincterotomy is the treatment of choice. Local superinfections (abscesses, necrosis flow infection) can be treated by percutaneous drainage, or by laparotomy if necessary. The cholecystectomy will be deferred to postpartum or performed during the same operation if a laparotomy must be considered to treat complications. Pancreatitis due to hypertriglyceridemia

Treatment is essentially based on a low-fat diet < 10-20% of daily caloric intake. Enteral supplementation with omega-3s may be considered to lower TG levels, but their impact on lipid metabolism during the acute phase of pancreatitis remains unknown. In the event of major hypertriglyceridemia (>10 g/L), insulin infusion rapidly reduces TG levels by inhibiting VLDL synthesis and activating TG hydrolysis by lipoprotein lipase. Plasmapheresis is also an effective therapeutic technique, particularly during pregnancy, for rapidly lowering TG levels. Fetal extraction is indicated only if the maternal or fetal clinical situation worsens. Lipid-lowering drugs are commonly used for long-term treatment outside pregnancy, but remain controversial in pregnant women. Only fenofibrate appears to be well tolerated during pregnancy [18,19].

CONCLUSION

Acute pancreatitis is one of the diagnoses to be considered when acute abdominal pain occurs during pregnancy. Diagnosis is easy thanks to the quantification of serum lipase>3N (>600UI/L), but the challenge is to recognize severe acute pancreatitis and its etiology, in order to minimize the risk of maternal complications through early management adapted to each case. The perinatal impact of this condition is essentially linked to the risk of prematurity. Current therapeutic management, in addition to symptomatic medical treatment, tends to focus on early cholecystectomy in cases of acute lithiasis pancreatitis, by far the most frequent etiology. This is to avoid the risk of recurrence and other complications of biliary pathology during the same pregnancy.

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