

Multidisciplinary Management of Pancreatic Head Adenocarcinoma Presenting with Painless Obstructive Jaundice

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Abstract

Background: Pancreatic ductal adenocarcinoma (PDAC) often presents late with nonspecific symptoms, particularly in elderly patients with multiple comorbidities. The “double-duct sign”, characterized by simultaneous dilation of the common bile duct (CBD) and main pancreatic duct (PD), is a radiologic indicator of pancreatic head or peri-ampullary malignancy. Multidisciplinary management is critical to optimize diagnostic accuracy, therapeutic interventions, and patient-centered care. **Case Presentation:** An 82-year-old female with a history of cerebrovascular accident, hypothyroidism, asthma, osteoarthritis, migraine headaches, gastroesophageal reflux disease, and prior cholecystectomy presented with early satiety, progressive unintentional weight loss over several months, and visible jaundice noted by a friend. Laboratory evaluation revealed marked hyperbilirubinemia and significantly elevated CA 19-9 (~2390 U/mL). Imaging demonstrated a dilated CBD and PD consistent with the double-duct sign and a small mass in the head/uncinate process of the pancreas. ERCP with stent placement relieved the obstruction. EUS-guided fine-needle biopsy confirmed adenocarcinoma. Multidisciplinary involvement, including Gastroenterology, Surgical Oncology, Hematology/Oncology, Pulmonology, Nutrition, and Palliative Care, guided staging, aspiration risk management due to severe esophageal dysmotility, nutritional optimization, and goals-of-care planning. **Conclusion:** Early recognition of subtle clinical signs, timely endoscopic tissue acquisition, and coordinated multidisciplinary care are essential in managing elderly patients with pancreatic head adenocarcinoma. Comprehensive management mitigates complications, addresses quality-of-life concerns, and aligns treatment with patient-centered goals.

Keywords

Pancreatic Ductal Adenocarcinoma, Common Bile Duct, Pancreatic Duct, Double Duct Sign, Multidisciplinary Management, Esophageal Dysmotility

1. Introduction

Pancreatic ductal adenocarcinoma (PDAC) is among the deadliest malignancies, ranking as the fourth leading cause of cancer-related mortality globally, with a 5-year survival rate of less than 10% due to late diagnosis and early metastatic spread [1]. The incidence increases with age, and elderly patients frequently present with subtle, nonspecific symptoms such as malaise, early satiety, weight loss, and mild abdominal discomfort, which are often misattributed to aging or comorbid conditions [2].

Painless jaundice is a classic manifestation of pancreatic head tumors resulting from biliary obstruction and necessitates urgent diagnostic evaluation [3]. Radiologic findings, including the double-duct sign simultaneous dilation of the CBD and PD strongly suggest malignancy and prompt further investigation using endoscopic ultrasonography (EUS) and tissue sampling [4].

Early identification is particularly challenging in elderly patients with multiple comorbidities, who may be poor candidates for aggressive surgical or chemotherapeutic interventions. This case describes an elderly female whose pancreatic head adenocarcinoma was initially suspected after a friend noticed her jaundice. She also reported early satiety and months of weight loss, highlighting the importance of subtle clinical observations in early recognition.

2. Case Presentation

An 82-year-old female with a significant past medical history of cerebrovascular accident (left frontal/temporal lobe), hyperlipidemia, hypothyroidism, asthma, osteoarthritis, migraine headaches, and gastroesophageal reflux disease, along with prior cholecystectomy, presented for evaluation of progressive jaundice. She reported early satiety and a 10-pound unintentional weight loss over several months. A friend observed yellowing of her eyes, prompting her primary care physician referral to a tertiary care center. She denied abdominal pain, fever, nausea, vomiting, chest pain, or dyspnea, though she noted mild leg pain attributed to osteoarthritis. The patient had no history of tobacco, alcohol, or recreational drug use and maintained regular primary care follow-up. Her first language is French, and medication reconciliation required assistance from her spouse.

On examination, the patient was alert and oriented $\times 3$, with mild scleral icterus and jaundice. Vital signs were within normal limits. The abdomen was soft, nontender, with no palpable masses, hepatosplenomegaly, or signs of peritoneal irritation.

Laboratory evaluation revealed total bilirubin of 16 mg/dL (peaking at 17

mg/dL), direct bilirubin 12.2 mg/dL, alkaline phosphatase 239 U/L, GGT 227 U/L, AST 150 s → 98 U/L, ALT 163 → 83 U/L, lipase 293 U/L, CA 19-9 2390 U/mL, and CEA 16 ng/mL. Mild hypocalcemia was also noted.

Imaging studies included MRCP showing CBD and PD dilation with abrupt narrowing at the pancreatic head, consistent with the double-duct sign. CT of the abdomen and pelvis demonstrated intra- and extrahepatic biliary dilation and pancreatic duct dilation. CT of the chest revealed a subpleural apical right upper lobe lesion, a 4.5 mm pulmonary nodule, ill-defined lateral right upper lobe opacity, bilateral posterior basilar opacities, and small bilateral pleural effusions. MRI of the abdomen revealed a 16 mm pancreatic head mass causing biliary and pancreatic duct obstruction, with no definitive vascular involvement or intra-abdominal metastases, **Figure 1**.

Endoscopic interventions included ERCP, which revealed a distal CBD stricture, copious sludge, and thickened duct walls; a plastic biliary stent was placed with adequate flow. EUS identified a 15 × 15 mm mass in the uncinate process with a dilated pancreatic duct (10 mm) and pancreatic atrophy. Fine-needle biopsy confirmed adenocarcinoma.

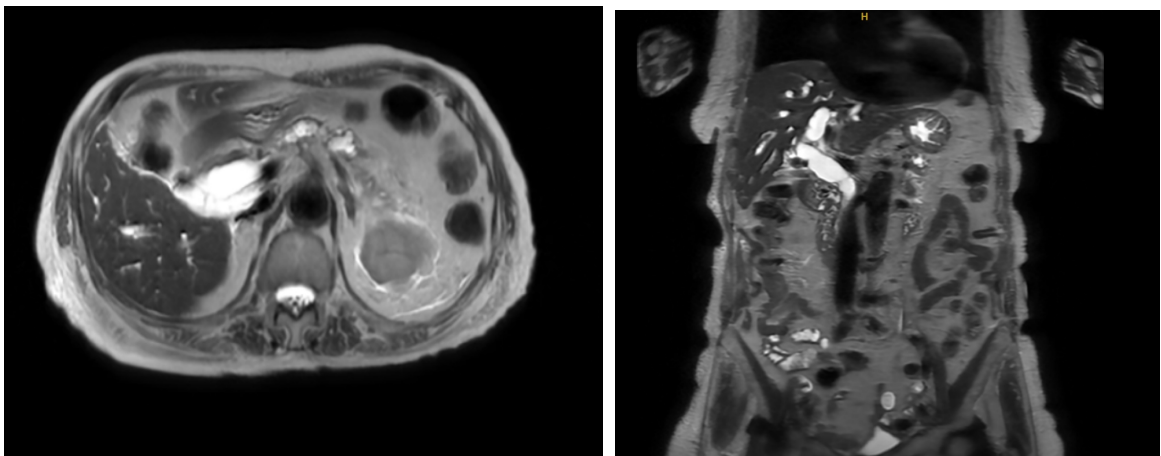


Figure 1. MRCP axial & coronal view. Significant dilatation of the common bile duct and main pancreatic duct with abrupt narrowing at the pancreatic head with mass identified in this region.

Multidisciplinary evaluation included Surgical Oncology, Hematology/Oncology, Pulmonology, Nutrition, Gastroenterology, and Palliative Care. Surgical Oncology determined no definitive vascular involvement but noted severe protein-calorie malnutrition and limited surgical candidacy. Hematology/Oncology considered high suspicion for metastasis, emphasizing systemic therapy limitations and recommending pulmonary workup. Pulmonology addressed severe esophageal dysmotility and aspiration risk, treating pneumonia empirically and deferring bronchoscopic evaluation. Gastroenterology monitored LFTs and ensured stent patency. Palliative care discussed goals of care, advance care planning, and healthcare proxy designation, with the patient alert, oriented, and receptive.

The patient tolerated a dysphagia diet, with down-trending bilirubin and liver

enzymes post-ERCP. Nutritional support and close multidisciplinary follow-up were initiated, including surgical re-evaluation, pulmonary assessment, and palliative care. Aspiration prophylaxis and monitoring for cholangitis or recurrent obstruction were implemented.

3. Discussion

Pancreatic ductal adenocarcinoma (PDAC) is a highly lethal malignancy with an insidious onset and nonspecific early symptoms, which contribute to its dismal prognosis. Worldwide, PDAC is the fourth leading cause of cancer-related mortality, and it carries a five-year survival rate of less than 10% [4]. The incidence of PDAC increases with age, with the majority of cases diagnosed in patients over 65 years old, highlighting the importance of heightened clinical suspicion in elderly populations [5]. Advanced age not only increases disease incidence but also complicates management due to the presence of comorbidities, polypharmacy, frailty, and decreased physiological reserve. Conditions such as cerebrovascular accidents, hypothyroidism, cardiovascular disease, and pulmonary disorders, as observed in our patient, can obscure clinical manifestations, delay diagnosis, and limit therapeutic options. Epidemiologic studies have also identified modifiable risk factors for PDAC, including tobacco use, chronic pancreatitis, diabetes mellitus, and obesity; however, age remains the most significant non-modifiable risk factor [6].

The clinical presentation of PDAC is notoriously subtle, particularly in elderly patients. While abdominal pain, anorexia, and malaise may occur, these symptoms are often nonspecific and can be misattributed to age-related changes or comorbid conditions [7]. In contrast, painless obstructive jaundice remains a hallmark of pancreatic head tumors, often prompting initial medical evaluation. In this case, the patient exhibited early satiety and unintentional weight loss over several months, symptoms that are frequently overlooked in routine examinations. Remarkably, the detection of jaundice was initially noted by a friend, demonstrating the critical role that caregivers and non-clinical observers can play in recognizing early disease manifestations. Such subtle but important observations can serve as key triggers for timely medical evaluation, particularly in older adults with atypical or muted symptomatology. Additionally, systemic manifestations such as malnutrition, fatigue, and functional decline are common in elderly patients with PDAC, emphasizing the need for comprehensive assessment beyond the primary tumor site.

Accurate and timely diagnosis of PDAC relies on a combination of laboratory evaluation, imaging studies, and histopathologic confirmation. Laboratory markers such as CA 19-9 and CEA provide adjunctive diagnostic information; markedly elevated CA 19-9, as observed in this patient, is strongly associated with PDAC, although levels may also be influenced by biliary obstruction [8]. Imaging modalities including contrast-enhanced CT, MRCP, and MRI allow for precise anatomical localization, assessment of ductal involvement, and evaluation of vas-

cular encasement or metastatic spread [9]. The “double-duct sign,” characterized by concurrent dilation of the common bile duct and pancreatic duct, is highly suggestive of pancreatic head or peri-ampullary malignancy, with studies reporting a malignancy risk exceeding 75% when this radiologic finding is present [10]. In our patient, MRCP and MRI revealed both CBD and PD dilation with a small mass in the head/uncinate process of the pancreas, consistent with the classic double-duct presentation. Endoscopic interventions, including ERCP and EUS-guided fine-needle biopsy, are critical for establishing a definitive tissue diagnosis and providing therapeutic biliary decompression. Fine-needle biopsy not only confirms malignancy but also assists in molecular profiling for potential targeted therapies, representing a cornerstone of PDAC management [11].

Management of PDAC in elderly patients presents unique challenges. Surgical resection remains the only potentially curative therapy; however, many older adults are not surgical candidates due to age, comorbidities, nutritional deficiencies, or tumor location [12]. Endoscopic biliary decompression with stent placement, as performed in this case, alleviates obstruction, improves liver function, and supports nutritional rehabilitation. Malnutrition, which is prevalent in PDAC patients and exacerbated by dysphagia or early satiety, is associated with poor outcomes and increased postoperative morbidity [13]. In patients with severe esophageal dysmotility, as observed here, careful dietary modifications and aspiration precautions are essential to reduce respiratory complications. Additionally, elevated tumor markers and imaging findings suggestive of potential metastatic disease require thoughtful coordination between surgical and medical oncology teams to balance therapeutic efficacy with tolerability. Multidisciplinary discussion is particularly important in elderly or frail patients, as treatment decisions must integrate tumor biology, functional status, comorbidities, and patient-centered goals.

The role of palliative care in the management of PDAC cannot be overstated, especially in elderly patients with limited therapeutic options. Early palliative involvement facilitates symptom management, addresses nutritional and psychosocial needs, and enables advance care planning [14]. In this case, the patient’s performance status and comorbid conditions highlighted the importance of aligning interventions with her values and goals of care. Palliative care also plays a pivotal role in managing complications such as cholangitis, malnutrition, biliary obstruction, and aspiration pneumonia, which are common in advanced PDAC [15]. Integration of palliative care with active oncologic and endoscopic management ensures comprehensive care, mitigates unnecessary interventions, and supports quality of life throughout the disease trajectory.

Finally, the prognosis of PDAC remains poor, with overall survival heavily influenced by tumor stage, vascular involvement, metastatic spread, and patient comorbidities [16]. Nevertheless, timely recognition of subtle clinical signs, rapid diagnostic evaluation, and coordinated multidisciplinary management can prevent secondary complications, improve functional status, and provide patients

and families with meaningful options for care [17]. This case exemplifies how early detection, endoscopic intervention, careful nutritional support, and collaborative decision-making can collectively optimize outcomes even in elderly patients with high-risk features [18]. Future directions in PDAC management, including targeted therapies, immunotherapy, and improved molecular diagnostics, may offer additional avenues to enhance survival and quality of life, underscoring the need for ongoing research and individualized patient care strategies [19].

4. Conclusions

Pancreatic ductal adenocarcinoma (PDAC) remains a formidable malignancy with one of the highest mortality rates among gastrointestinal cancers. Its insidious onset and nonspecific early symptoms, including malaise, early satiety, and unintentional weight loss, often result in delayed presentation and diagnosis. In elderly patients, these subtle clinical manifestations may be further obscured by comorbidities or attributed to normal aging, making early detection especially challenging [20]. This case underscores the critical importance of vigilance in recognizing early clinical signs, even those noted by caregivers or friends, which may prompt timely medical evaluation. The identification of painless jaundice by a family member in this patient exemplifies how non-clinical observations can be pivotal in facilitating early referral and diagnostic workup.

Imaging findings, particularly the radiologic double-duct sign, are instrumental in raising suspicion for pancreatic head malignancy. In this patient, concurrent dilation of the common bile duct and main pancreatic duct, in conjunction with cross-sectional imaging, facilitated accurate anatomical delineation and guided subsequent endoscopic interventions. Endoscopic ultrasonography with fine-needle biopsy provided histopathologic confirmation, which remains the gold standard for definitive diagnosis. Elevated tumor markers, including CA 19-9, while nonspecific, supported the clinical suspicion and helped assess disease burden. Collectively, these diagnostic modalities highlight the importance of a systematic and multimodal approach in the evaluation of suspected pancreatic malignancy.

Management of PDAC in elderly patients is inherently complex due to age-related physiological changes, comorbid conditions, and potential limitations in tolerating aggressive surgical or chemotherapeutic interventions. In this case, endoscopic biliary decompression via ERCP alleviated obstruction, facilitated improvement in liver function, and allowed for optimization of nutritional status, which is especially critical given the patient's malnutrition and severe esophageal dysmotility. Multidisciplinary collaboration, including Gastroenterology, Surgical Oncology, Hematology/Oncology, Pulmonology, Nutrition, and Palliative Care, was essential for coordinating diagnostic evaluation, risk stratification, symptom management, and therapeutic decision-making. This coordinated approach ensured comprehensive care tailored to the patient's functional status, comorbidities, and preferences.

Finally, integration of palliative care early in the treatment trajectory was cen-

tral to patient-centered management. Beyond symptom control, palliative involvement facilitated goals-of-care discussions, advance care planning, and healthcare proxy designation, ensuring that treatment decisions aligned with the patient's values and wishes. Although prognosis remains poor for elderly patients with pancreatic head adenocarcinoma, timely recognition of subtle clinical signs, systematic diagnostic evaluation, endoscopic interventions, and multidisciplinary care can improve quality of life, reduce complications, and support informed decision-making. This case reinforces that in pancreatic cancer, particularly among frail or elderly patients, comprehensive, patient-centered, and multidisciplinary management is paramount for optimizing clinical outcomes and preserving dignity and quality of life.

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Conflicts of Interest

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

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