

## **Surgery for Pancreatic Ductal Adenocarcinoma**

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Goals of surgery for pancreatic ductal adenocarcinoma (PDAC) include safety and postoperative patients' survival. With recent advancement in operative skills and postoperative care, pancreatectomy for PDAC has become a safe procedure with recently reported operative mortality of pancreaticoduodenectomy below 2% in centers specialized at pancreatic operation. These low mortality rates seem to justify the aggressive surgical approaches attempted in tertiary referral centers in the hope of prolonging survival in the face of impending death. Currently, preoperative assessment is based on contrast-enhanced helical computed tomography (CT) and/or magnetic resonance imaging (MRI) of the abdomen and pelvis. Both of these techniques reliably show the tumor and its relation to the surrounding structures. Although CT and MRI are very accurate in predicting unresectability, their false negativity remains high; therefore approximately one-third of patients deemed resectable preoperatively turn out to have locally advanced or metastatic disease during laparotomy. Therefore, with today's limited oncologic and diagnostic options, margin-positive PD is neither desirable nor avoidable.

The 75-80% death rate within 5 years after pancreatectomy with curative intent prompts one to ask whether surgery offers anything more than palliation to three-quarters of the patients in whom appearance of distant metastasis and/or local recurrence will dictate survival. It is likely that PDAC comprises a mixed group of tumors with different biological behavior patterns. Therefore, new therapeutic strategies designed to elucidate PDAC's aggressive nature at the cellular and molecular levels hold the greatest promise for individually tailored therapy. Unfortunately, our current preoperative diagnostic armamentarium provides us with only anatomic delineation of the lesion. Although positron emission tomography is unique in its ability to evaluate metabolic parameters, its limited resolution of 4-10 mm means it is unable to detect micrometastatic disease. Therefore as long as we cannot accurately identify the subgroup of patients for whom surgery can provide a cure, tumor resection will be applied to all locally resectable patients, as it is still the most effective therapy.

The facts recurrences develop so often after potentially curative pancreatectomy and adjuvant therapy improves patients' survival suggest that most PDAC is a systemic disease. Several prospective, randomized, controlled trials have shown adjuvant therapy (chemotherapy or chemoradiotherapy) is effective to improve patients' survival. More and more surgeons support the use of neoadjuvant strategies in pancreatic cancer in patients with resectable or borderline resectable pancreatic cancer in order to allow early treatment of micrometastatic disease, tumor regression, and reduced risk of peritoneal tumor implantation during surgery. However, most evidences in this setting come from retrospective analysis or small case series and in many studies



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chemotherapy or chemoradiation therapies used were suboptimal. Currently, prospective randomized trials using the most active chemotherapy regimens available are trying to define the real benefit of neoadjuvant strategies compared to conventional adjuvant strategies.