J Gastrointest Surg (2014) 18:182–183
DOI 10.1007/s11605-013-2395-y

SSAT CONTROVERSY IN GI SURGERY DEBATE

Operative Resection is Currently Overutilized for Cystic Lesions of the Pancreas

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Received: 21 August 2013 / Accepted: 15 October 2013 / Published online: 29 October 2013

If I trip and fall on the sidewalk today, and present to the local Emergency Department, I will likely receive a high-quality, contrast enhanced, CT scan of my abdomen (probably with 3-D reconstruction!). This scan, obtained for other reasons, will have a 2.5–5.0 % chance of showing a cystic lesion in my pancreas.[1] Dr. Schmidt will propose today, regardless of the features of this cyst, that I should undergo a pancreatectomy to have it removed. As more and more patients are identified with very small, asymptomatic cysts, we feel that routine resection is no longer justified and that a large group of patients can be identified in which the risk of malignancy is less than the risk of mortality from operative resection (2 % in large centers). In this group of patients, radiographic surveillance is warranted.

A "cystic lesion of the pancreas" is a radiographic finding that has a very broad histologic differential. This differential spans the neoplastic spectrum from completely benign (pseudocyst, serous cystadenoma, acinar cystadenoma), to premalignant (intraductal papillary mucinous neoplasm (IPMN), mucinous cystic neoplasm (MCN)), to frankly invasive cancer (invasive IPMN, adenocarcinoma with cystic degeneration, cystic endocrine). Our current difficulty in managing these patients arises from our inability to reliably determine the histologic diagnosis without resection. This inability to determine histopathologic diagnosis increases as the size of the lesion decreases. In addition, treatment recommendations are difficult as even in the small subset patients with cysts that are felt to be precancerous (IPMN and MCN) the timing and frequency of malignant progression is unknown. Therefore, in the elderly patient, the benefit to resection is unknown.

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Since 1995, we have enrolled patients evaluated for a pancreatic cyst (ICD-9 code 577.2) into a prospectively maintained pancreatic cyst registry. This registry now contains over 2,000 patients who have been followed radiographically, as well as those who have undergone resection. We recently published an update of 1,424 patients who had been evaluated between 1995 and 2010.[2] This report documented a dramatic increase in the annual number of patients evaluated at our institution for a pancreatic cyst (over 200 patients evaluated in 2009). During the time period of the study, the lesions were more likely to have been discovered incidentally (>2/3 incidental in 2009), to have been smaller in size (median size 1.6 cm in 2009), and less likely to harbor concerning features for malignancy such as a solid component (<10 % with solid component in 2009). Initial management of these lesions also evolved over the study period with fewer patients undergoing initial operative management (1995–2005, 43 % vs. 2005–2010, 33 %) and fewer benign lesions being resected (1995–2005, 34 % of resected lesions SCA vs. 2005–2010, 13 %). Patients with high-risk lesions (carcinoma or high-grade dysplasia) comprised 23 % of the lesions initially resected and approximately 2 % of those initially selected for observation. Thus, the risk of malignancy in those patients who were initially selected for radiographic surveillance approximated the risk of death from resection. Another interesting finding from this study was that the 5-year risk of death from pancreatic cancer in those initially selected for observation was approximately 2.5 %. The 5-year risk of death from other causes in those initially selected for observation was over 20 %. This suggests that patients selected for observation have greater medical concerns than the small cyst in their pancreas.

In some patients, a histopathologic diagnosis can be presumed based on radiographic and endoscopic (cyst fluid) findings. When diagnostic evaluation identifies a patient with a serous cystadenoma, resection should be reserved for the

symptomatic patient, or in a healthy patient in whom significant growth has been observed. When cross-sectional imaging and endoscopic studies are characteristic of main duct IPMN, and/or when there are any concerning radiographic features such as a solid component, septations, or size >3 cm, our standard approach is to perform resection.[3] These guidelines have been widely adopted and are now published as a consensus statement.[4]

For the majority of patients, however, a nonoperative histologic diagnosis cannot be made, and in this setting treatment recommendations must be based primarily on radiographic characteristics. Our current approach for the patient with an incidentally discovered cyst of the pancreas that is <2.5–3.0 cm in diameter is to obtain high-quality pancreatic imaging. This is most often performed with a triphasic multidetector CT with 2-mm cuts through the pancreas. MRCP may also be performed. This imaging is then reviewed at a multidisciplinary conference attended by surgeons, gastroenterologists, and radiologists who are dedicated to the treatment of pancreatic disease. Attention is paid to both the cyst characteristics, as well as to the characteristics of the adjacent pancreatic parenchyma. The presence of a solid component or mural nodularity within the cyst, or any evidence of a mass adjacent to the cyst, is viewed as suspicious and will generally result in additional testing (endoscopy/EUS) or resection. Patients with incidentally discovered cysts <2.5–3.0 cm in size, without solid component, and without pancreatic ductal dilation are most often followed radiographically. Radiographic imaging is typically performed every 6 months for 2 years, and then annually thereafter.

A majority of institutions are now reporting a selective approach to resection in patients with cystic lesions of the pancreas. Routine resection of all pancreatic cysts is currently impractical, and given the large numbers of patients being identified with <2-cm lesions, this approach would result in a mortality rate that is much higher than the rate of malignancy. Most studies that have advocated a selective approach have reported the radiographic characteristics of a solid component, cyst size, and symptoms to be associated with treatment recommendations. We feel that radiographic follow-up is warranted in any patient where the presumed risk of malignancy is less than the risk of mortality from resection (no solid component, <3 cm, asymptomatic). The majority of patients with incidentally discovered cysts, <3 cm in diameter, and without a solid component can be safely followed radiographically. The current challenges are to improve the sensitivity and specificity for the identification of mucinous subtype, to better characterize the progression of IPMN and mucinous cystic tumors, and to develop better methods for identifying the presence of in situ or invasive disease in these patients.

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