

Acute cholecystitis in pregnancy. A case report

Abstract

Cholelithiasis is a multifactorial disease who affects women at reproductive age. Acute cholecystitis is the second most common non-obstetrical emergency in pregnancy. The early symptoms of the acute cholecystitis resemble to the common symptoms of pregnancy, delaying the diagnosis and therapy and worsening both maternal and foetal prognosis. Immediate laparoscopic cholecystectomy is the best choice for treatment, lowering the maternal risk and improving foetal outcome. We present a case of a first trimester pregnant woman, 3 years after bariatric surgery, diagnosed with acute cholecystitis, successfully resolved by a multidisciplinary team.

Keywords: acute cholecystitis, bariatric surgery, pregnancy, laparoscopy

Introduction

Cholelithiasis affects women at reproductive age. Acute cholecystitis is the second most common non-obstetrical emergency in pregnancy⁽¹⁾. We present a case of a 28 years old pregnant woman, 3 years after a gastric sleeve procedure for morbid obesity, who gave birth to a healthy female baby after laparoscopic cholecystectomy performed at 12 weeks of gestation for acute cholecystitis due to gallbladder stones.

Case report

A 28 years old female patient, first time pregnant, 12 weeks of gestation, presented at the emergency room with nausea and vomiting; the onset of the symptoms was 2 -3 weeks earlier and aggravated in the last 24 hours. The diagnosis was hyperemesis gravidarum and the patient was sent home with oral treatment. About 48 hours later she returned at the emergency room dehydrated due to the persistent vomiting, with body temperature exceeding 38.5°C, right upper quadrant pain and clinical signs of acute abdomen.

The abdominal ultrasound revealed a 12w + 4d live embryo, a distended gallbladder with multiple stones (5-8 mm) and positive ultrasound Murphy sign. Laboratory data showed an elevated white blood cell count up to 18380/mm³ with 88% neutrophils. She was immediately admitted in the intensive care unit and began rebalancing therapy.

Tracing back her history, she was an infertile patient, who suffered 3 years earlier a gastric sleeve procedure for morbid obesity (with body mass index of 58). The pregnancy was conceived spontaneous after losing more than 70 kg and the objective examination showed no physical, biological or hormonal impediment in getting pregnant. At the time of admission the first trimester screening for Down's syndrome was normal.

A medical commission made up of an obstetrician, anesthesiologist and surgeon decided that the best

therapy in this case is immediate laparoscopic cholecystectomy after a quick rebalancing therapy. The patient and its family were counselled regarding the risk of losing the pregnancy and they approved the intervention. The foetus was monitored by the obstetrician before and after the intervention using vaginal ultrasound imaging.

The patient was put under general anesthesia and anterograde laparoscopic cholecystectomy and peritoneal drainage were performed. Due to the small size of the pregnant uterus, the surgeon decided to use the same technique as for a non-pregnant woman: pneumoperitoneum was obtained by supra-umbilical Veress needle insertion and the four ports were placed in the classical sites for laparoscopic cholecystectomy; the CO₂ insufflation pressure during the intervention did not exceed more than 12-13 mmHg. The acidosis and hypercapnia of the mother were carefully monitored, thus preventing foetal hypoxia. The deep vein thrombosis was lowered using elastic compression of the lower limbs.

After 65 minutes of surgery, the patient left conscious the operating room, with a live 12w+4d embryo. The postoperative pain management included entire evacuation of the CO₂ at the end of the intervention and local anesthetic infiltration of the incisions, allowing in the following 24 hours after the surgery to use only two Perfalgan injections for pain control.

The pathologist counted up to 20 small brown-yellowish calculi (5-8 mm) and microscopic examination showed acute inflammation of the gallbladder wall.

The patient state improved significantly during the time spent in hospital, laboratory values returning to normal limits, allowing the discharge 2 days after the surgery.

The patient was monitored until due time and gave birth to a healthy 3250 g female baby at 38w + 4d of gestation by vaginal route.

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Received:
October 21, 2015
Revised:
December 17, 2015
Accepted:
January 08, 2016

Discussion

Cholelithiasis is a condition that affects women at reproductive age 4 times more than man of similar age. The parity, hormone intake, age, body mass index, race or hereditary factors can be implicated in gallstones developing⁽¹⁾.

Obesity has become a major international epidemic issue⁽²⁾ and bariatric surgery has developed an alternative therapy for obese patients. Reviewing the literature, we found case reports of cholelithiasis developed soon (1 year) after bariatric surgery, and questions posed in order to determine which technique has a lower risk in gallbladder stones development or if prophylactic colecistectomy is necessary to prevent later complications^(3,4).

Acute cholecystitis is the second most common non-obstetrical emergency in pregnancy after acute appendicitis^(5,6). Its prevalence varies in different studies from 0.2/1000 to 1/10000 births^(1,7).

The main factors implicated in gallstones formation during pregnancy are: the gallbladder volume increases during the second and third trimester⁽¹⁾, the elevated serum levels of estrogen and progesterone increase the bile viscosity, induce gallbladder smooth muscle relaxation and bile stasis thus promoting cholesterol crystal aggregation⁽⁷⁾. In our case, the gallbladder sufferance was aggravated also by the previous bariatric surgery procedure.

The presence of the foetus complicates the management of symptomatic gallbladder stones in pregnant women⁽⁶⁾.

The early symptoms of the acute cholecystitis resemble to the common symptoms of pregnancy (nausea, vomiting, mild abdominal pain) and it is this similarity that delays the early diagnosis⁽⁸⁾.

Adding to the anatomical displacement of the intra-abdominal organs by the enlarged uterus the difficulty in making a proper physical examination, we found ourselves in a situation of clinical uncertainty and, by the time of the positive diagnosis is made, the peritonitis is present, worsening the perinatal outcome and maternal health⁽⁸⁾.

Using antibiotics at the onset of acute cholecystitis symptoms in order to postpone the cholecystectomy until after delivery, rarely succeed^(9,10); the failure of the conservative medical treatment is delaying the surgical intervention, increasing the rate of complications for both the mother and the foetus^(8,11,12). Nowadays, laparoscopic cholecystectomy is considered superior to medical treatment for pregnant women with acute cholecystitis⁽¹³⁾.

Initially, laparoscopic surgery in pregnancy was contraindicated. The main reasons were injuries of the pregnant uterus, effects of the CO₂ elevated levels in the foetus and increased rate of spontaneous abortion^(14,15).

These concerns were overcome as laparoscopic instrumentation developed and surgical teams skills improved^(15,16). Many authors consider the second trimester of pregnancy to be the safest period for the

laparoscopic intervention⁽⁶⁾, while the peak period for spontaneous abortion is in the first trimester and the risks for uterine injury and prematurity are greater in the third trimester^(11,14,16).

Pregnancy makes more difficult the access within the peritoneal cavity and CO₂ insufflation, several techniques being described: Hasson technique as an alternative for the use of Verres needle⁽¹¹⁾, placing the first trocar in epigastric region just below the xiphoid process or using an optical port which allows to observe the tissue planes and the intraabdominal organs as the trocar advances⁽¹⁷⁾. None of them is currently being accepted as safe, complications being reported with any technique.

Both CO₂ insufflation pressure and uterine size in the second and third trimester exert a remarkable compression on inferior vena cava, leading to two important side effects: the first is foetal hypoxia as consequence of the reduction of the venous return, decreased cardiac output, decreased uterine flow and increased intrauterine pressure^(6,11,14).

The second is represented by the increased risk of deep vein thrombosis⁽¹⁸⁾. To mitigate this risks, all authors recommend to place the patient in lateral decubitus position⁽⁶⁾, the use of CO₂ insufflation pressures no greater than 12 mmHg during the intervention^(14,19) or gasless laparoscopy for the patients who cannot tolerate pneumoperitoneum⁽¹⁷⁾ and elastic compression of the lower limbs^(6,18).

The maternal acidosis and hypercapnia can result from absorption of CO₂ if the operative time is prolonged or CO₂ insufflation pressure is higher than 12 mmHg^(11,14,18) and can be overcome with mild hyperventilation⁽⁶⁾. The average operating time in the literature review is one hour⁽¹¹⁾.

Tocolysis can be used to diminish the uterine contractility during conservative management or surgery, but not all authors agree on this matter^(8,20).

The laparoscopic approach for the patients who need surgical laparoscopic cholecistectomy for acute cholecystitis in pregnancy has advantages well known: smaller incisions lead to less postoperative pain and less use of opioid, early return to normal diet^(6,20), shorter hospital stay and rapid return to full activity reducing the frequency of maternal thrombosis and embolic events^(14,20), lower rates of dehiscence or herniation during labor⁽¹⁴⁾, minimum uterine manipulation with lower rates of spontaneous abortion and preterm delivery^(14,18).

Conclusions

Nowadays, giving birth after a laparoscopic intervention in the first trimester for acute cholecystitis is no longer seen as a remarkable new, especially since the surgical teams gained more experience and laparoscopic techniques developed.

But in the spotlight of the increased number of obese people in the developed countries and the progresses made by bariatric surgery in controlling morbid obesity,

we put ourselves the following question: is there any benefit performing a prophylactic cholecystectomy in nuliparous women who undergo bariatric surgery in order to avoid later complications?

The answer is not yet a satisfactory one, because there are voices who contradict themselves in this matter. But whenever the obstetrician faces such case, acting

alongside the anesthesiologist and surgeon for a rapid resolution ensure the wellbeing of the mother and its unborn baby. ■

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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