International Journal of Academic Health and Medical Research (IJAHMR)
ISSN: 2643-9824
Vol. 9 Issue 7 July - 2025, Pages: 39-45

Acute Pancreatitis and Pregnancy: A Report of 13 Cases and a Review of the Literature

A.Khattabi ,O.Bouchama , M.Benhaddocu Idrissi [1],N. Mamouni',S.Errarhay,C. Bouchikhi', A.Banani'

Obstetrics and Gynecology Department I
Hassan II University Hospital, Faculty of Medicine, Pharmacy, and Dentistry, Sidi Mohammed Ben Abdellah University.

Abstract: *Acute pancreatitis during pregnancy is a rare condition. Through this study, we aim to provide an update on acute gravido-puerperal pancreatitis, clarify its etiopathogenesis, and highlight the specificities of its diagnostic and therapeutic management. The objective of our study is to report the experience of the Department of Gynecological and Obstetric Surgery at Hassan II Hospital in Fez in managing acute pancreatitis during pregnancy. We aim to determine the epidemiological characteristics of this association, establish diagnostic criteria (positive diagnosis, severity assessment, etiological diagnosis), describe the therapeutic management approaches implemented in our institution, and finally, evaluate maternal and fetal prognosis. This is a retrospective, descriptive, and analytical study including 13 pregnant patients admitted for acute pancreatitis between January 2020 and December 2023 at the Department of Gynecological and Obstetric Surgery at Hassan II Hospital in Fez. During the study period, 13 patients were admitted for the management of pancreatitis associated with pregnancy. The mean age of our patients was 26 years. Acute pancreatitis was more frequent in multigravida multiparous patients (70%), with the highest occurrence in the second trimester (40%). The clinical presentation was dominated by abdominal pain (100%) and vomiting (80%).The diagnosis was based on serum lipase levels, which were on average 19 times higher than normal. The severity assessment was based on clinical-biological scores and radiological scoring. Biliary origin was the most common etiology in our study (70%). Management was based on hospitalization in the intensive care unit or our department, with symptomatic treatment, including pain management, cessation of oral intake, gastric protection, rehydration, and organ failure management, as well as etiological treatment. The occurrence of gallstone disease and biliary sludge formation is favored by pregnancy and represents the most frequent cause of acute pancreatitis during gestation. There are specific treatment options available; when indicated, ERCP and laparoscopic cholecystectomy appear to be safe for pregnant women. Hypertriglyceridemia and primary hyperparathyroidism, both promoted by pregnancy, are very rare causes of acute pancreatitis. These conditions require specific treatments. Maternal and fetal prognosis depends on several factors. In conclusion, pregnancy is not a direct cause of acute pancreatitis but modifies the distribution of its etiologies. Early diagnosis through enzymatic assays (lipase levels) enables rapid multidisciplinary management, with informed consent from the patient. Advances in diagnostic and therapeutic methods have improved both maternal and fetal prognosis.*

Introduction

Acute pancreatitis is a rare condition during pregnancy, but its potential severity necessitates an accurate diagnosis and appropriate management. This study provides a comprehensive analysis of acute pancreatitis in pregnancy based on a series of 13 cases managed at our institution.

Our main objectives are to report the experience of the Department of Gynecology and Obstetrics I in managing acute pancreatitis during pregnancy, to specify the epidemiological characteristics of this association, to determine the diagnostic criteria, to describe the therapeutic management methods in our institution, and to compare the results of our series with those of other international studies.

Materials and Methods

This was a **retrospective and descriptive** study conducted over a period of **four years** (from **January 2020 to December 2023**) at the **Department of Gynecological and Obstetric Surgery** of Hassan II University Hospital in Fez, Morocco. The study focused on pregnant patients diagnosed with **acute pancreatitis**, aiming to evaluate the epidemiological characteristics, diagnostic approach, therapeutic management, and maternal-fetal prognosis.

A total of **13 pregnant women** who were diagnosed with acute pancreatitis during their hospitalization were included in this study.

Inclusion Criteria

Patients were included in the study if they met the following criteria:

- **Confirmed diagnosis of acute pancreatitis during pregnancy**, based on clinical, biological, and/or radiological findings.
- **Biological confirmation:** Elevated serum **lipase** (more than three times the normal value) and/or **amylase** levels.

- **Radiological confirmation:** Evidence of pancreatic inflammation or complications on **abdominal ultrasound** or **MRI/CT scan** when performed.
- **Complete medical records** with detailed clinical, biological, radiological, and therapeutic data.

The following cases were excluded from the study:

- **Incomplete or unusable medical records**, which lacked key clinical, biological, or imaging data.
- **Patients diagnosed with acute pancreatitis in the postpartum period**, as this condition follows a different pathophysiological course and management approach.
- **Other visceral surgical emergencies** in pregnant women, such as appendicitis, cholecystitis, or bowel obstruction, to ensure the specificity of our study population.

Data were extracted from patient medical records, including admission notes, laboratory results, imaging reports, treatment protocols, and discharge summaries. The collected information focused on:

- **Patient demographics:** Age, gestational age, gravidity, parity, and relevant medical history.
- **Clinical presentation:** Symptoms at admission, including **abdominal pain**, **nausea**, **vomiting**, **fever**, and **hemodynamic status**.
- **Biological investigations:** Serum **lipase**, **amylase**, **complete blood count (CBC)**, **liver function tests (LFTs)**, **C-reactive protein (CRP)**, **triglycerides**, and **serum calcium levels**.
- **Imaging findings:** Abdominal **ultrasound**, and when necessary, **MRI or CT scan** for severity assessment and etiology determination.
- **Therapeutic management:** Supportive care, intensive care admission, and specific interventions such as **endoscopic retrograde cholangiopancreatography (ERCP)** or **laparoscopic cholecystectomy**.
- **Maternal and fetal outcomes:** Complications, delivery outcomes, and perinatal morbidity and mortality.

Results

A total of **13** pregnant women were diagnosed with **acute pancreatitis** during the study period. The mean age of the patients was **26 years**, with an age range between **20and 31 years**. The majority of cases occurred in **multigravida and multiparous women** 69.2**%**, suggesting a possible link between parity and the risk of pancreatitis during pregnancy.

Acute pancreatitis occurred at different stages of pregnancy, with the **second trimester** being the most commonly affected period (**40%** of cases). The distribution by trimester was as follows: **First trimester:** 23.1% (**n = 3**),**Second trimester:** 40% (**n = 6**) , **Third trimester:** 30.8% (**n = 4**)
The average admission time in our study was **48 hours**, with extremes ranging from **12 to 72 hours**.

Regarding clinical signs, **abdominal pain** was the main symptom, present in **100% of cases**. It was **epigastric, transfixing**, and was followed by **bilious vomiting** in **80% of patients**.
Bowel obstruction symptoms, such as the **absence of stool and gas passage** due to **reflex ileus**, were reported in **10% of cases**. **Diarrhea** was observed in **30%**, while **cholestatic jaundice** occurred in **20%** of patients. **Fever** was present in **50%**, and **hemodynamic failure** was noted in **30%** of cases.
Serum lipase levels were measured in all patients due to the suspicion of acute pancreatitis. On average, lipase levels were **19 times higher than normal**, with extremes ranging from **3 to 27 times the normal value**.
Neither **serum amylase** nor **urinary amylase** was measured.

An **abdominal ultrasound** was performed as part of the **etiological assessment** in all patients (**100% of cases**). It revealed:

- A **gallbladder with multiple stones** in **10 patients**, including **2 cases of cholecystitis**.
- A **hydrocholecyst** associated with a **gallbladder containing multiple stones** in **one patient**.
- **Dilation of the common bile duct and intra- and extrahepatic bile ducts** in **one patient**.

Figure 1: Ultrasound image showing the biliary origin of acute pancreatitis.

Figure 2: Ultrasound image showing a distended gallbladder with microlithiasis and a thickened wall.

An **abdominal MRI** was performed in all patients and allowed for the staging of **acute pancreatitis** according to the **MRI-adapted CT severity scoring system**. The distribution was as follows: **Stage A** in **3 patients**, **Stage B** in **1 patient**, **Stage C** in **2 patients**, **Stage D** in **1 patient**, and **Stage E** in **1 patient**.

Stage of Pancreatitis	Number of Patients	Percentage
A	03	30%
B	01	10%
C	02	20%
D	01	10%
E	00	0%

Table I: Distribution of patients according to the stage of pancreatitis.

Figure 3: Axial T2-weighted abdominal MRI showing a stone in the common bile duct.

The most common **etiology** in our study was **biliary pathology**, found in **70% of cases**, followed by **preeclampsia** in **10% of cases**, while **20% of cases** had an **undetermined cause**.
Regarding **therapeutic management**, **hospitalization was mandatory** for all patients (**100% of cases**). Among them, **3 patients** were admitted to **the intensive care unit** due to **hemodynamic failure**, while **7 patients**—who were hemodynamically and respiratorily stable—were hospitalized in the **visceral surgery department**.
All our patients received **symptomatic treatment** with **close monitoring** while awaiting **clinical and biological improvement**. This treatment included:

- **Stabilization measures** for patients admitted to **intensive care**.
- **Pain management**.
- **Fasting for an average of 2 days**.
- **Antibiotic therapy** to treat **cholecystitis** in **2 patients**, **cholangitis** in **1 patient**, and **infected necrotic collections**in **1 patient**.
- **Gastric protection** with **proton pump inhibitors (PPIs)**.
- **Thromboprophylaxis**.

The **etiological treatment** was primarily **cholecystectomy**, as **gallstone disease** was the most common cause. The aim was to **prevent recurrence during the same pregnancy**. Cholecystectomy was performed in:

- **1 patient during the first trimester**.
- **3 patients during the second trimester**.
- **1 patient during the third trimester**.
- **2 patients in the postpartum period**.

Among them, **3 patients** underwent **a subcostal approach**, while **4 patients** underwent **laparoscopic cholecystectomy**.

The **average hospital stay** was **7 days**, with extremes ranging from **3 to 18 days**.
Among the **complications observed** in our series:

- **Cholangitis** occurred in **one patient**, suspected due to the **Charcot's triad** (**fever, jaundice, and epigastric pain**) associated with **cholestasis**. The diagnosis was confirmed by **ultrasound**, which revealed **dilation of the common bile duct and intra- and extrahepatic bile ducts**. Treatment included **antibiotic therapy** and **endoscopic sphincterotomy**, which successfully evacuated the stones and flushed the common bile duct.
- A **specific complication of acute pancreatitis**, namely **infected necrotic collections**, was observed in **one patient during the third trimester**. Unfortunately, this led to **maternal death**.

Regarding **obstetric outcomes**:

- **One miscarriage** occurred **during the first trimester**.
- **Two preterm deliveries** were reported, with newborns at **32 and 36 weeks of gestation**.
- **Cesarean delivery** was performed in **three patients**, while **vaginal delivery** was achieved in **five patients**.

Discussion

Age

The average age of our patients was 26 years, which is similar to that reported in the literature: 27 years in Hernadez's study and 29 years in Charlet's study.
Similarly, in our study, 70% of cases were multiparous multigravida, while 30% were primiparous, which is consistent with the findings of Charlet et al. and Ramin et al., who also observed that two-thirds of their cases were multiparous.

Authors	Average Age	Age Range	Multiparous	Primiparous
Hernadez [29]	27 years	22-31 years	60%	40%
Ramin KD [28]	29 years	23-34 years	80%	20%
Charlet P [27]	26 years	19-29 years	70%	30%
Our series	26 years	20-31 years	70%	30%

Figure 4 : Average Age, Parity, and Gravidity according to the Literature.

Gestational age

	T1		T2		T3	
	Numbers	Pourcentage				
Yin,B(2017) [4]	1	6.6%	3	20%	11	73.4%
Luo,L (2017)[3]	2	1.7%	37	30.5%	67	67,7%
Mali,P (2016)	5	20%	5	20%	15	60%
Charlet,P (2014) [27]	1	10%	2	20%	7	70%
Tang,M (2018)	2	3.7%	18	33.3%	32	59,3%
Notre série	2	20%	4	40%	4	40%

Most studies in the literature have found that the frequency of acute pancreatitis increases as pregnancy progresses. Our study aligns with these various series.

Diagnosis

The presence of at least two out of three criteria confirms the diagnosis of acute pancreatitis:

- Abdominal pain, often sudden, epigastric, and radiating to the right shoulder or both hypochondria.
- Serum lipase levels > 3 times the normal value.
- Imaging findings consistent with acute pancreatitis.

Abdominal pain is the primary symptom and was present in all our patients. In the study conducted by Mali, 84% of cases experienced abdominal pain, whereas Charlet P found that 70% of his patients had atypical diffuse pain in the right hypochondrium and right iliac fossa.

Pancreatic enzymes

	Serum lipase		Serum amylase	
	Sensitivity	**Specificity**	**Sensitivity**	**Specificity**
J.Treacy	**64%**	**97%**	**45%**	**97%**
R.C.Smth	**90,3%**	**93,6%**	**78,7%**	**92,6%**
P.A.Sutton	**64%**	**97%**	**50%**	**99%**
J.W.Y.Chang	**55,5%**	**99,2%**	**63,6%**	**99,4%**
D.Gomez	**96,6%**	**99,4%**	**78,6%**	**99,1%**
S.Hofmeyr	**91%**	**92%**	**62%**	**93%**
C.W.Chase	**92%**	**87%**	**93%**	**87%**

In routine practice, biological diagnosis is primarily based on measuring serum amylase and serum lipase activities, which, according to studies, are not significantly altered during pregnancy.
When comparing various studies, serum lipase shows higher sensitivity than serum amylase for diagnosing acute pancreatitis. Lipase also provides a broader diagnostic window than amylase, as it remains elevated for a longer period. This makes it a useful diagnostic biomarker in both the early and late stages of acute pancreatitis.
By definition, the diagnostic threshold for acute pancreatitis based on serum lipase is three times the normal value. However, a value below this threshold—or even within the normal range—does not rule out the diagnosis. Therefore, interpretation of the results must always take clinical data into account.

Radiological Investigations:

Imaging is a cornerstone in the diagnosis of acute pancreatitis and should be performed urgently when there is diagnostic uncertainty, in order to rule out a surgical emergency. It also facilitates etiological investigation and severity assessment. Given the context of pregnancy, it is preferable to use non-ionizing imaging modalities as a first-line approach.
If a radiological exam is necessary, the risks and benefits must be carefully weighed, and fetal protection during the exam is mandatory.
Abdominal ultrasound is not indicated for confirming the diagnosis itself; its main utility lies in identifying a biliary etiology. Its sensitivity for detecting gallbladder stones in the initial phase is around 67%, mainly due to ileus. For this reason, repeating the ultrasound at a later time is recommended, especially since a normal gallbladder ultrasound does not rule out a biliary origin for acute pancreatitis.
Although CT scan is considered the gold standard, the teratogenic risk it poses to the fetus makes MRI a good alternative for assessing the severity of acute pancreatitis in a pregnant woman.

Etiologies

Authors	Average Age	Age Range	Multiparous	Primiparous
Hernadez [29]	27 years	22-31 years	60%	40%
Ramin KD [28]	29 years	23-34 years	80%	20%
Charlet P [27]	26 years	19-29 years	70%	30%
Our series	26 years	20-31 years	70%	30%

The most frequent etiology described in our series is biliary pathology, accounting for 70% of cases, which is similar to the findings of Tang (60%), Luo, L (36.4%), Villanoga (85%), and Mali (56%). This is followed by hyperlipidemicetiology.

Conservative management of acute biliary pancreatitis in pregnant patients is associated with a high likelihood of early recurrent episodes, which can be detrimental to both the mother and the fetus. On the other hand, interventional procedures also carry their own risks and potential complications.
However, emergency biliary surgery has no role in this context. Endoscopic sphincterotomy (ES) is the only procedure that may be of benefit and is indicated on an urgent basis in the event of cholangitis or obstructive jaundicecomplicating acute pancreatitis. This must be done with certain precautions:

- Using the left lateral decubitus position in cases of advanced pregnancy, instead of the usual prone position.
- Protecting the fetus with a lead apron and minimizing both the duration and dose of radiation.

Indeed, many authors (Barthel et al., Pyria et al., Tham et al.) have stated that endoscopic retrograde cholangiopancreatography (ERCP) can be performed in any trimester of pregnancy, including endoscopic sphincterotomy and stent placement to prevent recurrence of gallstone disease during the ongoing pregnancy. This approach can also avoid the need for cholecystectomy during pregnancy, deferring it to the postpartum period.
In our study, endoscopic sphincterotomy was performed in only one patient to treat cholangitis.
Schematically, **management** should be adapted to the specific case and **gestational age**, taking into account the **risks and benefits** of each therapeutic decision:

- **First trimester** (given the risk of miscarriage): The approach is typically **therapeutic abstention** or **conservative treatment**, with **cholecystectomy** planned for the **second trimester**.
- **Second trimester**: This is the most favorable period for **surgery**, as the **risk of miscarriage** is reduced by half and the **rate of preterm delivery** is practically **zero**.
- **Third trimester**: It is preferable to perform **endoscopic sphincterotomy** or adopt a **conservative approach**, with **cholecystectomy** deferred until the **postpartum** period

Conclusion

Early diagnosis and proper management of **gestational acute pancreatitis** lead to improved **maternal and fetal morbidity and mortality**. It is important not to confuse the clinical symptoms of **acute pancreatitis** with the **symptoms of pregnancy**; for this reason, **serum lipase levels** should be measured. A favorable outcome is only achievable with treatment to prevent **subsequent recurrences**. pendant quelques secondes
Early **diagnosis** and **appropriate management** of **acute gestational pancreatitis** help improve **maternal-fetal morbidity and mortality**. It is important not to confuse the **clinical symptoms** of pancreatitis with the **sympathetic signs** of pregnancy, which is why **lipase measurement** is essential. A favorable outcome can only be achieved with **treatment**, in order to prevent **future recurrences**.

References :

- Yin B, Liu Y, Zhang X, Li Y, Zhang P. Clinical analysis of 15 cases of acute pancreatitis in pregnancy. *Arch Gynecol Obstet.* 2017;296(5):903–908.
- Tang M, Xu JM, Song QY, Yang YJ, Fan JX. Acute pancreatitis in pregnancy: experience from a tertiary center in China. *J Obstet Gynaecol Res.* 2018;44(1):111–116.
- Luo L, Zen SM, Yang G. Management of acute pancreatitis in pregnancy. *Int J Clin Exp Med.* 2017;10(2):3613–3618.
- Charlet P, Barbier C, Delorme B, Borie C, Akladios C, Langer B. Pancréatite aiguë au cours de la grossesse : étude rétrospective de 10 cas. *J Gynecol Obstet Biol Reprod (Paris).* 2014;43(6):490–495.
- Ramin KD, Ramin SM, Cunningham FG, Sidawi JE, Lucas MJ. Acute pancreatitis in pregnancy. *Am J Obstet Gynecol.*1995;173(1):187–191.
- Mali P, Patil A, More Y, Kakade H. A clinical study of acute pancreatitis in pregnancy. *Int J Reprod Contracept Obstet Gynecol.* 2016;5(5):1460–1464.
- Treacy J, Williams A, Bais R. Pancreatic enzymes in pregnancy. *Clin Biochem.* 2002;35(1):69–72.