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A Systematic Review of Solid Pseudopapillary Neoplasms: An Update Since 2012

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**Introduction:** Solid-pseudopapillary neoplasms (SPNs) were first described by Frantz in 1959 and defined by the World Health Organization in 1998. SPNs are rare cystic tumors of the pancreas which usually present as large, solitary, well-circumscribed lesions. While the majority of patients have localized disease, there has been a reported incidence of malignant transformation of 9.15%. An initial literature review identified 718 cases of SPN that had been reported in the English language up to 2003. A follow-up systematic review was then performed which identified 2,744 cases of SPN published in the English literature up to 2012. The aim of this study was to determine if there had been any change in the number of SPN cases detected and their evaluation or management over time since 2012.

**Methods:** A systematic review of SPNs was performed in articles published in English in PubMed and SCOPUS. Predetermined search strings that included the terms ‘pancreas’ and ‘pseudopapillary’ were used. A review of the bibliography of all studies was performed as part of the systematic review.

**Results:** 1,170 patients with SPN were identified in 49 studies published between September 19, 2012 (end date of the previous systematic review) to May 1, 2017. 1,103 (94.3%) patients were female and the mean age was 33 years (S.D. ± 10.7). The most common symptom was abdominal pain in 52.7% with incidental detection in 28.1%. There were 1,114 patients who underwent pancreatic resection. The mean tumor size was 8 cm (S.D. ± 3.7). Follow up was reported for 870 patients, with mean follow-up of 4.7 months (S.D. ± 4.8). Disease-free survival was documented in 1,069 (91.4%) patients with recurrence in 101 (8.6%). The mean time to recurrence was 35.1 months (S.D. ± 30.7). Chemotherapy for treatment of recurrence was administered in seven cases, while transarterial chemoembolization (TACE) was used to treat liver metastases in two cases.

**Conclusion:** The number of SPNs reported in the literature has increased by just over 40% in nearly five years. These tumors continue to be found primarily in young women and are frequently found with nonspecific symptoms, such as abdominal pain, or are found incidentally. Surgery remains the mainstay of treatment with an excellent long-term prognosis.

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ERCP Is Associated With Greater Morbidity and Mortality When Compared to Laparoscopic Cholecystectomy

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**Introduction:** Endoscopic Retrograde Cholangiopancreatography (ERCP) is performed to treat biliary disease and is an adjunct to laparoscopic cholecystectomy (LC). It is well established that ERCP is associated with risk of pancreatitis, perforation, and bleeding, but because it is an endoscopic procedure, can be labeled as “low risk.” We compared morbidity and mortality in patients undergoing ERCP vs LC to better understand the risks of performing ERCP.

**Methods:** Using ICD-9 procedure codes from the 2001-2010 National Hospital Discharge Survey, we identified patients who underwent ERCP, LC, or both ERCP and LC. The three groups were compared on demographics, comorbidities, hospital length of stay (LOS), and disposition. The Mann-Whitney Test, chi-square analysis, and multivariable logistic regression were conducted with IBM SPSS Statistics 23.0.

**Results:** Among 26,614 patients, 23,313 underwent LC, 2,395 underwent ERCP, and 786 underwent both procedures. ERCP had a higher risk of in-hospital mortality rate (3.7% vs 0.5%; P < 0.001) compared to the other two groups combined. ERCP was also an independent predictor of mortality when controlling for age, COPD, type II diabetes, cirrhosis, and coronary artery disease (OR = 5.02, 95% CI = 3.78 to 6.68). The ERCP group had a longer LOS (8.1 days) compared to LC (4.24 days; P < 0.001) and ERCP-LC (6.3 days; P < 0.001), with 74% in the ERCP group with a LOS of 4 or more days compared to 48% in the other two groups combined (P = 0.001). ERCP had more patients discharged to a skilled nursing facility or long term care facility (SNF/LTAC) compared to the other two groups combined (12.7% vs 4.5%; P < 0.001) which was significant when controlling for other comorbidities. Within the ERCP group having zero or even up to three comorbidities (COPD, DM, cirrhosis, and CAD) did not affect morbidity or mortality.

**Conclusion:** We found that ERCP increases the risk for morbidity and in-hospital mortality when compared to an invasive procedure, laparoscopic cholecystectomy. Gastroenterologists are often asked to perform ERCP in a patient who is “too sick” to undergo surgery, especially when the suspicion for biliary obstruction is equivocal. Although the ERCP group did seem to have more comorbidities, a subgroup analysis did not show that this affected outcome, and rather ERCP itself was an independent predictor for morbidity and mortality. ERCP is not a lower risk procedure than LC and careful consideration and perioperative risk should be considered.