

# Spleen Preservation in Laparoscopic Distal Pancreatectomy for Solitary Pseudopapillary Tumors Is Oncologic Safe

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Pancreatic solid pseudopapillary neoplasm (SPN) is a rare tumor that is mostly benign, but a surgical resection is recommended. Pancreatic SPN has a relatively well-demarcated margin and lymph node metastases are rare. The prognosis of pancreatic SPN is relatively good. Therefore, minimally invasive surgery (MIS) is often available. When a distal pancreatectomy is performed for SPN located at the pancreatic body or tail, it is believed to preserve the spleen. MIS with preservation of spleen not only helps the patient recover after surgery, but also does not worsen the oncology results compared to open surgery with or without a splenectomy. Recently, robotic surgery has expanded gradually. Therefore, it is expected that MIS with spleen preservation will become more common for pancreatic SPN.

**Keywords:** Pancreatic neoplasm, Laparoscopy, Pancreatectomy, Spleen, Organ preservation

Received February 19, 2019

Accepted March 5, 2019

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A solid pseudopapillary neoplasm (SPN) is relatively rare in pancreatic tumors and has been reported in approximately 1~2% of pancreatic tumor cases.<sup>1,2</sup> Most cases have a benign nature, but approximately 9~15% are malignant with local invasion or metastasis.<sup>3,4</sup> Therefore, surgical resection is recommended if possible if a pancreatic tumor is suspected or diagnosed as SPN, and the prognosis is relative good after an appropriate resection of the primary lesion. Overall, the 5-year survival rate has been reported to be approximately 97%.<sup>5</sup> SPN is variable in size and may be as large as 10 cm. In most cases, however, direct adhesion to the adjacent tissues or organs is rare, except for malignancies with local invasion. Therefore, when performing a pancreatectomy with SPN, it is

generally more convenient to access than pancreatic cancer or pancreatitis surgery. If the distal pancreatectomy is considered in SPN, it is possible to perform minimally invasive surgery, including laparoscopic surgery, as well as conventional open surgery. In the treatment of intraperitoneal cancer, minimally invasive surgery, such as laparoscopic surgery, has been shown to be equivalent or superior to conventional open surgery in terms of the oncologic results.<sup>6</sup> Because of the advantages of minimally invasive surgery, it should be considered as a priority to decide the treatment for SPN. Compared to open surgery, it is necessary to confirm precisely the pre-operative metastasis because it is difficult to identify the complete intra-abdominal organs at the time of surgery for minimally in-

vasive surgery. According to a recent multicenter study, up to 29% of cases with metastatic disease have been reported in aggressive cases at the time of diagnosis.<sup>7</sup> Despite the metastasis of malignant cases, lymph node metastasis is relatively rare, and spleen preservation in a pancreatectomy has been shown to reduce severe infections or complications after surgery compared to a resection, including splenic involvement.<sup>8</sup> Therefore, it is best to preserve the spleen as much as possible if there is no difference in oncologic safety. These authors successfully performed a splenic resection and splenic preservation in both groups and reported excellent results. The technical problems can be overcome if experience is gained. Moreover, minimally invasive surgery and splenic preservation is strongly recommended in the initial treatment options for SPN. Recently, delicate surgery, including a pancreatectomy, has been another turning point with the introduction of robot surgery.<sup>9,10</sup> Surgeons can overcome much of the difficulty of laparoscopic pancreatectomy with or without preserving the spleen using a robot system, which would allow a complete resection of the tumor with a partial pancreas and complete preservation of the spleen with the vessels and adjacent normal tissues. This procedure would be expected to minimize the postoperative complications. In the future, this minimally invasive surgical procedure and preservation of the spleen or surrounding organs are expected to be expanded further in SPN treatments.

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