# The Natural History of Pancreatic Cystic Lesions in Liver Transplant Recipients: A Systematic Review and Meta-Analysis

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## Introduction

Pancreatic cystic lesions (PCLs) exhibit a wide array of clinicopathologic behavior. As such, risk stratifying these is important to prevent the progression to malignancy. Theoretically PCLs in liver transplant (LT) recipients are at increased risk of accelerated carcinogenesis in the setting of lifelong immunosuppressive medications. With improvements in surgical outcomes, LT patients are living longer and understanding the incidence and natural course of these lesions is paramount.

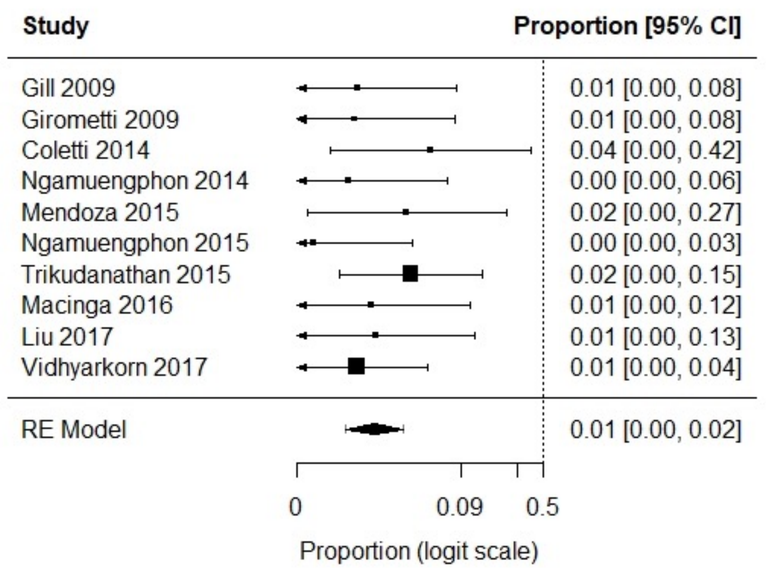
## AIM

To investigate the risk of malignant progression and outcomes of PCLs in LT recipients.

## METHODS

- Multiple databases were searched (PubMed, Embase and Web of Science) to identify studies that used ECS for GC detection from inception until November 2021.
- Primary outcomes incidence of PCLs in LT and progression to malignancy
- Secondary outcomes included those undergoing surgical resection for progression and change in size over time

**Figure 1**: Individual estimates and pooled proportions of progression of pancreatic cystic lesions to malignancy in post liver transplant patients




## RESULTS

- 12 studies met inclusion criteria (17,862 patients with 1411 PCLs)
- The pooled proportion of new PCL development in post-LT patients was 68% (95% CI, 42 – 86, $I^2$ 94%) over a follow up of 3.7 ± 1.5 years.
- The relative risk of developing PCL in LT recipients compared to non-LT recipients was associated with a significant 67% reduction (RR 0.33; 95% CI, 0.14 – 0.79, $I^2$ 93.91, p = 0.01).
- Among 4158 patients receiving LT, 295 developed PCL and 4 of them progressed to malignancy; the pooled progression to malignancy was 1% (95% CI, 0 – 2, I2 0%) (Figure 1).
- LT was associated with a significant 71% reduction in relative risk of undergoing surgical resection (RR 0.29; 95% CI, 0.09 - 0.93, I2 0%, p = 0.04).

## CONCLUSION

Compared to non-transplant patients, incidental PCLs in LT patients do not carry a higher risk of malignant transformation. In the setting of immunosuppressive medication, the risk of malignant progression appears to be negligible, and these patients can be followed like non-LT patients based on guidelines. Furthermore, our findings emphasize that incidental PCLs should not preclude a LT evaluation.