

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20213870>

## Case Report

# Acute cholecystitis in pregnancy: a case report

Zanis Bordo<sup>1\*</sup>, Arta Berzina<sup>1</sup>, Anna Miskova<sup>2</sup>, Kaspars Zeiza<sup>3</sup>

<sup>1</sup>Department of Medicine, Riga Stradiņš University, Riga, Latvia

<sup>2</sup>Department of Obstetrics, Riga Maternity Hospital, Riga, Latvia

<sup>3</sup>Department of Surgery, Riga East Clinical University Hospital, Riga, Latvia

**Received:** 15 August 2021

**Accepted:** 07 September 2021

### \*Correspondence:

Zanis Bordo,

E-mail: [zanis.bordo@gmail.com](mailto:zanis.bordo@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

We presented here a case report of a 37-years-old woman, G3 37+5 weeks pregnant with acute abdominal pain, whose diagnosis is unclear, but there are signs of liver dysfunction, and for this reason a C-section is performed. She is later diagnosed with acute cholecystitis and therefore a cholecystectomy is performed.

**Keywords:** Pregnancy, Third trimester, Cholecystitis, Cholecystectomy

### INTRODUCTION

Pregnancy and postpartum period are one of the main risk factors for developing gallstones, and cholecystitis is the second most common cause of non-obstetrical abdominal pain.<sup>1,2</sup> The symptoms can be non-specific, therefore, there are many differential diagnoses to be considered, including some life-threatening conditions, and for this reason dynamic action should be taken to safely resolve the pregnancy and avoid any potential threats.

This case demonstrates a patient with acute abdominal pain during the third trimester of pregnancy, and although the diagnosis was unclear, with the right management it was successfully differentiated and properly treated.

### CASE REPORT

A 35-years-old woman, G3 37+5 weeks pregnant, was admitted to maternity hospital (20 August 2020) due to pain in the back and the right abdominal flank, irradiating to the right hypochondriac region. Her previous obstetrical anamnesis was evaluated as dubious because 3 years earlier she had experienced premature labour at 29 gestational weeks with caesarean section due to intrauterine fetal growth restriction, followed by death of the infant 3 days later, and 1 year ago her second

pregnancy had terminated with a spontaneous abortion. This time the pregnancy was complicated by gestational diabetes and a cicatrix of the uterus.

Vitals on arrival: T 36.6°C, TA dx 113/77 mmHg, TA sin 126/71 mmHg, pulse 100 bpm, dark urine, painful kidney percussion. Urine analysis showed leukocyturia (Table 1) and there was dilation of the right ureter (20 mm) visible on USG, therefore pyelonephritis was suspected first, and the patient was started on antibacterial therapy. Later that day liver profile showed extremely elevated liver transaminases (Table 2) and the patient was also mildly icteric. To avoid a potential development of fatty liver disease the medical team decided to resolve the pregnancy with a caesarean section.

On 21 August 2020 from 9:50 to 10:15 caesarean section was performed with spinal anesthesia. Before the surgery cefuroxime 1.5 g was infused. The amniotic fluid passed during the C-section- fluids were light and normal. The placenta was located at the posterior wall of the uterus. The surgery was without complications. A baby girl was born weighing 3200 g and 52 cm tall. Apgar score evaluation was 7/7/8 points. During the surgery an enlarged gallbladder was visualized. The uterus was tightening well, the incision was closed in two layers with non-continuous sutures. After the surgery urine catheterization

was performed, obtaining 1000 ml of concentrated urine that was greenish in colour. Blood loss during surgery was 500 ml. HCV, HBV, CMV, HSV and toxoplasma were ruled out. The morphological description of the placenta showed a possibility of uteroplacental circulation dysfunction.

The next day (22 August 2020) during check-up the pain had decreased but was still present and irradiating to the back and the right hypochondriac region. The liver profile analysis showed gradual improvement, which led to think that she may have had intrahepatic cholestasis of pregnancy. She received antibiotics and symptomatic treatment (Table 3).

In the morning of day 2 after the C-section (23 August 2020) a dynamic ileus developed, presenting as severe meteorism and worsening abdominal pain. The vitals showed: TA 154/94 mmHg, pulse 73 bpm, RR 17x/min, T 36.4°C, light urine. By the end of the day fundus uteri was 2 cm below the umbilicus. The abdomen was soft, bloated and painful on palpation. Peristalsis was slow, but auscultative. The vitals showed TA 130/85 mmHg, pulse 83 bpm, dark urine.

On day 3 after the C-section (24 August 2020) the fundus uteri was 3 cm below the umbilicus. Peristalsis was weak, and peritoneal irritation symptoms were negative. The overall condition of the patient was improving.

On day 5 (26 August 2020) there was icterus and the pain in the renal region irradiating to the right hypochondriac region had returned. There was pain in the surgery site, during palpation the liver was painful, dense and enlarged, approximately 4 cm below the costal arch. Kidney percussion was painless. The vitals showed TA 140/80 mmHg, pulse 66 bpm.

On day 6 (27 August 2020) the patient was complaining of persistent pain in the hypogastric region and nausea without vomiting. Pethidine was injected. The pulse was 84 bpm, the skin was mildly icteric/greenish. Abdominal USG showed multiple concrements in the gallbladder. Having concerns that her condition was an indication for surgical therapy, the patient was further admitted to the Riga East Clinical University hospital for evaluation and therapy. By this time liver profile analysis had significantly improved, however, they still showed signs of impaired liver function (Table 2). An abdominal USG showed cholecystolithiasis, ductus choledochus in size of 0.8 cm, extrahepatic and mild intrahepatic cholestasis, as well as a concrement of 0.5 cm in size in the intrapancreatic part of the ductus choledochus, thus approving choledocholithiasis. After another consultation with a surgeon, it was decided that additional imaging and operative therapy was needed.

On 31 August 2020, an MRI showed small concrements in the gallbladder. There were also no clear signs of a concrement in the common biliary duct. Nevertheless, due to the small concrements found in the gallbladder, a surgical therapy with intraoperative ultrasound was indicated.

On 01 September 2020 from 9:00 until 9:45 laparoscopic cholecystectomy was done. The histopathological examination confirmed chronic calculus cholecystitis. After surgery her condition gradually improved, control-analysis was normal. The next day the patient was discharged from the hospital in a satisfactory condition. Her final diagnosis were complicated choledocholithiasis, condition after C-section. Complications were chronic calculous cholecystitis, transitory mechanic icterus, hemoperitoneum and hematoma of uterus.

**Table 1: Urine analysis with test strip (on arrival) 20 August 2020.**

<b>Nitrite test</b>	<b>Negative</b>
<b>Protein (g/l)</b>	>0.25
<b>Ketones (mmol/l)</b>	>15.0
<b>Leukocytes (Leu/ul)</b>	>25
<b>Urobilinogen (µmol/l)</b>	>135
<b>Bilirubin in urine (µmol/l)</b>	>50
<b>Colour of urine</b>	Brown

**Table 2: Liver profile analysis.**

Dates	ALAT U/l	ASAT U/l	Total bilirubin	Conjugated bilirubin
<b>20 August 2020</b>	>>>1547	>>798		
<b>21 August 2020</b>	>>>1275.4	>>784	>>55.7	>>52.6
<b>21 August 2020</b>	>>>1083	>>626	>>41.1	>>37.4
<b>22 August 2020</b>	>>>909	>>436	>24.93	>>21.08
<b>23 August 2020</b>	>>>743	>>245	>24.83	>>19.21
<b>28 August 2020</b>	>296	>121	>15.1	>13.2

**Table 3: Medication plan used at Riga maternity hospital.**

Day	Medication planned
<b>Day 1 after C-section</b>	Ampicillin 3 g in two divided doses- drotaverine 2 ml im, paracetamol 500 mg
<b>Day 2 after C-section</b>	Ampicillin 3 g in two divided doses- erythromycin 250 mg×3 p/o, bisacodyl suppository, microlax to promote bowel movements
<b>Following days</b>	Clindamycin 900 mg×3 iv, amoxiclav 1.2 g×3 iv, paracetamol 1 g iv, erythromycin 200 mg×3 p/o for peristalsis, fragmin 5000 DV s/c, penthidin 50 mg im

## DISCUSSION

Pregnancy and postpartum period are one of the main risk factors for developing gallstones due to high levels of estrogen, which causes the physiological elevation of serum cholesterol and triglycerides.<sup>1</sup> 3.5-10% of all pregnant women have USG detectable cholelithiasis, however, only 0.05-0.3% will develop cholecystitis.<sup>2-4</sup>

Common symptoms of acute cholecystitis include severe pain in the RUQ or epigastrium, which can radiate to the right shoulder or back, and there is often fever, nausea, vomiting and anorexia. As these symptoms are not very specific and the pain localization is often unclear, cholecystitis can be difficult to recognize in pregnant women, and there are many differential diagnoses to be considered, including acute pyelonephritis, fatty liver disease and intrahepatic cholestasis of pregnancy, which were the first suspected diagnoses in our case.<sup>5,6</sup>

If such symptoms are present, the best diagnostic method for differentiation is abdominal USG, which is very reliable with an accuracy of 95-98% in detecting gallstones, however, it can be technically challenging and requires a professional, therefore in this case the patient was sent to a multidisciplinary hospital where such professionals were available.<sup>4,7</sup> ERCP is also a common diagnostic method of choice as it provides therapy options as well, however, in this case MRI was chosen to evaluate the dynamics of the condition.<sup>4,8</sup>

According to many studies and guidelines, laparoscopic cholecystectomy is the method of choice in the management of acute cholecystitis in pregnant patients.<sup>4,6,9</sup> It can be safely performed during any trimester, but the second trimester is the most optimal.<sup>9</sup>

During the third trimester, as the due date approaches the risk for complications increases, and it is often safer to delay the cholecystectomy and perform it postpartum.<sup>9</sup> In this case, the patient was already close to her due date and intrahepatic cholestasis of pregnancy was suspected, therefore a C-section was performed, which relieved her symptoms, however, the true diagnosis came only postpartum, and once she had stabilized, she underwent cholecystectomy.

Conservative management for acute cholecystitis is also possible, however, it is associated with longer duration of hospitalization, higher risk of complications and relapse.<sup>4,7,10</sup>

## CONCLUSION

The diagnostic approach of acute abdomen during pregnancy can be very complex due to altered clinical presentations caused by the anatomical and physiological changes of pregnancy. This case was a good example of therapeutic action for a pregnant woman with an acute abdomen. The medical team quickly narrowed down the list of differential diagnoses and even though the final diagnosis was not completely clear, they chose the correct plan of action- a successful C-section was performed, after which the patient was transferred to a larger hospital where a laparoscopic cholecystectomy was performed. This case showed the absolute necessity in modern medicine for the obstetric department to be connected with a wide profile hospital, especially when dealing with cases of pregnant patients with systemic pathology, as this would allow for faster diagnostics, differentiation between surgical and pregnancy related diseases, and optimal treatment.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

- Villasenor AS, Mascareno HL, Meza JJ, Macías F, Orozco C, Félix J, et al. Cholelithiasis during pregnancy and postpartum: prevalence, presentation and consequences in a Referral Hospital in Baja California Sur. *Gac Med Mex.* 2017;153(2):159-65.
- Sanchez N, Tapia NC, Uribe M. Pregnancy and gallbladder disease. *Ann Hepatol.* 2006;5(3):227-30.
- Bauchat JR, Van M. Nonobstetric Surgery during Pregnancy. In: Chestnut DH, Wong CA, Tsen LC, Ngan KWD, Beilin Y, Mhyre JM, eds. *Chestnut's Obstetric Anesthesia: Principles and Practice.* 6th ed. United States: Elsevier; 2020: 368-91.
- Barut B, Gönültaş F, Gök AFK, Şahin TT. Management of Acute Cholecystitis During Pregnancy: A Single Center Experience. *Ulus Travma Acil Cerrahi Derg.* 2019;25(2):154-8.
- Zakko SF, Afdhal NH. Acute calculous cholecystitis: Clinical features and diagnosis. *Upto Date database.* 2021.
- Salhi BA, Nagrani S. Acute Complications of Pregnancy. In: Walls RM, Hockberger RS, Gausche HM, eds. *Rosen's Emergency Medicine: Concepts and Clinical Practice.* 9th ed. Japan: Elsevier; 2018: 178.
- Zachariah SK, Fenn M, Jacob K, Arthungal SA, Zachariah SA. Management of acute abdomen in

- pregnancy: current perspectives. *Int J Womens Health.* 2019;11:119-34.
8. Azab M, Bharadwaj S, Jayaraj M, Hong AS, Solaimani P, Mubder M, et al. Safety of endoscopic retrograde cholangiopancreatography (ERCP) in pregnancy: A systematic review and meta-analysis. *Saudi J Gastroenterol.* 2019;25(6):341-54.
  9. Brooks DC. Gallstone diseases in pregnancy. Management. Up To Date database. 2021.
  10. Fagenholz PJ, Velmahos G. Management of Acute Cholecystitis- Special situations. In: Cameron A, eds. *Current Surgical Therapy.* 13th ed. Philadelphia: Elsevier; 2020: 441-444.

**Cite this article as:** Bordo Z, Berzina A, Miskova A, Zeiza K. Acute cholecystitis in pregnancy: a case report. *Int J Reprod Contracept Obstet Gynecol* 2021;10:3966-9.