



Review article

Surgery for Pancreatic Cancer: Evidence-Based Surgical Strategies[☆]



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ARTICLE INFO

Article history:

Received 30 October 2014

Accepted 27 March 2015

Available online 30 July 2015

Keywords:

Pancreas

Cancer

Surgery

Evidence-based

Pancreatic surgery

Pancreaticogastric anastomosis

A B S T R A C T

Pancreatic cancer surgery represents a challenge for surgeons due to its technical complexity, the potential complications that may appear, and ultimately because of its poor survival. The aim of this article is to summarise the scientific evidence regarding the surgical treatment of pancreatic cancer in order to help surgeons in the decision making process in the management of these patients. Here we will review such fundamental issues as the need for a biopsy before surgery, the type of pancreatic anastomosis leading to better results, and the need for placement of drains after pancreatic surgery will be discussed.

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Cirugía del cáncer de páncreas: estrategias quirúrgicas según los datos basados en la evidencia

R E S U M E N

La cirugía del cáncer de páncreas es un reto para el profesional debido a su complejidad técnica, las posibles complicaciones derivadas y, en último término, por la mala supervivencia. El objetivo de este artículo es resumir toda la evidencia científica en torno al tratamiento quirúrgico del cáncer de páncreas para poder facilitar al cirujano la toma de decisiones en el manejo de estos pacientes. En él se abordan cuestiones tan fundamentales como la necesidad de practicar una biopsia antes de la intervención, el tipo de anastomosis pancreática con mejores resultados, o la necesidad de la colocación de drenajes tras la cirugía pancreática.

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Palabras clave:

Páncreas

Cáncer

Cirugía

Evidencia

Cirugía pancreática

Pancreaticogastróstomía

[☆] Please cite this article as: Sánchez Cabús S, Fernández-Cruz L. Cirugía del cáncer de páncreas: estrategias quirúrgicas según los datos basados en la evidencia. Cir Esp. 2015;93:423-435.

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Introduction

In the field of pancreatic surgery, pancreatic cancer is one of the most predominant pathologies. Its frequency has increased notably over the course of the last 20 years. The American Cancer Society estimated approximately 46 420 new pancreatic cancer diagnoses in 2014. Furthermore, in spite of the advances both in surgery as well as oncologic treatment, expected deaths as a consequence of the disease for the same year were 39 590,¹ and the correlation between new diagnoses and deaths was 0.85.

Surgical resection is the main treatment of pancreatic cancer. Resections should be complete, with wide margins, and associated with appropriate lymph node resection. The high complexity of the surgery and the frequency and importance of its complications make it essential to have a solid knowledge of perioperative patient management. It is therefore necessary for surgeons who treat patients with pancreatic cancer to have the maximum amount of information possible about how to adjust patient management.

Recently, 4 consensus articles have been published by the International Study Group of Pancreatic Surgery (ISGPS), which have dealt with important topics, such as resection in borderline patients, lymph node dissection and extended pancreatectomy, and the need for preoperative pancreatic biopsy.²⁻⁵ In this article, it has been our intention to respond to these and other frequent questions that surgeons are confronted with when treating a patient who should undergo pancreatic resection in general and as a consequence of pancreatic cancer in particular, based on current scientific evidence reported in the literature. Furthermore, for each point we have summarised with classifications based on levels of evidence and degrees of recommendation (Table 1).

Is Preoperative Histologic Confirmation Necessary? If So, What Is the Best Technique?

Classically, the high morbidity and mortality associated with pancreatic surgery meant that the preoperative diagnosis of malignant diseases was a premise for their surgical treatment. Nonetheless, the morbidity and mortality of surgically treated patients has recently experienced a notable reduction thanks to the evolution of pancreatic surgery. Likewise, the improvements in radiological techniques have resulted in better non-invasive diagnostic capability. Right now, the basic radiological technique for the diagnosis of pancreatic cancer is computed tomography (CT), both helical as well as multislice, with a sensitivity of between 76% and 100% according to the data published in the literature.⁶ The negative consequence of the lack of a histological diagnosis before surgery is, of course, an incorrect diagnosis. It is estimated that between 5% and 10% of cases with clinical and radiological suspicion for malignancy have benign pathology results; meanwhile some 10% of patients with benign preoperative diagnosis will have a positive pathologic result for malignant cells.⁷⁻¹²

In this context, the consensus document by the ISGPS states that routine biopsy is not necessary for suspicious

Table 1 – Levels of Evidence and Grades of Recommendation.

Levels of evidence

- I Evidence from systematic reviews of well-designed randomised controlled trials
- II-1 Evidence from at least one randomised controlled trial
- II-2 Evidence from at least one well-designed non-randomised controlled study
- II-3 Evidence from at least one well-designed not completely experimental study, such as cohort studies. This refers to the situation in which the application of an intervention is beyond the control of the researchers, but whose effect can be evaluated.
- III Evidence from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies or case/control studies
- IV Evidence from documents or expert committee opinions or clinical experiences of prestigious authorities or case series

Grades of recommendation

- A Good scientific evidence; suggests that the benefits of treatment substantially outweigh the potential risks.
- B Fair scientific evidence; suggests that the benefits of treatment outweigh potential risks.
- C Fair scientific evidence; suggests that the treatment provides benefits, but the balance between the benefits and the risks is too close to make general recommendations.
- D Fair scientific evidence; suggests that the treatment risks are greater than the potential benefits.
- I Deficient, poor quality or conflicting scientific evidence; suggests that the risk/benefit correlation cannot be evaluated.

The levels of evidence and grades of recommendation of this article are adapted from the U.S. Department of Health and Human Services' Agency for Healthcare Research and Quality (<http://www.ahrq.gov>).

masses in the head of the pancreas. Thus, strong suspicion based on clinical and radiological studies should be sufficient to indicate surgery, and histologic confirmation prior to surgery should be reserved for those cases in which the therapeutic management could change depending on the specific diagnosis. Moreover, in certain pathologies, such as autoimmune pancreatitis, other strategies can be useful, such as IgG4 dosage or short-term corticosteroid treatment.

Nonetheless, in cases in which a histologic diagnosis is considered necessary, what is the best option? Around 70%¹³⁻¹⁵ of patients with neoplasias located in the head of the pancreas present with elevated bilirubin levels. In cases in which a plastic biliary stent is necessary to ensure correct biliary drainage by means of endoscopic retrograde cholangiopancreatography (ERCP), brush cytology is an option to reach a histologic diagnosis. This technique has shown low sensitivity (in the best cases up to 50%) but high specificity (up to 100% in some series).^{16,17} It should be remembered that the placement of a preoperative biliary drain in patients with pancreatic cancer is not routinely justified, either because it provides no advantage^{18,19} or because it increases post-operative complications and should be used only in selected cases.²⁰⁻²³ If brush cytology of the biliary tract is not used, histologic diagnostic methods involve using percutaneous pancreatic biopsy or endoscopic ultrasound (EUS)-guided

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