

Acute Biliary Pancreatitis: Hospital Management at the François Quesnay Hospital Center of Mantes-la-Jolie

Bienvenu Hostaud Atipo-Ibara^{1,2*}, Mauria Gilga Ibobi^{1,2}, Bénédicte Ahombo Notsiebé^{1,2}, Bovane Jhonsial Molami², Ghidmar Onguele-Okemba¹, Daniel Tchamdeu-Sizimboue³, Rome Itoua-Gatsé², Mardochée Motoula-Latou^{1,2}, Auriol Ata², Rody Stephane Ngami^{1,2}, Jean-Bosco Ndala³, Jean-Antoine Boundou³, Jile Florient Mimiesse Monamou^{1,2}, Arnaud Mongo Onkouo^{1,2}, Clausina Mikolele Ahoui^{1,2}, Blaise Irénée Atipo Ibara^{1,2}

¹Faculty of Health Sciences, Marien Ngouabi University, Brazzaville, Congo

²Department of Gastroenterology and Internal Medicine, Brazzaville University Hospital (CHU de Razzaville), Brazzaville, Congo

³Department of Gastroenterology, François Quesnay Hospital Center, Mantes-la-Jolie, France

Email: *Hostaudatipo@hotmail.fr, *Hostaudhb@gmail.com

How to cite this paper: Atipo-Ibara, B.H., Ibobi, M.G., Ahombo Notsiebé, B., Molami, B.J., Onguele-Okemba, G., Tchamdeu-Sizimboue, D., Itoua-Gatsé, R., Motoula-Latou, M., Ata, A., Ngami, R.S., Ndala, J.-B., Boundou, J.-A., Mimiesse Monamou, J.F., Mongo Onkouo, A., Mikolele Ahoui, C. and Atipo Ibara, B.I. (2026) Acute Biliary Pancreatitis: Hospital Management at the François Quesnay Hospital Center of Mantes-la-Jolie. *Open Journal of Gastroenterology*, 16, 283-291.

<https://doi.org/10.4236/ojgas.2026.168029>

Received: July 8, 2026

Accepted: August 15, 2026

Published: August 18, 2026

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Abstract

Objective: To evaluate the management of acute biliary pancreatitis (ABP) at the François Quesnay Hospital Center (FQHC) of Mantes-la-Jolie. **Patients and methods:** This was an observational, analytical, cross-sectional study with retrospective data collection, conducted from January 2019 to September 2024 at the FQHC. All patients over 18 years of age hospitalized in the gastroenterology department for ABP were included. Severity was assessed using SIRS, CRP at 48 hours, the CT severity index (CTSI), and the Atlanta score at 96 hours. Outcomes were analyzed following nutritional, endoscopic, and surgical management (cholecystectomy). **Results:** Ninety-eight patients were included, corresponding to a hospital frequency of 3.18%. ABP was mild to moderately severe in 87.7% of cases and severe in 12.2%. Cholecystectomy was delayed in 62.2% of patients for organizational reasons. Endoscopic sphincterotomy was performed in 28.6% of patients, with biliary stent placement in 5 cases. Enteral nutrition was initiated in 69.2% of severe forms. Complications occurred in 15.3% of patients, 53.3% of whom had severe ABP; recurrences were more frequent in moderately severe forms. Moderately severe ABP and biliary stent placement were independently associated with the occurrence of a biliary event. **Conclusion:** ABP remains an emergency regardless of its degree of severity. Delays in implementing management guidelines may explain the non-negligible proportion of biliary events observed.

Keywords

Acute Biliary Pancreatitis, Nutrition, Cholecystectomy, Sphincterotomy, Mantes-la-Jolie

1. Introduction

Acute pancreatitis (AP) is a ubiquitous condition affecting both sexes and generally requiring hospital management. It corresponds to inflammation of the pancreatic gland resulting from premature activation of pancreatic enzymes, causing autodigestion of the gland [1]. Globally, it affects more than 17 million people and ranks 35th among the most prevalent diseases [2]. The incidence of AP has been steadily increasing in recent decades, particularly in industrialized countries [3]. It therefore represents a major public health issue, both in terms of its frequency and its socioeconomic impact.

The main etiologies are dominated by biliary and alcoholic causes, accounting for approximately 50% and 30% of cases, respectively [4]. Acute biliary pancreatitis (ABP) is distinguished by diagnostic and therapeutic particularities related to gallstone migration and its complications.

Although complex, its therapeutic management is now well codified. Its modalities are the subject of several consensus statements, from which guidelines are derived [5]-[7]. In ABP, the respective indications for endoscopic sphincterotomy (ES) and early cholecystectomy are well established. In contrast, the modalities of early oral refeeding versus exclusive enteral nutrition until cholecystectomy remain debated. However, the implementation of these guidelines is still not effective in routine practice.

It is in this context that we undertook this study, the objective of which was to evaluate the hospital management of ABP at the François Quesnay Hospital Center (FQHC).

2. Patients and Methods

This was an observational, analytical, cross-sectional study with retrospective data collection, conducted between January 2019 and September 2024 at the François Quesnay Hospital Center of Mantes-la-Jolie.

The overall population consisted of all patients hospitalized for acute pancreatitis (AP). All patients over 18 years of age hospitalized in the gastroenterology department for ABP were included, including those who experienced a biliary event before or after cholecystectomy. Patients with acute pancreatitis of non-lithiasic origin were excluded. The diagnosis of AP was established when at least 2 of the following criteria were present (revised Atlanta criteria, 2012): typical acute abdominal pain, lipasemia greater than 3 times the upper limit of normal (3N), and imaging findings consistent with AP. Biliary origin was established when at least one of the following 3 criteria was present: serum ALT level > 3N, presence of

gallbladder stones or sludge, or a stone in the common bile duct.

We performed consecutive sampling of patients meeting the inclusion criteria. All patients were listed in the hospital database, where records were classified by diagnosis and identified using a coding system, allowing the selection of medical records relevant to the study. We thus identified all cases of acute pancreatitis, from which cases of acute biliary pancreatitis were subsequently isolated. Data were collected, anonymized, and then entered into a Microsoft Excel spreadsheet.

The clinico-biological and morphological scores used to assess severity were selected based on the latest international guidelines. The severity of ABP was assessed using the systemic inflammatory response syndrome (SIRS), CRP at 48 hours, the CT severity index (CTSI), and the Atlanta score calculated at 96 hours. At the end of the evaluation, cases of pancreatitis were classified into two categories: mild to moderately severe (MMS) and severe.

The therapeutic variables studied included the mode of nutrition (oral, enteral, or parenteral), endoscopic sphincterotomy with or without biliary stent placement, and cholecystectomy (emergency, during the same hospitalization, or delayed). The occurrence of complications and recurrences (biliary events) was considered the morbidity endpoint, *i.e.*, the dependent variable of the study.

Data were entered and analyzed using SPSS software. Qualitative variables were expressed as frequencies and percentages, and quantitative variables as means $\pm$ standard deviation or medians, depending on their distribution. The search for factors associated with the occurrence of a biliary event was performed using the chi-square test or Fisher's exact test, depending on expected frequencies, with a significance threshold of $p < 0.05$.

As this was a retrospective study based on anonymized records, formal approval from an ethics committee was not required. Patient data confidentiality was maintained throughout the study.

3. Results

Of the 3077 patients hospitalized in the gastroenterology department during the study period, 98 had ABP, corresponding to a hospital frequency of 3.18%.

Regarding severity markers, CRP was elevated in 46.9% of patients; the SIRS score was 0 in 32.7% of patients and 2 in 32.7%. According to the Atlanta classification, ABP was mild to moderately severe (MMS) in 87.7% of cases and severe in 12.2% of cases. According to the CTSI, it was predominantly mild to moderately severe (97.9%) (**Table 1**).

Among patients with MMS ABP, refeeding was oral in 83.67% of cases ($n = 82$), reintroduced early within the first 48 hours in 84.4% of them. Cholecystectomy was performed during the same hospitalization in 17.4% of cases and delayed in 62.2% of cases, mainly for hospital organizational reasons.

Among patients with severe ABP, enteral nutrition was initiated in 69.2% of cases ($p = 0.000$), and 16.4% of them underwent cholecystectomy remote from the acute episode.

Table 1. Distribution of management according to severity.

	AP Severity		OR [95% CI]	p-value
	MMS n (%)	Severe n (%)		
NUTRITION TYPE				0.000
Oral	82 (97.6)	2 (2.4)	Ref	-
Enteral	4 (30.8)	9 (69.2)	92.25 [14.77 - 575.99]	0.000
Parenteral	0 (0.0)	1 (100)	*	1.000
CHOLECYSTECTOMY				0.787
No	18 (90)	2 (10)	Ref	-
Same hospitalization	17 (100)	0 (0.0)	*	0.998
Delayed	51 (83.6)	10 (16.4)	1.765 [0.353 - 8.833]	0.489
SPHINCTEROTOMY				
No	68 (89.5)	8 (10.5)	Ref	-
Yes	18 (81.8)	4 (18.2)	1.889 [0.511 - 6.985]	0.341
BILIARY STENT				
No	83 (89.2)	10 (10.8)	Ref	-
Yes	3 (60)	2 (40)	5.533 [0.823 - 37.206]	0.078

Endoscopic sphincterotomy (ES) was performed in 28.6% of patients (n = 22), mainly in cases of cholangitis or symptomatic common bile duct stones (40.9%), and 5 of them (22.7%) received a biliary stent. Among patients with severe ABP, ES was performed in 18.2% (n = 4), of whom 2 (40%) also received a biliary stent (Table 2).

Table 2. Relationship between treatment and morbidity.

	Morbidity		OR [95% CI]	p-value
	No n (%)	Yes n (%)		
NUTRITION TYPE				
Oral	67 (79.8)	17 (20.2)	Ref	-
Enteral	7 (53.8)	6 (46.2)	3.378 [1.004 - 11.367]	0.049
Parenteral	0 (0)	1 (100)	*	1
TIME TO NUTRITION				
<48 h	5 (71.4)	2 (28.6)	Ref	-
>48 h	2 (28.6)	5 (71.4)	6.250 [0.615 - 63.538]	0.121
SPHINCTEROTOMY				
Yes	13 (59.1)	9 (40.9)	2.815 [1.015 - 7.811]	0.047
PROTHESE BILIAIRE				
Yes	1 (20)	4 (80)	14.60 [1.544 - 138.029]	0.019
No	73 (78.5)	20 (21.5)	Ref	-

Continued

CHOLECYSTECTOMIE

No	13 (65)	7 (35)	Ref	-
Immediate	15 (88.2)	2 (11.8)	0.248 [0.044 - 1.408]	0.115
Delayed	46 (75.4)	15 (24.6)	0.606 [0.204 - 1.798]	0.366

Overall rates of complications and recurrences were 15.3% and 14.4%, respectively. Complications occurred in 46.7% of patients with MMS ABP versus 53.3% of those with severe ABP ($p = 0.000$). Recurrences occurred in 71.4% of MMS ABP cases, occurring before cholecystectomy in the large majority of cases (64.3%). Positive CRP, as well as moderate and severe forms of ABP, were associated with the occurrence of complications and recurrences (**Table 3**).

Table 3. Relationship between ABP severity and morbidity.

VARIABLES	Morbidity		OR [95% IC]	p-value
	No n (%)	Yes n (%)		
CRP				
Positive	30 (65.2)	16 (34.8)	2.933 [1.115 - 7.717]	0.029
Negative	44 (84.6)	8 (15.4)	Ref	-
CTSI Score				
Mild	68 (81.9)	15 (18.1)	Ref	-
Moderate	5 (38.5)	8 (61.5)	7.253 [2.079 - 25.302]	0.002
Severe	1 (50)	1 (50)	4.533 [0.268 - 76.638]	0.295
ATLANTA				
Mild	42 (91.3)	4 (8.7)	Ref	-
Moderate	28 (70)	12 (30)	4.5 [1.317 - 15.372]	0.016
Severe	4 (33.3)	8 (66.7)	21 [4.331 - 101.824]	0.000

The final binary logistic regression model, built using a forward stepwise approach, showed that biliary stent placement ($p = 0.026$, OR = 14.547 [1.373–154.095]) and a moderate CTSI score ($p = 0.005$, OR = 6.659 [1.751–25.330]) were independently associated with the occurrence of complications and recurrences (**Table 4**).

Table 4. Final binary logistic regression model.

	Morbidity		OR [95% IC]	p-value
	No n (%)	Yes n (%)		
Biliary Stent				
Yes	1(20)	4(80)	14.547 [1.373 - 154.095]	0.026
No	73(78.5)	20(21.5)	Ref	-

Continued

CTSI Score				
Mild	68(81.9)	15(18.1)	Ref	-
Moderate	5(38.5)	8(61.5)	6.659 [1.751 - 25.330]	0.005
Severe	1(50)	1(50)	6.060 [0.352 - 104.189]	0.214

4. Discussion

Acute biliary pancreatitis is a cosmopolitan disease of increasing incidence world-wide and, as such, constitutes a public health problem. As a medical and surgical emergency, its management is essentially hospital-based. Our study aimed to evaluate the hospital management of ABP at the François Quesnay Hospital Center of Mantes-la-Jolie.

During our study period, 3077 patients were hospitalized in the gastroenterology department, corresponding to a hospital frequency of 3.35% for AP and 3.18% for ABP. Biliary origin accounted for 95.15% of acute pancreatitis cases in our series. Roberts *et al.* described, based on a meta-analysis conducted in 17 European countries, a significant and growing increase in acute pancreatitis in Europe [8]. The predominance of biliary etiology that we observed is consistent with the literature [9].

Severity assessment is a fundamental step in the management of acute pancreatitis. Based on the latest current guidelines, we selected CRP, SIRS, the CTSI score, and the 2012 Atlanta classification as evaluation parameters.

CRP was elevated in 46.9% of patients; it was mostly measured at 48 hours, with values below 150 in the large majority of cases, a threshold classically associated with the risk of local complications. SIRS is the gold standard for predicting the severity of acute pancreatitis [10]. It was assessed at H0 and at 48 hours; ABP was predominantly SIRS 0 and 2 in our population. These results differ from those of Taieb *et al.* in Algeria, who found a SIRS score above 3 in 76.6% of their patients; Slimane *et al.*, meanwhile, found a SIRS score of 2 in most of their patients [11] [12]. Hirota *et al.* in Japan found SIRS scores of 2 and 3 at 48 hours in their study population [13]. Whether for the CTSI score or the Atlanta classification, ABP was predominantly mild to moderately severe in our series, which corroborates the findings of Moryoussef *et al.*, who found 73% of ABP cases to be mild to moderately severe (MMS) and 27% severe [14]. Positive CRP ($p = 0.029$), moderate ABP according to the CTSI score ($p = 0.002$), and moderate to severe ABP according to the Atlanta classification ($p = 0.016$ and $p = 0.000$) were closely associated with the occurrence of complications or recurrences. Pancreatitis severity and elevated CRP (>150 mg/L) are also described in the literature as poor prognostic factors for AP, associated with high morbidity and mortality [15].

Several studies have shown the superiority of enteral nutrition over parenteral nutrition, particularly in terms of preventing organ failure, systemic infection, the need for surgery, and mortality. It should be started as early as possible, ideally

before 48 hours, in order to prevent necrosis secondary to bacterial translocation [16] [17].

In our series, cholecystectomy was delayed in 62.2% of cases for hospital organizational reasons and performed after refeeding in 92.3% of cases. Only 17.4% of patients underwent cholecystectomy during the same hospitalization. This finding is consistent with that reported by Moryoussef *et al.* in France and Benmansour in Algeria [14] [18].

Oral and enteral routes remain the most commonly used for nutrition in patients with acute pancreatitis. For mild forms, early oral refeeding was preferred, whereas for moderately severe to severe forms, enteral nutrition was favored. There was a statistically significant association between pancreatitis severity and enteral nutrition. The occurrence of complications was also interdependent on the enteral route. Patients presenting with complications from admission or in the first days of hospitalization preferentially received enteral nutrition. Recurrences, on the other hand, were less frequent than with the use of the oral route. There is a significant link between enteral nutrition and the occurrence of morbidity. Our results are contrary to those of Moryoussef, who found no link between the occurrence of a biliary event and the type of refeeding [14].

Sphincterotomy was performed in 28.6% of cases. Among these, it was most often performed on an emergency basis, particularly in cases of cholangitis, accounting for 40.9% of cases. It was associated with significantly higher morbidity ($p = 0.047$). Similarly, among the five patients who received a biliary stent, 4 (80%) did so following cholangitis due to lithiasic obstruction, with recurrence observed in 50% of cases after its removal. Biliary stenting was associated with morbidity.

A biliary event also occurred in 24.6% of patients who underwent delayed cholecystectomy, without a significant correlation being established between the timing of cholecystectomy and the occurrence of biliary events.

Overall, recurrences were frequently observed after oral refeeding or sphincterotomy without stent placement. Our results are consistent with those found in several cohort studies [19] [20].

The final binary logistic regression model, using a forward stepwise approach, made it possible to isolate factors associated with the occurrence of complications or recurrences of ABP. Biliary stent placement was strongly associated with the occurrence of morbidity, with a significant risk ($p = 0.026$), and patients with a moderate CTSI score had six times the risk of morbidity ($p = 0.005$). The association with stent placement may reflect confounding by indication, as stents were placed in a subgroup of patients that was both small and clinically severe.

At the conclusion of our study, biliary stent placement and a moderate CTSI score thus appear to be factors associated with morbidity.

Finally, although this study provides relevant data on the therapeutic and prognostic profile of ABP in a French hospital center, certain limitations should be noted, particularly its retrospective and single-center design. Nonetheless, these results contribute to a better understanding of this condition and highlight the importance of appropriate therapeutic management.

5. Conclusion

Acute biliary pancreatitis remains an emergency, regardless of its degree of severity. In our series, the rate of biliary events was significantly associated with elevated CRP, enteral nutrition, moderately severe pancreatitis, and endoscopic treatment by sphincterotomy or biliary stent placement. Biliary stent placement and a moderate CTSI score were identified as factors associated with morbidity. Delays in implementing guidelines, particularly regarding cholecystectomy, may explain the non-negligible proportion of biliary events observed.

Author Contributions

- **Study conception and design:** Bienvenu Hostaud Atipo-Ibara.
- **Data collection:** Bienvenu Hostaud Atipo-Ibara, Daniel Tchamdeu-Sizimboue, Rome Itoua-Gatsé, Auriol Ata, Jean Antoine Boundou.
- **Statistical analysis:** Bovane Molami, Ghidmar Onguele-Okemba.
- **Manuscript writing:** Bienvenu Hostaud Atipo-Ibara.
- **Critical review:** Mauria Gilga Ibobu, Bénédicte Ahombo, Mardochée Motoula-Latou, Rody Stéphane Ngami, Jile Florient Mimiesse Monamou, Arnaud Mongo Onkouo, Clausina Mikolele Ahoui.
- **Supervision:** Jean Antoine Boundou, Jile Florient Mimiesse Monamou, Blaise Irénée Atipo-Ibara.

All authors read and approved the final version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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