

Cystic Pancreatic Tumors: Diagnostic Approach and Therapeutic Strategy - Experience from CHU Hassan II of Fès

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Abstract

Background: Cystic pancreatic tumors represent a heterogeneous group of lesions with variable malignant potential. Accurate diagnosis and appropriate therapeutic strategy remain a challenge in clinical practice. This study reports the experience of CHU Hassan II of Fès regarding diagnostic approaches and management strategies.

Methods: A retrospective study of 27 cases of cystic pancreatic tumors managed between 2009 and 2025 was conducted. Data were analyzed regarding clinical presentation, imaging, biology, histopathology, and therapeutic modalities.

Results: The cohort included intraductal papillary mucinous neoplasms (IPMN), mucinous cystic neoplasms (MCN), serous cystic neoplasms (SCN), and solid pseudopapillary neoplasms (SPN). Surgical resection was the mainstay of treatment in symptomatic or high-risk lesions, while surveillance was applied in selected cases. Postoperative outcomes, complications, and survival were analyzed.

Conclusion: Management of cystic pancreatic tumors requires a multidisciplinary approach. International guidelines (Fukuoka, AGA) should be adapted to local contexts to optimize patient outcomes.

Keywords: Cystic pancreatic tumors; IPMN; MCN; SPN

1. Introduction

Cystic pancreatic tumors (CPTs) are increasingly detected due to advances in imaging modalities. They represent a diagnostic and therapeutic challenge given their variable histological nature and malignant potential. The World Health Organization (WHO) classification distinguishes several subtypes including IPMN, MCN, SCN, and SPN. Accurate classification is essential for guiding treatment, as the therapeutic strategy differs according to histological type.

2. Methods

We conducted a retrospective descriptive study including 27 patients treated for CPTs at CHU Hassan II of Fès between 2009 and 2025. Clinical data (age, sex, symptoms), imaging modalities (ultrasound, CT, MRI, EUS), biological markers (CA 19-9, CEA), histopathological findings, and therapeutic strategies were analyzed. Postoperative morbidity and mortality were assessed according to ISGPS criteria.

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3. Results

Among the 27 patients, the distribution of histological types was as follows: IPMN, MCN, SCN, and SPN. The mean age was 52 years, with a female predominance for MCN and SPN. The main clinical presentations were abdominal pain, jaundice, and incidental findings. CT and MRI were the most frequently used imaging modalities. Surgical treatment consisted of pancreaticoduodenectomy, distal pancreatectomy, and enucleation depending on tumor localization. Postoperative complications included pancreatic fistula and delayed gastric emptying. No perioperative mortality was recorded.

4. Discussion

The management of CPTs depends on histological type and risk of malignancy. According to international guidelines, resection is recommended for symptomatic lesions, those with high-risk stigmata, or those larger than 3 cm with worrisome features. Surveillance is a valid option for asymptomatic low-risk cysts, particularly SCN. Our experience highlights the importance of adapting these strategies to local resources and patient profiles. Molecular biology is a promising tool for improving diagnostic accuracy, but remains limited in resource-constrained settings.

Cystic pancreatic tumors are a heterogeneous entity requiring a tailored diagnostic and therapeutic strategy. Surgery remains the gold standard for high-risk or symptomatic lesions, while surveillance is appropriate for selected cases. Our experience at CHU Hassan II of Fès emphasizes the need for multidisciplinary collaboration and contextual adaptation of international guidelines.

The management of cystic pancreatic tumors (CPTs) is a subject of continuous debate, given the heterogeneity of these lesions and their variable malignant potential. Our study, based on 27 cases treated at CHU Hassan II of Fès between 2009 and 2025, provides a valuable insight into the epidemiology, diagnostic challenges, and therapeutic strategies in a Moroccan tertiary center.

In terms of epidemiology, our series confirms the predominance of mucinous cystic neoplasms (MCN) and intraductal papillary mucinous neoplasms (IPMN) in women, with an average age around 50 years, similar to findings reported in Western cohorts (European studies report mean ages between 55 and 65 years). Solid pseudopapillary neoplasms (SPN), although rare, were exclusively observed in young women, consistent with literature describing their indolent behavior but potential for local invasion.

Diagnostic workup remains highly dependent on imaging. In our context, CT and MRI represented the cornerstone of evaluation, with endoscopic ultrasound (EUS) available in only selected cases. Compared to high-volume centers in Europe and Asia, the limited access to cyst fluid analysis and molecular markers (KRAS, GNAS, RNF43 mutations) is a significant limitation. International studies have demonstrated the added value of these biomarkers in differentiating mucinous from non-mucinous cysts, thereby improving therapeutic decision-making. In Morocco, however, the reliance on imaging and clinicopathological correlation remains the standard approach.

Therapeutic strategies in our cohort were guided by international guidelines, primarily the Fukuoka and AGA recommendations. Surgical resection was indicated for symptomatic lesions, those with high-risk stigmata (such as mural nodules, main duct dilatation, or cytology suspicious for malignancy), or those larger than 3 cm with worrisome features. Our findings are in line with global recommendations, which stress the importance of tailoring intervention to individual risk stratification. Of note, serous cystic neoplasms (SCN) in our series were managed conservatively when asymptomatic, echoing the international consensus that SCNs rarely undergo malignant transformation.

From a surgical perspective, pancreaticoduodenectomy and distal pancreatectomy were the most common procedures, similar to other published experiences. Minimally invasive approaches, although increasingly adopted worldwide, remain limited in our institution due to resource constraints and training issues. Postoperative morbidity was consistent with ISGPS-reported rates, with pancreatic fistula and delayed gastric emptying as the main complications. Importantly, no perioperative mortality was recorded, reflecting careful patient selection and multidisciplinary management.

When compared to international series, our study highlights several specific challenges of the Moroccan context. These include delayed diagnosis, often due to late presentation, and limited access to molecular diagnostic tools. Such constraints necessitate a pragmatic adaptation of guidelines, balancing between optimal care and available resources. This reinforces the need for developing national or regional protocols to harmonize management.

The main limitations of our study are its retrospective design, the relatively small sample size, and incomplete long-term follow-up in some patients. Nevertheless, it provides one of the largest single-center Moroccan experiences on CPTs and may serve as a foundation for future multicentric registries.

Looking forward, the integration of molecular biology, improvement of EUS accessibility, and adoption of minimally invasive surgical techniques represent major perspectives for improving CPT management in Morocco. Establishing a national registry would also enable better epidemiological understanding and benchmarking against international data.

In conclusion, our discussion emphasizes that while the general principles of CPT management align with international guidelines, their application must be adapted to local realities. Multidisciplinary decision-making remains the cornerstone for optimizing patient outcomes.

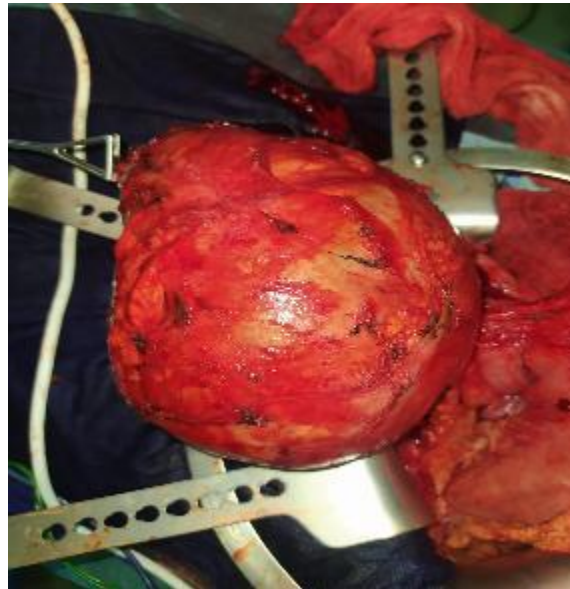


Figure 1 Intraoperative and surgical specimen views of a pancreatic cystic tumor

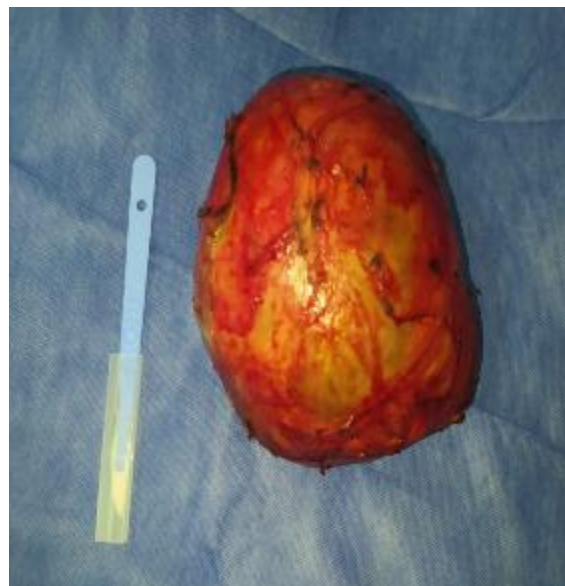


Figure 2 Resected specimen after distal pancreatectomy illustrating the well-circumscribed pancreatic cystic tumor

5. Conclusion

Cystic pancreatic tumors are a heterogeneous entity requiring a tailored diagnostic and therapeutic strategy. Surgery remains the gold standard for high-risk or symptomatic lesions, while surveillance is appropriate for selected cases. Our experience at CHU Hassan II of Fès emphasizes the need for multidisciplinary collaboration and contextual adaptation of international guidelines.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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