



Management of Biliary Acute Pancreatitis and Timing of Cholecystectomy: Experience from Joseph Imbert Hospital in Arles

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Abstract

Biliary acute pancreatitis (BAP) is a frequent and potentially severe condition requiring appropriate and timely management to reduce complications and recurrence. This study reviews the clinical characteristics and therapeutic approaches to BAP, with a particular focus on the timing of cholecystectomy. The analysis highlights a discrepancy between current international guidelines, which recommend performing cholecystectomy during the same hospitalization, and real-life practices in a regional hospital in France. A significant delay in surgical intervention was observed in most cases, mainly due to limited access to operating rooms and patient-related factors. Despite these delays, the majority of patients had favorable outcomes, although the risk of recurrence remains a concern. This review underscores the need for improved healthcare organization and prioritization of early cholecystectomy to align clinical practice with evidence-based recommendations.

Subject Areas

Gastroenterology & Hepatology

Keywords

Biliary Acute Pancreatitis, Cholecystectomy, Clinical Guidelines, Surgical Timing, Recurrence, Healthcare Organization, In-Hospital Management

1. Introduction

Acute biliary pancreatitis is a common and potentially serious condition, accounting for approximately 30% of acute pancreatitis cases. Managing biliary lithiasis in this context requires a delicate balance between the risks and benefits of treatments.

Expert recommendations highlight the importance of performing cholecystectomy during the same hospitalization [1] [2]. The PONCHO trial clearly demonstrated a risk of biliary complications recurrence or mortality greater than 17% within four weeks following refeeding if the procedure is not performed.

Our study aims to establish the epidemiological profile of acute biliary pancreatitis and determine the timing of cholecystectomy after a first episode to assess whether our practices are in line with the recommendations of the Haute Autorité de Santé (HAS).

2. Materials and Methods

Our study is a retrospective analysis of all patients who presented with acute biliary pancreatitis and were hospitalized in the gastroenterology department from January 2022 to June 2024. Inclusion criteria included patients aged 18 and over, with a confirmed diagnosis of acute biliary pancreatitis and full hospitalization in the department. Exclusion criteria included a history of chronic pancreatitis, severe comorbidities unrelated to pancreatitis, and refusal to participate in the study. Data analysis was conducted using Word 2007 for data entry and Excel 2007 for statistical processing.

3. Results

We treated fifty-two cases (n°: 52) of biliary acute pancreatitis in the gastroenterology department during a 30-month period from January 2022 to June 2024, representing 32% of hospitalizations for acute pancreatitis. There was a predominance of females, with 37 women (71.15%) compared to 15 men (28.8%), resulting in a sex ratio of 0.4%. The age range was between 22 and 92 years, with the peak frequency observed between 62 and 81 years. Twenty-two of our patients (42%) had a history of pancreaticobiliary disorders. Jaundice was present in 6 patients (11.5%). A value higher than 150 mg/L was found in 8 patients (15.38% of cases). An elevated transaminase level (>150 U/L) was observed in 20 patients (38.5% of cases). Abdominal CT scans were performed on all our patients (100%), and they detected gallstones in 7 patients (13.46%).

We observed a predominance of stage C, with 20 cases (38.5%), followed by stage A with 14 cases (26.9%), stage B with 9 cases (17.3%), and finally stages D and E with 5 and 4 cases (9.6% and 7.6%, respectively). The SIRS at 48 hours was positive at admission in 6 patients (11.5%) and persisted for more than 48 hours in 4 patients (7.6% of cases). Thirty-four patients underwent surgery (cholecystectomy), one patient had contraindications for anesthesia, and seventeen patients were lost to follow-up. Fifteen patients had surgery after an interval of more than 2 months, of which 9 patients had stage D and E pancreatitis. The average length of hospitalization was 7 days, with a standard deviation of 6.2 (**Figure 1**).

Our observations indicate that our patients are often operated on more than 8 weeks after the ABP episode. This delay is due to institutional factors such as a limited number of surgeons, absence of emergency rooms, and high occupancy

rates of operating theaters. Patient characteristics, such as age and comorbidities, as well as disease severity, can also influence the timing of surgery (**Table 1**).

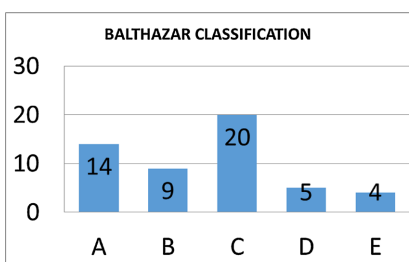


Figure 1. Distribution of patients according to BALTHAZAR classification.

Table 1. Timing of cholecystectomy.

Surgery Delay	Number of Patients	Pourcentage	Stages of AP
Same hospitalization	1	1.9%	A:1
Less than 1 month	6	11.5%	A: 1
			B: 1
			C: 4
1 to 2 months	11	21.15%	A: 2 D: 2
			B: 5
			C: 3
More than 2 months	15	28.8%	A: 5 D: 1
			B: 1 E: 1
			C: 7
Not operated	19	36.5%	A: 5 D: 2
			B: 2 E: 3
			C: 5

The outcome was favorable in 47 patients (90% of cases), with 4 patients requiring admission to the intensive care unit. The mortality rate was 1.9%, corresponding to 1 patient.

4. Discussion

The diagnosis of acute pancreatitis (AP) relies on the combination of an elevated lipase level greater than three times the upper normal limit and typical pancreatic abdominal pain [1]. In cases of delayed management (*i.e.*, >48 hours after the onset of pain), the lipase level may have normalized.

The biliary origin of acute pancreatitis is suspected when the ALAT (alanine aminotransferase) level is >3 times the normal limit. The management of biliary lithiasis in acute pancreatitis involves finding a balance between the morbidity associated with endoscopic and surgical treatments and their benefits. For gallbladder lithiasis, the indication for cholecystectomy is no longer debated when the patient is operable [2].

The risk of recurrence of acute pancreatitis (AP) is significant (30% - 60%) in

the absence of cholecystectomy, and 1% to 3% of patients per year may experience severe complications without surgery.

The main challenge is determining the ideal timing for cholecystectomy. It should be performed at a time when the inflammatory phenomena around the gallbladder and pancreas have subsided, which could otherwise worsen the morbidity of the surgical procedure, but without waiting too long to avoid increasing the risk of recurrence.

4.1. Evaluation of the Severity of Acute Pancreatitis (AP)

The evaluation of the severity of acute pancreatitis is primarily clinical [3].

The background and risk factors for severe AP include:

- Age > 70 years
- Obesity: Body Mass Index (BMI) > 30 kg/m²
- Pre-existing organ failure, particularly chronic renal insufficiency
- Malnutrition
- Immunosuppression: diabetes, long-term corticosteroid therapy, etc.

Local Signs:

- Parietal bruising
- Major abdominal distension: reflex ileus, fluid sequestration > 2 liters
- Ascites and pleural effusions

General Signs, looking for organ failure:

- Hemodynamic: Mean Arterial Pressure (MAP) < 65 mmHg
- Pulmonary: PaO₂ < 60 mmHg; O₂ saturation < 92%
- Neurological: Glasgow Coma Scale (GCS) < 13
- Renal: Anuria or a decrease in creatinine clearance

Acute pancreatitis (AP) is classified into three categories [2012 Atlanta Classification] according to its severity level:

- Mild AP (80% of cases): No organ failure, no local complications.
- Moderately severe AP: Transient organ failure lasting < 48 hours or the presence of local complications.
- Severe AP: Persistent single or multiple organ failure lasting > 48 hours.

Numerous clinical and biological scores have been proposed. In routine practice, they have no significant value and are not used. The focus is solely on identifying the presence of SIRS (Systemic Inflammatory Response Syndrome), which is defined as the presence of at least two of the following criteria:

- Temperature < 36°C or >38°C
- Heart rate > 90/min
- Respiratory rate > 20/min or PaCO₂ < 32 mmHg
- Leukocytosis > 12,000/mm³ or < 4000/mm³

During follow-up, the measurement of C-Reactive Protein (CRP) at 48 hours can have a predictive value for severity. If the CRP level is <150 mg/L, the negative predictive value is 94%. A concentration > 300 mg/L does not influence the prognosis but should prompt the search for a local complication.

4.2. Modified Balthazar Score or Computed Tomography Severity Index (CSTI)

Computed tomography (CT) (with and without contrast injection) is the reference examination for the morphological evaluation of severity. The signs of severity are based on the assessment of inflammation and necrosis of the gland. It should only be performed between 48 and 72 hours after the onset of symptoms to avoid underestimating the lesions.

4.3. Management in the Initial Phase

In the case of mild acute pancreatitis (80% of cases), by definition, there are no clinical (no organ failure), biological, or radiological signs of severity (absence of necrosis). The management for these patients is straightforward. Hospitalization in a regular ward is sufficient. The management consists of:

- Fasting until the pain persists;
- Standard hydration to cover the needs related to fasting;
- Pain relief with appropriate analgesics, which can range from step 1 to step 3 analgesics, depending on the pain level.

Refeeding is recommended as soon as possible, *i.e.*, once the pain has subsided. There is no need to monitor lipase levels or wait for them to return to normal. Refeeding should be gradual over several days. There is no benefit in maintaining a fat-free diet for several days. A standard, balanced diet is recommended as soon as the pain resolves.

Several randomized trials [including the most recent, the Waterfall study, 2022, NEJM has confirmed the lack of clinical benefit of aggressive hyperhydration in mild acute pancreatitis: it does not reduce mortality (which is already almost null) or local-regional complications. On the contrary, there were more side effects related to fluid overload in the hyperhydration group.

In cases of moderately severe or severe acute pancreatitis (20% of cases):

By definition, the patient presents with either transient or permanent organ failure. Management requires hospitalization in a continuous care unit or, depending on clinical and biological severity, in an intensive care unit.

Depending on the organ failures, management may require:

- Respiratory support with mechanical ventilation or simple oxygen therapy, depending on the patient's condition;
- Aggressive hydration during the first hours to combat hypovolemia. The preferred solution is Ringer's Lactate.

Nutritional support should be initiated on day 1 of management to combat malnutrition and bacterial translocation [4], which is a source of infection in necrosis occurring 2 to 3 weeks after the onset of pain. Nutritional intake should be provided exclusively through the digestive tract, either orally if the patient's clinical condition allows and if the caloric goal is met or through the placement of an enteral feeding tube in the gastric site.

There is no indication for prophylactic antibiotic therapy to limit the risk of

secondary infection in necrosis. Likewise, there is no indication for the use of probiotics for prophylactic purposes [5] [6].

4.4. How and When to Diagnose Biliary Duct Lithiasis (BDL)?

In cases of biliary acute pancreatitis (BAP), spontaneous migration of the biliary duct lithiasis into the duodenum is common [7].

The prevalence of BDL decreases rapidly over time: 26% within 48 hours, and 5% beyond that [8].

In some cases, ductal obstruction may persist due to post-migration edema of the papilla or the persistence of one or more stones in the main bile duct, which could worsen the prognosis of acute pancreatitis [9].

An increase in bilirubin, alkaline phosphatase (ALP), or gamma-glutamyl transferase (GGT), associated with dilation of the common bile duct (CBD) > 6 mm, indicates persistent biliary obstruction.

Transabdominal ultrasound can detect biliary duct stones, but its sensitivity is poor (40%) [9].

CT scans can identify gallstones or choledocholithiasis, but their negative predictive value is low [9].

Magnetic Resonance Cholangiopancreatography (MRCP) is a non-invasive method. Its sensitivity is >90% for diagnosing stones in the common bile duct > 6 mm in diameter, but it drops to 55% for stones < 6 mm, which is often the case in biliary acute pancreatitis (BAP).

Endoscopic ultrasound (EUS) is recommended if previous explorations are negative. Its sensitivity and specificity are close to 100% for diagnosing biliary duct stones (including for millimetric stones) [9].

4.5. When Should Cholecystectomy Be Performed?

All expert recommendations advocate for performing cholecystectomy during the same hospitalization; this procedure should never be delayed. The PONCHO trial clearly demonstrated the risk of recurrence of biliary complications or mortality > 17% within the 4 weeks following refeeding if the intervention has not been performed.

Different guidelines recommend laparoscopic cholecystectomy within 2 to 4 weeks after the episode of biliary acute pancreatitis (BAP) [10] or during the same hospitalization [11]. Several studies have evaluated the practice of surgeons (in the USA, Germany, England, and Italy), who typically operate on their patients 6 to 12 weeks after the episode of BAP, primarily due to organizational reasons (lack of operating rooms, increased costs due to prolonged hospital stays). This is similar to the situation for our patients, who are often operated on more than 8 weeks after the episode of BAP due to a shortage of surgeons, lack of emergency rooms, and high occupancy rates of operating theaters.

5. Conclusion

The management of biliary lithiasis in acute pancreatitis is now well-defined,

thanks to the extensive literature in this field. However, on certain points, the recommendations from various international guidelines are discordant due to contradictions in several meta-analyses. Thus, we can distinguish between consensual situations and non-consensual situations.

Conflicts of Interest

The authors declare no conflicts of interest.

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