

## Original Research Article

# Course and outcomes of complicated gallstone disease in pregnancy: a single centre experience

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### ABSTRACT

**Background:** The incidence of acute abdomen during pregnancy is approximately 1 in 500 pregnancies. The incidence of symptomatic gallstone disease in pregnancy is reported in approximately 0.2-0.5 per 1,000 pregnancies. Symptoms are similar to those in the nonpregnant state. A delay in diagnosis may increase the risk of perforation. Treatment in most cases is conservative. However, recent trends, newer instrumentation and skilled personnel encourage arranging laparoscopic cholecystectomy at the time of diagnosis.

**Methods:** This study was a retrospective study, included 117 pregnant patients with acute gallstone disease, who were treated and followed-up at Government Medical College, Srinagar, Department of General Surgery and Department of Gynae And Obstetrics, between January 2015 and April 2017.

**Results:** The mean age of patients in our study was 28.6 years. Majority of patients 56 (47.86%) were in 1st trimester of pregnancy. Parity of the patients varied from 1 to 6, with a mean parity of 2.67. The presentation of majority of patients was colicky pain right upper abdomen, 108 (92.30%). All patients had gallstones on USG scan. 101 (86.32%) patients had acute cholecystitis, while 8 (6.83%) patients had predominant features of acute pancreatitis, 8 (6.83%) patients had accompanying choledocholithiasis. The average wall thickness of gallbladder in our patients was 4.62 mm. Majority 106 (90.59%) patients were managed conservatively. 8 (6.83%) patients underwent cholecystectomy in same admission, after failure of conservative management, 7 patients underwent laparoscopic cholecystectomy and one underwent open cholecystectomy. 3 patients (2.56%), who had features of cholangitis were managed by ERCP. The average length of hospital stay in our patient group was 8.61 days. There was one maternal death reported in our study, there were a total of 8 (6.83%) preterm deliveries.

**Conclusions:** Symptomatic gallstone disease in pregnancy is a common surgical problem. Diagnosis during pregnancy can be difficult, majority of cases can be managed conservatively, intervention whenever indicated must be undertaken.

**Keywords:** Cholecystitis, Endoscopic retrograde cholangiopancreatography, Low birth weight, Ultrasonography

### INTRODUCTION

Pregnancy is a physiological state that affects the maternal physiology at any given time throughout the gestation and postpartum period. The incidence of acute abdomen during pregnancy is approximately 1 in 500

pregnancies.<sup>1</sup> Appendicitis, cholecystitis, pancreatitis, and bowel obstruction are the most commonly reported non-obstetric abdominal surgical conditions seen in pregnancy. In any event, when right upper quadrant pain is reported, the differential diagnosis should encompass uterine contraction, fetal movement, uterine rupture,

ectopic pregnancy, adnexal torsion or rupture, liver hematoma, cholelithiasis, cholecystitis, cholangitis, hepatitis, pancreatitis, and peptic ulcer.<sup>2</sup> During pregnancy, the metabolic, synthesizing and excretory functions of the liver are influenced by increases in serum estrogen and progesterone.<sup>3</sup>

The incidence of symptomatic gallstone disease in pregnancy is reported in approximately 0.2-0.5 per 1,000 pregnancies.<sup>4</sup> Depending on gestational age and symptoms, different methods of management have been reported, ranging from supportive care, antibiotics, percutaneous transhepatic gallbladder drainage (PTGBD), endoscopic retrograde cholangiopancreatography (ERCP), laparoscopic cholecystectomy, and open cholecystectomy.<sup>5-7</sup> Symptoms of acute cholecystitis, pancreatitis are similar to those in the nonpregnant state and include the classic colicky or stabbing pain in the right upper quadrant, which can radiate to the right flank, scapula, and shoulder. Other symptoms may include anorexia, nausea, vomiting, dyspnea, low-grade fever, and fatty food intolerance.<sup>8</sup> A delay in diagnosis may increase the risk of perforation, resulting in generalized peritonitis or sepsis, which might ultimately contribute to preterm labor, fetal loss, and maternal mortality.

Ultrasound avoids radiation exposure to the gravid uterus, is noninvasive, and has an accuracy of approximately 95-98% in detecting changes in the gallbladder hence, it is the standard method for diagnosis.<sup>9</sup> Previous reports recommend surgical intervention of a patient in the first trimester to be deferred until the second trimester, and of a patient in the third trimester to be delayed until after parturition. However, recent trends, newer instrumentation and skilled personnel encourage arranging laparoscopic cholecystectomy at the time of diagnosis. In order to prevent injury to the gravid uterus during insertion of the Veress needle, use of the Hasson trocar for open laparoscopy has been advocated.<sup>7</sup> Fetal well-being can be monitored with transvaginal ultrasound. Laparoscopic surgery during pregnancy has proven to be quite safe with end results of a shorter hospital stay, smaller incision, and early ambulation.<sup>10</sup>

## METHODS

This study included 117 pregnant patients with symptomatic complicated gall stone disease, who were treated and followed-up at Government Medical College, Srinagar, Department of General Surgery and Department of Gynae And Obstetrics, between January 2015 and April 2017.

### Inclusion criteria

All pregnant females with signs and symptoms of complicated gallstone disease confirmed by by ultrasonography of abdomen.

### Exclusion criteria

- Patients with medical conditions complicating pregnancy like gestational diabetes, pregnancy induced hypertension.
- Patients with all other causes of right upper quadrant pain like hepatitis, peptic ulcer.
- Patients with documented derangement of coagulation profile.
- Suspected malignant gall bladder disease.
- Patient medically unfit for laparoscopic surgery.

We retrospectively evaluated the following parameters:

- Demographic data
- Gestational age
- Parity (number of pregnancies)
- Symptoms
- Radiological findings
- Diagnosis
- Mode of treatment (conservative/interventional)
- Maternal and fetal complications
- Length of hospital stay of these patients
- Maternal and fetal outcome.

### Statistical analysis

The sample size was limited and for this reason, continuous data were expressed as median (range (min-max)). Discrete variables were expressed as patient number and percentage of the study population. A p value less than 0.05 was considered as statistically significant.

## RESULTS

In this retrospective study of over two years duration, a total of 117 medically fit, pregnant females with symptomatic complicated gall stone disease were included. The mean age of patients in our study was 28.6 years. majority of patients 56 (47.86%) were in 1<sup>st</sup> trimester of pregnancy, while 30 (25.64%) were in 2<sup>nd</sup> trimester and 31 (26.5%) were in 3<sup>rd</sup> trimester. Parity of the patients varied from 1 to 6, with a mean parity of 2.67 (T -10).

**Table-1: Patient Parameter.**

No. of patients	Mean age	Gestational age (weeks)	Parity
56	26.8	9.35±2.22	2(1-4)
30	29.5	19.50±3.43	3(1-6)
31	25.9	29.16±3.33	3(1-5)
Total-117			

The presentation of majority of patients was colicky pain right upper abdomen, 108 (92.30%) patients presented with pain in right upper abdomen (Table 2). Ultrasonography was done in all cases, diagnosis was based upon clinical findings, biochemical study, and USG findings. All patients had gallstones on USG

scan.101(86.32%) patients had acute cholecystitis, while 8 (6.83%) patients had predominant features of acute pancreatitis,8 (6.83%) patients had accompanying choledocholithiasis,3 patients (2.56%) had features of acute cholangitis secondary to choledocholithiasis (Table 3).

**Table-2: Presenting Symptoms.**

Presenting symptoms	No. of patients	Percentage
Pain RHC	108	92.30%
Vomiting	58	49.57%
Fever	28	23.93%
Rigors & Chills	5	4.27%
Jaundice	2	1.70%

**Table-3: Diagnosis.**

Diagnosis	Number (Percent)
Acute cholecystitis	101 (86.32%)
Acute pancreatitis	8 (6.83%)
Choledocholithiasis	8 (6.83%)
Acute cholangitis	3 (2.56%)

The average wall thickness of gallbladder in our patients was 4.62 mm as recorded on USG, with a range of 4 to 6 mm. Majority 106 (90.59%) patients were managed conservatively, keeping nil per oral, iv fluids, selective

antibiotics and analgesics and antispasmodics.8 (6.83%) patients underwent cholecystectomy in same admission, after failure of conservative management,7 patients underwent laparoscopic cholecystectomy and one underwent open cholecystectomy. 3 patients (2.56%) ,who had features of cholangitis were managed by ERCP during the same admission (Table 4). The average length of hospital stay in our patient group was 8.61 days, with a range of 2 days to 18 days. There was one maternal death reported in our study, patient having acute cholecystitis with acute pancreatitis ,there were a total of 8(6.83%) preterm deliveries, 2 (1.70%) patients had missed abortions, 12 (10.2%) had low birth weight babies as traced from their maternity records (Table 5). Although the incidence of preterm deliveries and LBW seems to be more in patients who underwent intervention in the form of cholecystectomy or ERCP, we however cannot draw comparisons as the size of group that underwent cholecystectomy or ERCP is extremely small, moreover intervention was done in patients in whom conservative management failed.

**Table-4: Mode of Management.**

Management	Number
Non operative	106 (90.59%)
Lap cholecystectomy	7(5.98%)
Open cholecystectomy	1(0.85%)
ERCP	3(2.56%)

**Table-5: Maternal and Fetal Complications.**

Complications	No. Of patients (117)	Cholecystectomy/ERCP (11)	Managed conservatively (106)
Preterm delivery	8(6.83%)	2	6
Missed abortion	2(1.70%)	-	2
Low birth weight	12(10.2%)	3	9
Maternal death	1(0.85%)	-	1

**DISCUSSION**

The course and management of 117 women, who presented with symptomatic complicated gall stone disease during pregnancy, has been presented. A finding of only 117 pregnant women with cholelithiasis in this population of pregnant women is small and is consistent with the reported relative rarity of symptomatic gallstones in pregnancy. Recorded incidence of gallstones in pregnancy ranges from 0.02% to 12%.<sup>11,12</sup>

The management of symptomatic cholelithiasis in non pregnant women is a straightforward issue. The presence of a second entity, the fetus, complicates decisions in the management of pregnant women and therefore conservative management is preferred. In the presence of

severe biliary pancreatitis, severe acute cholecystitis or impending cholangitis, obstructive jaundice, and biliary colic unresponsive to conservative treatment, surgical management is incontrovertible.<sup>11,13</sup> Most (90.59%) of our patients were successfully managed nonoperatively. This is in consonance with findings elsewhere that 90% of cholecystitis in pregnancy will resolve with conservative management.<sup>11</sup> Thus conservative, nonsurgical management failed in only 11 (9.41% of our patients) and these underwent interventional procedure.

A fatal problem is severe biliary pancreatitis in pregnancy. Its reported incidence is 1/10,000 pregnancies. It is associated with severe morbidity and carries a maternal mortality of 15% and fetal loss of up to 60%.<sup>11,14,15</sup> Eight of our patients presented with biliary

pancreatitis, had pancreatitis of the mild type and these resolved with conservative treatment, one patient with severe pancreatitis expired due to severe sepsis.<sup>7</sup>

The average length of hospital stay in our patient group was 8.61 days, with a range of 2 days to 18 days. The second trimester provides the best window of opportunity for most successful surgical interventions in the management of biliary surgery in pregnancy. Almost 50% of our patients presented in the first trimester, while 25.6% and 26.5% presented in the second and third trimesters, respectively. Of our 8 operative cases, all had an uneventful course, 6 were in the second trimester of pregnancy, while 2 were in the third trimester. Recent reports suggest a more aggressive approach, with surgical intervention, in order to avoid repeated hospitalizations and patient discomfort.<sup>16,17</sup>

## CONCLUSION

Symptomatic gallstone disease in pregnancy is a common surgical problem. Once diagnosed, the initial management should be conservative and include institution of fluid and antibiotic therapy. Surgical intervention, when indicated, should not be delayed and a planned intervention during the second trimester appears to offer a better outcome.

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