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Original Research Article **General Surgery**

Cystic Tumors of the Pancreas: Experience of the General Surgery Department of Avicenne Military Hospital in Marrakech

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Abstract

Cystic tumors of the pancreas are a rare entity, accounting for approximately 15-20% of pancreatic cystic lesions, largely due to advances in imaging techniques. The most common types of pancreatic cystic tumors are intraductal papillary mucinous tumors (TIPMP) and mucinous cystadenomas (CM), while serous cystadenomas (CS) and solid pseudopapillary tumors (TPPS) are less frequent. This study aims to report the experience of the General Surgery Department at the Avicenne Military Hospital in Marrakech regarding the diagnostic and therapeutic management of cystic tumors of the pancreas.

Keywords: Pancreatic tumors, Cystic tumors, Diagnosis, Surgery, Prognosis.

INTRODUCTION

Cystic tumors of the pancreas (CTP) represent a heterogeneous group of rare lesions, accounting for less than 10% of pancreatic tumors. They differ from pseudocysts, which are non-tumoral and related to inflammatory episodes. The main types of CTP include intraductal papillary mucinous neoplasms (IPMN), mucinous cystic neoplasms (MCN), serous cystic neoplasms (SCN), and solid pseudopapillary tumors (SPT). These lesions can be benign, borderline, or malignant. Their detection has become increasingly frequent due to advances in imaging techniques (ultrasound, CT scan, MRI, endoscopic ultrasound).

OBJECTIVES

- To describe the experience of the General Surgery Department of Avicenne Military Hospital in the diagnostic and therapeutic management of cystic tumors of the pancreas (CTP).
- To compare the results with data from the literature and propose context-appropriate recommendations.

MATERIALS AND METHODS

- **Study design:** Descriptive and retrospective.
- **Study period:** January 2018 to December 2023 (6 years).
- **Population:** 17 patients diagnosed with CTP out of 105 pancreatic tumors (16%).
- **Inclusion criteria:** Patients aged ≥18 years with clinical or radiological suspicion of CTP.
- **Exclusion criteria:** Pseudocysts and incomplete medical records.
- **Data analysis:** Demographic, clinical, radiological, biological, histopathological, and therapeutic data were collected and analyzed using Google Forms, Excel, and Word.

RESULTS

- **Mean age:** 55 years (range: 27–82 years); **female predominance:** 59%.
- **Risk factors:** Diabetes (35%), hypertension (29%), smoking (29%).
- **Mode of discovery:** Incidental in 35% of cases; epigastric pain (53%), jaundice (35%).
- **Imaging modalities used:** Ultrasound (94%), CT scan (88%), MRI (65%), endoscopic ultrasound (29%).
- **Tumor markers:** Elevated CA19-9 and CEA levels in 45% of patients.
- **Tumor location:** Head (53%), body (23%), tail (18%), isthmus (6%).
- **Histological types:** IPMN (59%), MCN (23%), SCN (12%), SPT (6%).

- **Type of surgery:** Curative (82%), palliative (18%); adjuvant chemotherapy in 24%.
- **Postoperative complications:** 18%; **favorable outcome:** 47%; **recurrence:** 12%; **mortality:** 12%.

DISCUSSION

Cystic tumors of the pancreas (CTP) represent a heterogeneous group of rare lesions whose detection rate has significantly increased in recent years, largely due to advances in medical imaging and the improvement of diagnostic techniques (Farrell, 2015). Long confused with inflammatory pseudocysts, CTPs are distinguished by their neoplastic nature, characterized by the presence of an epithelial lining and a variable malignant potential (van Huijgevoort *et al.*, 2019).

Data collected from the General Surgery Department of Avicenne Military Hospital confirm the rarity of these lesions, representing less than 20% of pancreatic tumors. The observed female predominance, with a mean age at diagnosis of 55 years, is consistent with findings reported in several international series (Spinelli *et al.*, 2004; Fernández-del Castillo *et al.*, 2010). This distribution can be explained by the high proportion of mucinous cystic neoplasms, entities typically found in middle-aged women (Tanaka *et al.*, 2012).

Intraductal papillary mucinous neoplasms (IPMN) remain the most frequent type, followed by mucinous and serous cystadenomas, and then solid pseudopapillary tumors, in agreement with the literature (Tanaka *et al.*, 2017; Del Chiaro *et al.*, 2018). These lesions are often discovered incidentally during abdominal imaging, reflecting their indolent course and the growing frequency of imaging examinations performed for unrelated conditions (Brugge *et al.*, 2004). However, their potential for malignant transformation justifies careful diagnostic evaluation and appropriate management.

From a diagnostic standpoint, the combination of computed tomography (CT), magnetic resonance imaging (MRI), and endoscopic ultrasound (EUS) allows for detailed morphological characterization of the lesion. Endoscopic ultrasound, particularly when combined with fine-needle aspiration (EUS-FNA), plays a key role in analyzing cystic contents and distinguishing between benign and malignant lesions (de Jong *et al.*, 2011). Measurement of tumor markers such as CA 19-9 and CEA supports the diagnosis, although these markers are neither specific nor consistently correlated with malignancy (Lauwers *et al.*, 2016).

The surgical results observed in this series confirm the central role of surgery in the therapeutic strategy for CTP. Pancreaticoduodenectomy remains the reference procedure for cephalic tumors, while distal pancreatectomy is indicated for lesions of the body and tail (Allen *et al.*, 2006). Complete surgical excision provides excellent outcomes in terms of survival and local control, although it carries notable morbidity, particularly due to pancreatic fistula and infectious complications (Winter *et al.*, 2006). For clearly benign forms, a conservative approach or radiologic surveillance is recommended, in accordance with international guidelines (Tanaka *et al.*, 2017).

Postoperative complications, occurring in approximately one-fifth of cases, are comparable to those reported in major surgical series (Bassi *et al.*, 2005). The favorable outcomes observed in most patients attest to the effectiveness of surgical treatment, although recurrence remains possible, especially in IPMN with a risk of multifocality (Matsumoto *et al.*, 2013).

Histological analysis remains the definitive step in diagnosis. It not only confirms the tumor's nature but also evaluates its malignant potential. Mucinous and intraductal papillary lesions constitute a histologic continuum ranging from benign forms to invasive carcinomas (Khalid *et al.*, 2011). This diversity justifies a cautious therapeutic approach, favoring multidisciplinary decision-making involving surgeons, gastroenterologists, radiologists, and pathologists.

Thus, the findings of this study are consistent with conclusions drawn from international literature: cystic tumors of the pancreas require precise diagnostic assessment, careful evaluation of malignant potential, and individualized therapeutic strategies. The overall prognosis remains favorable for benign forms, but long-term surveillance is essential even after complete resection, due to the risk of late recurrence (Khalid *et al.*, 2011; Tanaka *et al.*, 2017).

In conclusion, cystic tumors of the pancreas represent a major clinical and diagnostic challenge. Continuous improvement in imaging tools and the development of standardized follow-up protocols should enable more targeted management, reducing unnecessary interventions and optimizing long-term outcomes for patients.

CONCLUSION

Cystic tumors of the pancreas (CTP) represent both a diagnostic and therapeutic challenge. Early identification, made possible by advances in imaging, allows for appropriate management. Curative surgery combined with strict postoperative surveillance remains the cornerstone of a favorable prognosis. Multidisciplinary collaboration is essential for optimal patient outcomes.

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