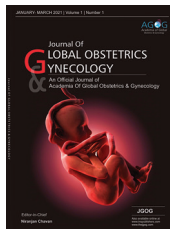


Case Report



Choledocholithiasis in Pregnancy: Diagnostic Challenges and Therapeutic Advances

Niranjan N. Chavan, Rutuja Mohite*, Deepali Kapote, Vishwaja Bakshi, Madhura Mandalik, Shruti Rane, Hemant Kadam

Department of Obstetrics and Gynaecology, LTMMC and GH, Mumbai, Maharashtra, India

ABSTRACT

Pregnancy has been identified as one known risk factor for the formation of choledochal stones. Due to the high risk of morbidity and mortality for both the mother and the fetus associated with choledocholithiasis during pregnancy, early management is required. This article discusses endoscopic retrograde cholangiopancreatography (ERCP) safety and outcomes in pregnant patients. In a 27-year-old patient, G3P1L1A1, who had a common bile duct stone at 20 weeks of gestation, we report the successful use of ERCP to treat cholestatic jaundice with successful fetomaternal outcome. When treating choledocholithiasis in pregnancy, ERCP is the recommended line of action. Low radiation doses and brief exposure periods are utilized during fluoroscopy to minimize ionizing radiation exposure to the fetus.

Key words: Cholangitis, Endoscopic retrograde cholangiopancreatography, Pregnancy, Symptomatic choledocholithiasis

INTRODUCTION

Gallstones in the common bile duct (CBD) are referred to as choledocholithiasis (CBD). Complications from choledocholithiasis can affect the mother and the fetus, including pancreatitis, cholangitis, and obstructive jaundice.^[1] Liver function tests are frequently abnormal in patients with symptomatic cholelithiasis.

Pregnancy-related hormonal changes raise cholesterol and cause a delay in the emptying of the gallbladder, both of which raise the chance of gallstone formation, which occurs in 3–12% of cases.^[2] Most cholelithiasis patients who are pregnant are asymptomatic and do not need treatment. However, 1.2% of expectant mothers with cholelithiasis may experience symptoms, such as nausea, discomfort in the right upper quadrant, or signs of cholecystitis.^[3]

Symptomatic gallstone disease is the second most common abdominal emergency during pregnancy, after acute appendicitis, and may require surgery.

Endoscopic retrograde cholangiopancreatography (ERCP) can be performed safely during pregnancy with the right precautions and guidelines.

CASE REPORT

A 27-year-old woman, married for 12 years, G3P1L1A1, with a previous lower segment cesarean section (LSCS) and a history of gestational hypothyroidism, was registered at LTMGH and Sion Hospital at 15 weeks of gestation. On April 30th, 2024, at 20 weeks of gestation, the patient presented to D.Y. Patil Hospital Mumbai with complaints of abdominal pain localized to the epigastric region and right hypochondrium, along with yellowish discoloration of the sclera for 15 days, worsened over the past 5 days, and associated with fever and green colored vomitus.

Routine investigations were performed, revealing deranged liver function tests (Total bilirubin – 3.8, direct bilirubin – 1.7, indirect bilirubin – 2.1, serum glutamic-oxaloacetic transaminase – 113, and serum glutamate pyruvate transaminase – 104). An abdominal ultrasound was suggestive of choledocholithiasis (1.6 × 1 cm sized intraductal calculus involving distal CBD with upstream dilatation of entire CBD) with cholangitis [Figure 1]. The patient was referred to Sion Hospital for further management.

The patient was examined and assessed by the surgery and obstetrics teams and was scheduled for an ERCP. A viability scan confirmed fetal cardiac activity. The patient and her partner

Correspondent Author:

Dr. Rutuja Mohite, Junior Resident 2, Department of Obstetrics and Gynaecology, LTMMC and GH, Mumbai, Maharashtra, India.
Email: rutujamohite439@gmail.com

Received: ***

Accepted: ***

DOI: ***

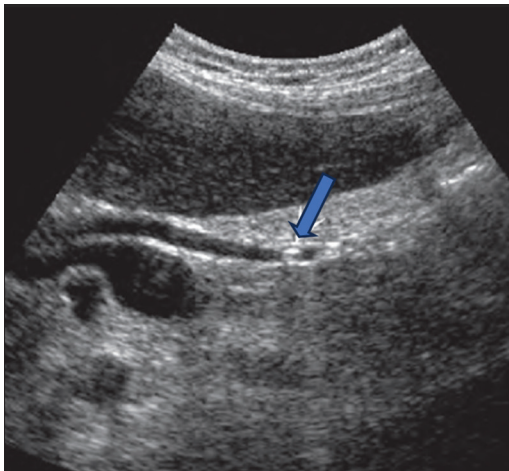


Figure 1: 1.6 × 1 cm sized intraductal calculus involving distal common bile duct

were counseled about the high risk of miscarriage associated with cholangitis and choledocholithiasis. They were also informed of the benefits and risks of ERCP, including radiation and anesthesia risks. Written, valid, and informed consent was taken from the patient and relatives.

On the May 03, 2024, ERCP with CBD stenting was performed; however, complete clearance of the stone was not achieved, and elective laparoscopic cholecystectomy was advised post-delivery. Following the ERCP, the patient's symptoms improved significantly, and her serum bilirubin levels returned to normal. She was discharged and allowed to follow routine antenatal care. The patient consistently attended her follow-up visits, during which all antenatal investigations were within normal limits and asymptomatic throughout the pregnancy.

At 39 weeks and 2 days, a classical cesarean section was performed in view of the previous LSCS not willing for trial of labor after cesarean section, with CBD stenting *in situ*. The patient delivered a female child weighing 3.2 kg on September 05, 2024. The intraoperative and post-operative period was uneventful. The patient was discharged on the 6th post-operative day and advised to follow-up in the surgery department.

DISCUSSION

Gallstones in the CBD are referred to as choledocholithiasis. Pregnancy-related choledocholithiasis is rare, occurring in about one out of every 1200 births. According to one study, 7.1%, 7.9%, and 10.2% of patients had gallbladder sludge or stones by the second, third, or postpartum periods, respectively.^[2] The physiological changes brought on by pregnancy result in the gallbladder's capacity doubled, its emptying rate slowed, and its motility impaired, which saturates the cholesterol and creates the perfect conditions for the production of gallstones. The percentage of patients with biliary sludge or stones who experienced symptoms related to gallstone disease was just 1.2%.^[3]

When choledocholithiasis is symptomatic, it can manifest as ascending cholangitis with Charcot's triad of fever, right upper quadrant discomfort, and jaundice, or as symptoms of obstructive jaundice such as dark urine, scleral icterus, and acholic stools.^[3] Since the two conditions have similar clinical and biochemical manifestations, the goal of imaging in pregnant patients is to distinguish between choledocholithiasis and intrahepatic cholestasis of pregnancy.

The two primary imaging modalities for suspected choledocholithiasis in pregnancy are ultrasonography and magnetic resonance cholangiopancreatography. Because ultrasonography is safe, inexpensive, dependable, and easily accessible, it is considered the first modality of choice for assessing the hepatobiliary system during pregnancy. An essential part of managing choledocholithiasis is supportive care.

With ERCP, choledocholithiasis in pregnancy can be safely controlled.^[4] The most frequent reasons for therapeutic ERCP in pregnancy include cholangitis, biliary pancreatitis, obstructive jaundice, and symptomatic choledocholithiasis.

Concerns and Risks Associated with ERCP in Pregnancy

Radiation risk to the fetus

Depending on the dose and gestational age at which the exposure occurs, prenatal exposure to ionizing radiation can affect the development of the embryo and the fetus. Four types of potential radiation exposure dangers to the fetus exist: Intrauterine fetal mortality; deformities and growth and development abnormalities; and mutagenic and carcinogenic consequences.^[5]

Maternal outcomes

Among the maternal non-pregnancy-related post-ERCP adverse effects include pancreatitis, perforation, and cholecystitis.

Fetal outcomes

There is a greater chance of preterm labor with ERCP, particularly if it is done in the first trimester.

Whenever feasible, it is best to delay ERCP until after birth, or at the very least, until the second trimester, when surgical treatments are considered safer.^[6] ERCP radiation dose ranges from 20 to 120 mGy on average. Without sacrificing the field of view, efforts should be made to protect the fetus from radiation exposure.

CONCLUSION

The management of choledocholithiasis in pregnancy requires a multidisciplinary approach, involving obstetricians, surgeons, and radiologists to optimize outcomes for both the mother and fetus. ERCP remains the treatment of choice for symptomatic choledocholithiasis, with laparoscopic cholecystectomy reserved for postpartum management in most cases. Early diagnosis and prompt intervention are essential to prevent complications and ensure favorable outcomes for pregnant women with choledocholithiasis.

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How to cite this article: Chavan NN, Mohite R, Kapote D, Bakshi V, Mandalik M, Rane S, Kadam H. Choledocholithiasis in Pregnancy: Diagnostic Challenges and Therapeutic Advances. *J Glob Obstet Gynecol* 2024;4(3):30-32.

Source of support: Nil, **Conflict of Interest:** Nil.

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