

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20210336>

Case Series

Acute abdomen in pregnancy: a case series on clinical presentation and diagnostic dilemma

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Received: 07 December 2020

Revised: 11 January 2021

Accepted: 12 January 2021

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ABSTRACT

Acute abdomen in pregnancy remains one of the most challenging situation in regard with the diagnosis and management. Pregnancy is a unique state in which the female body undergoes both anatomical and physiological changes which can pose a challenge in diagnosis. This may result in delay in management and increase in maternal and fetal morbidity and mortality. This study was to identify the spectrum of causes, the clinical presentation and diagnostic dilemma of acute abdomen in pregnancy. It was an observational study was done over a period of 3 years which included all the pregnant women who presented with acute abdomen. In this study, eighteen pregnant women presented with acute abdomen. Among the study group, 5.5%, 50% and 44.5% presented in first, second and third trimester respectively. The diagnosis included acute appendicitis in 11.1%, acute cholecystitis in 16.6%, acute pancreatitis in 16.6%, malrotation in 11.1%, uterine rupture 11.1%, rudimentary horn rupture in 22.4% and ovarian cyst torsion in 11.1%. The clinical presentation included pain abdomen (16.6%), pain abdomen and vomiting (44.4%), pain abdomen in shock (39%) and abdominal tenderness (33.3%). The diagnosis was confirmed with ultrasonography in 55.6%, 11.1% women required higher imaging like magnetic resonance imaging (MRI) and 33.3% women were diagnosed on table. Majority of them had good outcome, but there was one maternal mortality (6%). Diagnosis and treatment of acute abdomen in pregnancy should be individualized. Good clinical acumen is essential for ordering early diagnostic test in acute abdomen in pregnancy. Appropriate intervention should be undertaken at the earliest to reduce the maternal and fetal complications.

Keywords: Acute abdomen, Clinical presentation, Imaging, Maternal mortality

INTRODUCTION

Acute abdomen accounts for 5-10% of all emergency department visits. The causes are obstetric, gynecological, and many others which encompass a wide spectrum of surgical and medical conditions. Pregnant state complicates the issue because of anatomic and physiologic changes during pregnancy. Physical findings are less prominent compared to those in the non-pregnant state with the same disorder.¹ Diagnosis of acute abdomen is challenging, requires careful history, thorough evaluation of symptoms, examination, and judicious use of

investigations to specify the disease and management which many times could be surgery only.¹

Leading problems in the diagnosis of acute abdomen during pregnancy are: expanding uterus, which displaces other intra-abdominal organs and thus makes physical examination very difficult, high prevalence of nausea, vomiting, and abdominal pain in the normal obstetric population and general reluctance to operate unnecessarily on a gravid patient.²

Why this study? Acute abdomen in pregnancy remains one of the most challenging situation in regard with the

diagnosis and management. Accurate knowledge is essential for appropriate and timely decision. In our study, we aimed to give an overview of the causes of acute abdomen during pregnancy with special attention to the clinical presentation and diagnostic dilemma of such cases. We have included all the pregnant women who presented with acute abdomen due to rare causes and excluded the common causes like ectopic pregnancy, abruption. The cases were analysed based on the trimester, clinical presentation and diagnostic methods utilized.

CASE SERIES

In the study, eighteen women were included who presented with acute abdomen in pregnancy. Among eighteen women, the age distribution showed 9 (50%) in 21-25 years, 7 (39%) in 26-30 years, 1 (5.5%) in 31-35 years and 1 (5.5%) in 36-40 years.

Medical causes

Acute pancreatitis

There were three cases of acute pancreatitis. They presented at third trimester with epigastric pain, vomiting and epigastric tenderness. Symptoms did not subside with routine treatment given for gastritis. Hence further investigations were carried out which revealed raised serum amylase in 66.7%, serum lipase in 33.3% and ALP in 33.3%. Their diagnosis were confirmed by

ultrasonography. They were managed conservatively and were delivered with good outcome.^{1,2,4,6,7}

Surgical causes

Acute cholecystitis

There were three cases of acute cholecystitis. The gestation age was varying from first trimester to third trimester. They presented with complaints of pain abdomen with right hypochondrial tenderness and one among them had complaints of itching over palms and soles. The diagnosis was confirmed by ultrasonography in all three women. The identified etiology of acute cholecystitis was multiple calculus. Among them, one woman was managed conservatively and rest were managed surgically by laparoscopic cholecystectomy. Of the two women managed surgically, one had undergone laparoscopic cholecystectomy and the other was initially treated with EUS and ERCP with stenting and later was taken for laparoscopic cholecystectomy, CBD exploration and T tube insertion due to worsening pain, fever and jaundice in post-operative period and was observed in HICU. They delivered at term with good maternal and fetal outcome.¹⁻⁴

Acute appendicitis

There were two cases of acute appendicitis. They presented at second trimester with complaints of pain abdomen and vomiting.

Table 1: Distribution of cases based on trimester at the time of presentation, clinical presentation, imaging technique, maternal mortality.

Cases		I trimester	II Trimester	III Trimester	Total
Total		1 (5.5%)	9 (50%)	8 (44.5%)	18 (100%)
Cases	Acute pancreatitis	0	0 (0%)	3 (37.5%)	3 (16.6%)
	Acute cholecystitis	1 (100%)	1 (11.1%)	1 (12.5%)	3 (16.6%)
	Acute appendicitis	0	2 (22.2%)	0 (0%)	2 (11.1%)
	Intestinal malrotation	0	0 (0%)	2 (25%)	2 (11.1%)
	Uterine rupture	0	2 (22.2%)	0 (0%)	2 (11.1%)
	Rudimentary horn rupture	0	4 (44.5%)	0 (0%)	4 (22.4%)
	Ovarian torsion	0	0 (0%)	2(25%)	2 (11.1 %)
Characteristics		Number of cases		Percentage	
Clinical presentation	Pain abdomen only		3	16.6%	
	Pain abdomen and vomiting		8	44.4%	
	Pain abdomen in shock		7	39%	
	Associated tenderness	Epigastric	2	11%	
		Right Hypochondrium	3	16.6%	
		Right illac fossa	1	5.6%	
Diagnosis	Ultrasound		10	55.6%	
	MRI		2	11.1%	
	On-Table		6	33.3%	
Maternal mortality		1		6%	

Right iliac fossa tenderness was elicited in only one woman. Diagnosis was confirmed with ultrasonography in one woman and the other required higher imaging (MRI).

They were treated surgically by laparoscopic appendectomy and delivered at term with good maternal and fetal outcome.¹⁻⁵

Table 2: Characteristics of various cases showing clinical presentation, diagnostic tool, management and outcome of the cases.

Cases	Clinical presentation	Diagnosis	Management	Outcome
Acute pancreatitis	Pain abdomen, vomiting, epigastric tenderness (100%)	Raised serum amylase (66.7%), serum lipase (33.3%), ALP (33.3%) USG (100%)	Conservative (100%)	Good Delivered by LSCS.
Acute cholecystitis	Pain abdomen with right hypochondrial tenderness (100%)	USG (100%)	Conservative (33.3%) surgical (66.7%) by laparoscopic cholecystectomy	Good Delivered at term
Acute appendicitis	Pain abdomen and vomiting (100%), right iliac fossa tenderness (50%)	USG (50%) MRI (50%)	Laparoscopic appendectomy (100%)	Good Delivered at term
Intestinal Malrotation	Pain abdomen with vomiting, history of repeated admission for same	USG inconclusive On-table diagnosis	Exploratory laparotomy with LSCS and LADD procedure, intra-operative findings: Intestinal malrotation and midgut volvulus.	Good
	Persistent pain abdomen and loss of consciousness, tachycardia, unrecordable blood pressure, tensely distended abdomen with diffuse tenderness and absent fetal heart sound.	Bedside USG revealed gross fluid in the peritoneum with suspect of uterine rupture.	Laparotomy with LSCS and derotation of intestine and band release. Intra-operative findings: blood stained foul smelling ascitic fluid, intact uterine wall and acute intestinal obstruction with midgut volvulus.	Maternal death with intra-uterine fetal demise
Uterine rupture	Pain abdomen in shock (100%), history of previous LSCS (100%), history of MTP pill in one woman	USG (50%) On table diagnosis (50%)	Laparotomy with uterine repair	Good
Rudimentary horn rupture	Pain abdomen in shock (100%)	USG (50%) MRI (25%) On table diagnosis (25%)	Laparotomy with hemihysterectomy	Good
Ovarian cyst torsion	Pain abdomen with vomiting (100%)	USG (50%) and MRI (50%): ovarian cyst with no evidence of torsion On table – confirmed torsion of ovarian cyst	Elective LSCS with concurrent cystectomy in one woman, emergency LSCS with left partial salpingectomy in other woman	Good

Malrotation

There were two cases of malrotation in the study population. One woman had presented with pain abdomen and vomiting with history of repeated admission for same complaints. On examination, diffuse tenderness was noted over whole abdomen. She was planned for surgical management in view of persistent pain abdomen not relieving on medication and underwent exploratory laparotomy with LSCS and LADD procedure with intra-operative findings revealing the diagnosis of intestinal malrotation and midgut volvulus. Another woman was referred in view of persistent pain abdomen, breathlessness and loss of consciousness with persistent tachycardia and hypotension. Examination revealed tachycardia, unrecordable blood pressure, tensely distended abdomen with diffuse tenderness and absent fetal heart sound. Bedside USG revealed gross fluid in the peritoneum with suspect of uterine rupture. Patient was taken emergency laparotomy and proceeded with LSCS and derotation of intestine and band release. Intra-operative findings revealed blood stained foul smelling ascitic fluid, intact uterine wall and acute intestinal obstruction with midgut volvulus. During the procedure, patient had cardiac arrest and was resuscitated and started on inotropes. Patient was shifted to ICU where she had cardiac arrest again and couldn't be revived.^{1,2,3,4,8}

Obstetric and gynaecological causes

Uterine rupture

There were two cases of second trimester uterine rupture. The risk factor identified in both women was previous LSCS wherein one of them had history of MTP pills intake. Clinical presentation was pain abdomen in shock in both women (100%). One woman was diagnosed with the help of ultrasonography and the other was diagnosed on table during surgery. They were managed surgically by emergency laparotomy with uterine repair and recovered well.^{9,10}

Rudimentary horn rupture

There were four cases of rudimentary horn rupture. Among them, two were primiparous and other were multiparous. Clinical presentation was pain abdomen in shock in second trimester in all women. Diagnosis was confirmed by ultrasonography in two cases, MRI in one woman where USG revealed suspect of rudimentary horn pregnancy with impending rupture and one woman was diagnosed on table during surgery. They were surgically managed by Laparotomy and hemihysterectomy with intra-operative confirmatory diagnosis of rudimentary horn rupture.^{11,12}

Ovarian cyst torsion

There were two cases of ovarian cyst torsion. They presented in third trimester with pain abdomen and

vomiting. Among them, one woman gave history of diagnosis of ovarian cyst in early trimester. Imaging was done which revealed ovarian cyst with no evidence of torsion in both women. One woman was taken for elective LSCS with concurrent cystectomy in view of torsion noted during surgery and the other was taken for emergency LSCS with Left partial salpingectomy done in view of non-reassuring fetal heart status where intra-operatively, Left fimbrial necrotized cyst with torsion of 5 turns ~ 5x5cm was noted.^{13,14}



Figure 1: Acute intestinal obstruction with midgut volvulus.



Figure 2: Second trimester uterine rupture with intact gestational sac.

DISCUSSION

In our study, we aimed to give an overview of the causes of acute abdomen during pregnancy with special attention to the clinical presentation and diagnostic dilemma of such cases. It was an observational study done over a period of 3 years in Bangalore Baptist Hospital which included all the pregnant women who presented with acute abdomen.

The study population included eighteen pregnant women who presented with acute abdomen. The age distribution (years) showed majority of women (50%) in the range of 21-25. The cases were analysed based on the trimester, clinical presentation and diagnostic methods utilized. Trimester-wise distribution showed 5.5% women in first trimester, 50% women in second trimester and 44.5% women in third trimester. The case distribution based on the trimester were analysed. There was one case of acute

cholecystitis in first trimester. During second trimester, there were cases of acute appendicitis (22.2%), acute cholecystitis (11.1%), uterine rupture (22.2%) and rudimentary horn rupture (44.5%). During third trimester, there were cases of acute pancreatitis (37.5%), acute cholecystitis (12.5%), intestinal malrotation (25%), ovarian torsion (25%).

The clinical presentation among the study population showed only pain abdomen in 16.6% and associated features like vomiting in 44.4%, shock in 39% and abdominal tenderness in 33.3%. The diagnosis was confirmed with ultrasonography in 55.6%, 11.1% women required higher imaging like MRI and 33.3% women were diagnosed on table. The women were managed medically and surgically based on the diagnosis and fetomaternal condition. Among the study population, 16 women (94%) had good maternal and fetal outcome. There was one maternal mortality (5.5%) with intra-uterine fetal demise which was a case of malrotation of intestine.⁴

Diagnosis and treatment of acute abdomen in pregnancy depends on the specific situations. Individualized approach is the best while evaluating a pregnant woman. Diagnosis should be confirmed with appropriate investigations to prevent delay in the management. Higher order imaging like MRI can be used as MRI is considered to be safe in pregnancy. Early intervention is recommended to reduce the maternal fetal complications.

CONCLUSION

Diagnosis and treatment of acute abdomen in pregnancy should be individualized. Good clinical acumen is essential for ordering early diagnostic test in acute abdomen in pregnancy. Appropriate intervention should be undertaken at the earliest to reduce the maternal and fetal complications.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Abhirami GR, Sathyavani C, Patil RN. Acute abdomen in pregnancy: a case series on clinical presentation and diagnostic dilemma. Int J Reprod Contracept Obstet Gynecol 2021;10:742-6.