

# **Progression of Small Intraductal Papillary Mucinous Neoplasms and Undefined Cysts of the Pancreas: A Systematic Review and Meta-Analysis**

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## **Abstract**

As imaging techniques have improved, cystic lesions of the pancreas have been detected at smaller sizes and earlier stages. However, the clinical significance and optimal management of small cysts (<1 cm in diameter) remains a topic of debate. We performed a systematic review and meta-analysis to evaluate the growth and progression characteristics of small (<1 cm in diameter) cystic lesions of the pancreas.

We followed Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The review question was, “In patients with small (<1 cm) IPMN and undefined cysts of the pancreas, what is the risk of progression to invasive disease?” Literature searches were performed on November 14, 2022 by a health sciences librarian. Two independent reviewers used a two-stage sifting approach to identify relevant citations. In the initial stage, the titles and abstracts were independently screened for relevance. Following the first stage, the full text of the citation was retrieved and thoroughly screened to assess for inclusion in this study. Non-English citations, published abstracts, and conference proceedings were excluded at the title and abstract review stage. Studies describing small IPMNs and other cystic lesions of the pancreas measuring < 1 cm were included in the study.

22 studies met inclusion criteria for this systematic review (Figure 1). The study period ranged from 1988 to 2019 and included a total of 10,270 patients. Cystic lesions < 1 cm were reported in 2,790 patients. No studies reported initial mean size of lesions <1 cm. Seven studies reported data regarding change in size. 22 of 118 cysts (18.6%) increased in

size during surveillance. 78 of 118 cysts (66.1%) exhibited no change in size. 40 cysts shrank or disappeared during follow-up. One study reported 222 of 388

(57.2%) cysts <1 cm remained <1 cm in diameter after 5 years of follow up. Five studies reported data regarding the development of worrisome features. 68 of 1197 lesions (5.7%) developed worrisome features or high-risk stigmata during follow-up.

While a significant minority of lesions exhibit growth and development of worrisome features (5.7%), the majority of these small cysts remain small throughout surveillance. These data provide support for current regimens of surveillance as advocated by major society guidelines.