Laparoscopic Warshaw Procedure for Solid Pseudopapillary Neoplasms in Children

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Abstract

Background: Solid pseudopapillary neoplasms (SPNs) arising in the body or tail of the pancreas can be amenable to laparoscopic distal pancreatectomy. The purpose of this study was to evaluate success of laparoscopic distal pancreatectomy for SPN using the Warshaw technique to preserve spleens in children.

Methods: We reviewed our database of SPN patients 19 years and younger (January 2006—December 2023). Five had a laparoscopic Warshaw procedure. Using the volumetric analysis tool in Sectra, a pediatric radiologist calculated pre- and post-operative pancreas, spleen, and tumor volumes on computed tomography. Descriptive statistics were performed.

Results (Table): All spleens were salvaged, although small infarcts occurred centrally in 4 patients. Splenic volumes immediately after Warshaw averaged 94.6% of preoperative size. Splenic volumes were preserved over time, as the most recent scans averaged 106.8% of the immediate postoperative spleen volume. Collateral flow through the vasa brevia increased in all patients. Median tumor volume was 85.2 mL, and all SPNs were resected with negative margins. No relapse occurred (median follow up: 266 days). Median estimated blood loss was 100 mL, median length of procedure was 4.9 hours, and median inpatient length of stay was 3 days. A multimodal pain regimen, including preoperative TAP blocks, non-opioid, and opioid medications, resulted in a median 81 Morphine Milligram Equivalents (MMEs) administered during the hospital stay with 90 MMEs prescribed at discharge.

Conclusion: Laparoscopic Warshaw for SPN in children appears highly effective in preserving splenic volume without compromising oncologic fidelity or consuming excess inpatient resources.