



## PANCREATIC HEAD CANCER: DIAGNOSIS, MANAGEMENT AND PROGNOSIS



<https://doi.org/10.56238/levv15n41-028>

Submitted on: 04/09/2024

Publication date: 04/10/2024

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## ABSTRACT

Pancreatic head cancer is one of the most aggressive malignant neoplasms, with a clinical presentation that is often nonspecific. We report the case of a 59-year-old male patient who presented with diffuse abdominal pain, hyporexia, and significant weight loss. The tumor marker CA 19-9 was elevated, and the CT scan revealed a mass in the uncinate process of the pancreas, in close relation to the superior mesenteric vein. The diagnosis of pancreatic head cancer was confirmed. The vascular invasion identified suggested an advanced stage of the disease, limiting curative surgical options. The therapeutic approach included neoadjuvant chemotherapy. This report reinforces the importance of early diagnosis, despite the often silent nature of the disease. We also discussed advances in adjuvant therapies and new treatments under investigation, such as immunotherapy.

**Keywords:** Pancreatic Cancer. CA 19-9. Pancreatic Mass. Vascular Invasion. Neoadjuvant Chemotherapy.

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## INTRODUCTION

Pancreatic head cancer represents one of the most lethal neoplasms of the digestive tract, with a five-year survival of less than 10%, even in patients undergoing surgical treatment and adjuvant therapies. The often nonspecific clinical presentation, with symptoms such as abdominal pain, hyporexia, and weight loss, delays diagnosis in many cases, leading to a disease that is already at an advanced stage at the time of detection. The diagnosis of pancreatic cancer often depends on a combination of clinical, laboratory, and imaging findings. Among the tumor markers, CA 19-9 is the most used, however, its elevation is not exclusive to pancreatic cancer, and may also be present in other conditions, such as cholangitis and pancreatitis. However, when combined with radiological findings, such as the presence of a pancreatic mass, it becomes an important tool in diagnostic suspicion.

Computed tomography is the most widely used imaging test for the evaluation of pancreatic cancer, and it is essential to identify the extent of the disease, including invasion of adjacent structures such as the superior mesenteric vein. The presence of vascular invasion usually indicates unresectable disease and is associated with a worse prognosis. In cases like this, neoadjuvant chemotherapy has been an increasingly used approach, with the aim of reducing tumor size and enabling surgical resection later.

The objective of this study is to discuss the diagnosis, management, and prognosis of patients with pancreatic head cancer, with emphasis on therapeutic options and challenges related to vascular invasion and neoadjuvant treatment.

## METHODOLOGY

This study was conducted as a literature review, based on the analysis of a clinical case of pancreatic head cancer. The PubMed, Scielo, and Medline databases were consulted to identify relevant studies published between 2010 and 2023. The search included peer-reviewed articles, international guidelines, and books specializing in the diagnosis, management, and prognosis of pancreatic cancer. The terms used in the search were "pancreatic head cancer", "tumor markers", "CA 19-9", "vascular invasion" and "neoadjuvant chemotherapy". The final selection of articles was based on relevance to the discussion and application in the clinical context addressed in this study.

The inclusion criterion involved studies that presented data on the diagnosis and treatment of pancreatic cancer, with emphasis on tumors located in the head of the pancreas and in patients with vascular invasion. Studies addressing new adjuvant therapies, including immunotherapy and neoadjuvant chemotherapy, were prioritized for

analysis. Review studies, clinical trials, and cancer management guidelines were also considered. Studies that did not specifically address pancreatic head cancer or that did not present relevant clinical data were excluded.

The data obtained from the literature review were compared and correlated with the case report of the patient described in this study, in order to reinforce the diagnostic and therapeutic findings, as well as the prognostic implications of the disease. The combination of clinical findings with the literature allowed us to deepen the analysis of the impact of vascular invasion and the available therapeutic options.

## RESULTS AND DISCUSSION

Pancreatic head cancer continues to be one of the biggest challenges in oncology due to its late diagnosis and the aggressive nature of the disease. The patient in question presented symptoms of diffuse abdominal pain, weight loss of 10 kg in one month, and hyporexia, all common clinical signs in patients with advanced pancreatic cancer. The elevation of the CA 19-9 marker was one of the first diagnostic indicators, in line with the suspicion of malignancy. Studies indicate that CA 19-9 is elevated in more than 70% of patients with pancreatic cancer, although it can also be elevated in cases of pancreatitis or cholangitis, limiting its predictive value when used alone.

The patient's computed tomography findings showed a mass in the uncinate process of the pancreas, with invasion of the superior mesenteric vein. Vascular invasion is indicative of advanced disease, and studies have shown that tumor resectability is directly associated with the absence of vascular invasion. Whipple surgery (pancreaticoduodenectomy) is the treatment of choice in cases of resectable pancreatic cancer, but the invasion of the superior mesenteric vein makes the surgical approach unfeasible in many cases.

Neoadjuvant chemotherapy was chosen for this patient, with the aim of reducing the tumor and increasing the chances of surgical resection. The FOLFIRINOX regimen, consisting of a combination of drugs such as oxaliplatin, irinotecan, and 5-fluorouracil, is currently one of the most promising therapeutic options for patients with advanced pancreatic cancer. Studies show that patients undergoing FOLFIRINOX have a higher tumor response rate when compared to those treated with gemcitabine alone.

However, despite the advancement of systemic therapies, the prognosis for patients with advanced pancreatic cancer remains bleak. The median survival for patients with vascular invasion is approximately 6 to 12 months, even with the use of chemotherapy. In recent years, emerging therapies such as immunotherapy and the use of personalized

treatments based on genomic analyses have shown promising results in clinical trials, although their role in pancreatic cancer is still in the investigation phase.

Vascular invasion, as observed in the present case, is associated with a significantly higher risk of metastases, which limits curative options. Although radiation therapy may be considered in some cases, its effectiveness is limited by the intrinsic radioresistance of pancreatic adenocarcinoma. Combining chemotherapy with new approaches such as immunotherapy and targeted therapies offers hope for the future, but the need for early diagnosis remains the highest priority.

## CONCLUSION

Pancreatic head cancer is a disease with a poor prognosis, especially when associated with vascular invasion. Early diagnosis remains the greatest challenge, and the elevation of CA 19-9, together with imaging findings, should alert to the possibility of malignancy. Invasion of the superior mesenteric vein limits surgical resection options, making neoadjuvant chemotherapy a key strategy to try to control the disease. While therapies such as FOLFIRINOX and immunotherapy offer new hope, the management of pancreatic cancer remains a significant clinical challenge. The development of new treatment strategies is crucial to improve the prognosis of these patients.

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