

Transjugular Intrahepatic Portosystemic Shunting in the Management of Hepatic Hydrothorax

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Introduction

- Hepatic hydrothorax (HH):** Pleural effusion as complication of cirrhosis.
 - 5-15% of cirrhotics, >90% are Child-Pugh B/C.
- Pathogenesis:** Unclear, thought to be ascites leaking from diaphragmatic defects.
- Presentation:** Cirrhosis stigmata with dyspnea, cough, pleuritic chest pain, fatigue, transudative pleural effusion.
- Diagnosis:** Clinical suspicion. Cirrhosis + pleural effusion + exclusion of other causes (pleural fluid analysis).
 - Alternative causes: CHF, pulmonary hypertension, pneumonia, metastatic or primary lung cancer.
- Additional testing (optional):** Echocardiography, scintigraphy.
 - 20% have alternative identifiable cause.
- Management:** Sodium restriction, diuretics, serial thoracenteses, TIPS, transplant, pleurodesis, diaphragmatic repair.
- Prognosis: Poor.**
 - 25% are refractory to standard treatments.
 - Mean time from presentation to death 1 year overall, 2.3 years with TIPS.

Background

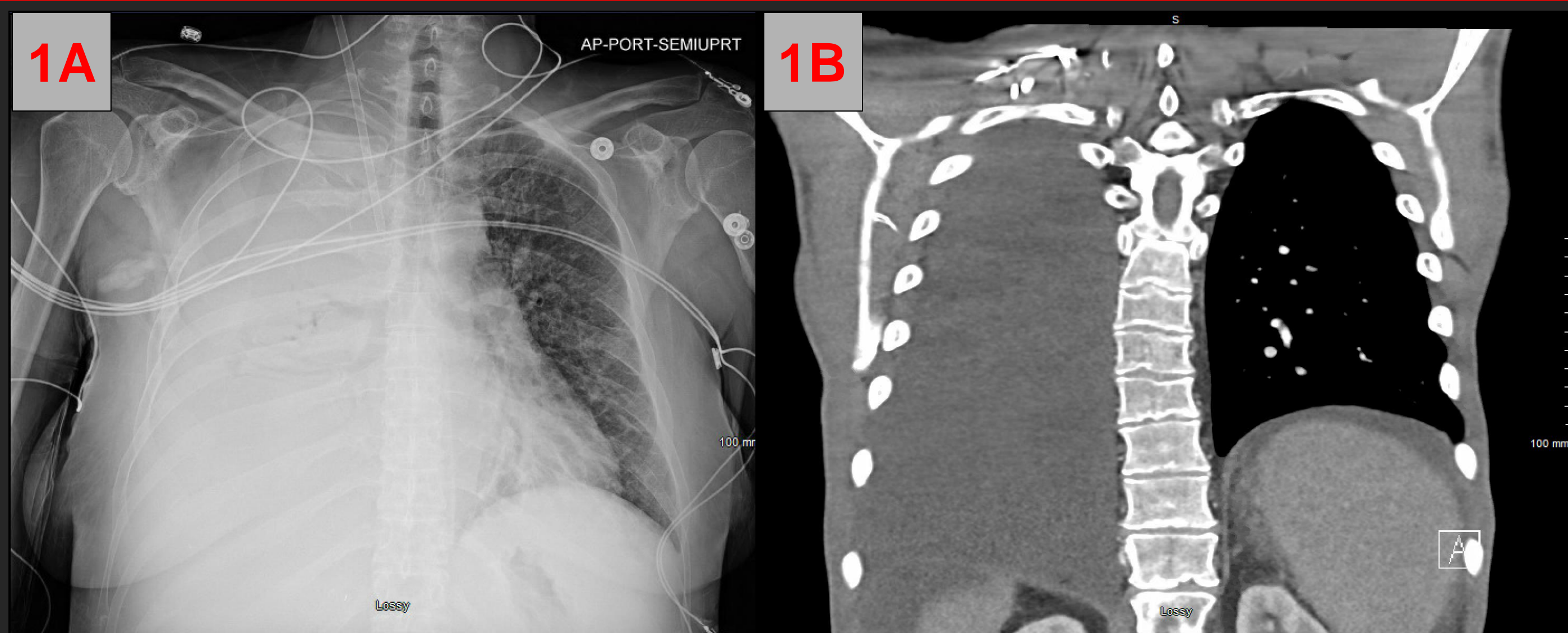


Figure 1 (above): Chest X-ray (1A) and computerized tomography (1B) images demonstrating a large right-sided pleural effusion in a patient diagnosed with HH.

Figure 2 (right): Schematic diagram of HH pathophysiology and nuclear medicine studies to diagnose HH. 99mTc macro aggregated albumin is instilled intraperitoneally with 250-1000 mL normal saline, then gamma camera images are taken.

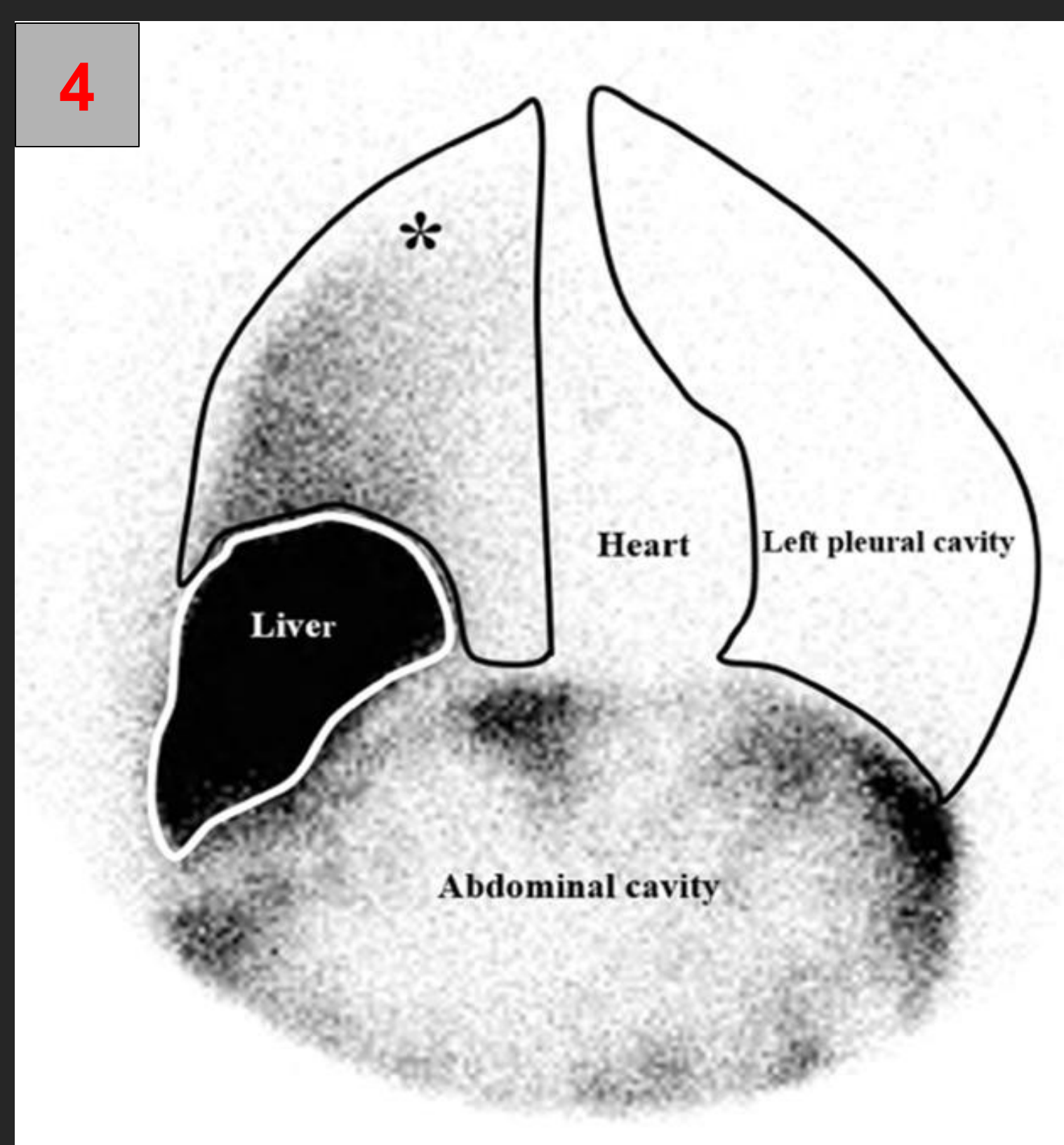
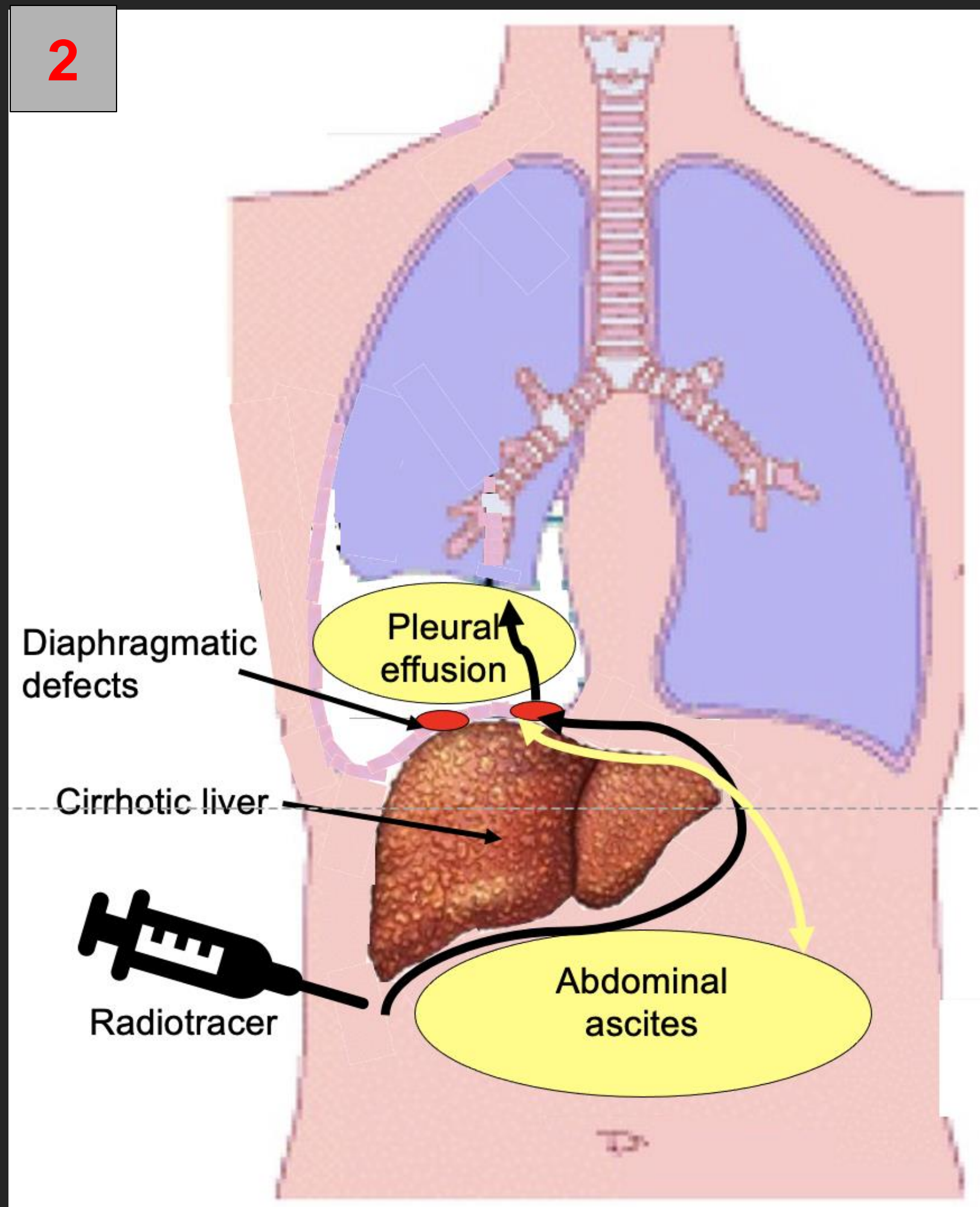


Figure 3 (left): Scintigraphy demonstrating radiotracer in the pleural space (3A) 15 minutes after peritoneal administration (3B).
Figure 4 (above): Overlay of anatomy on scintigraphic image.

Results

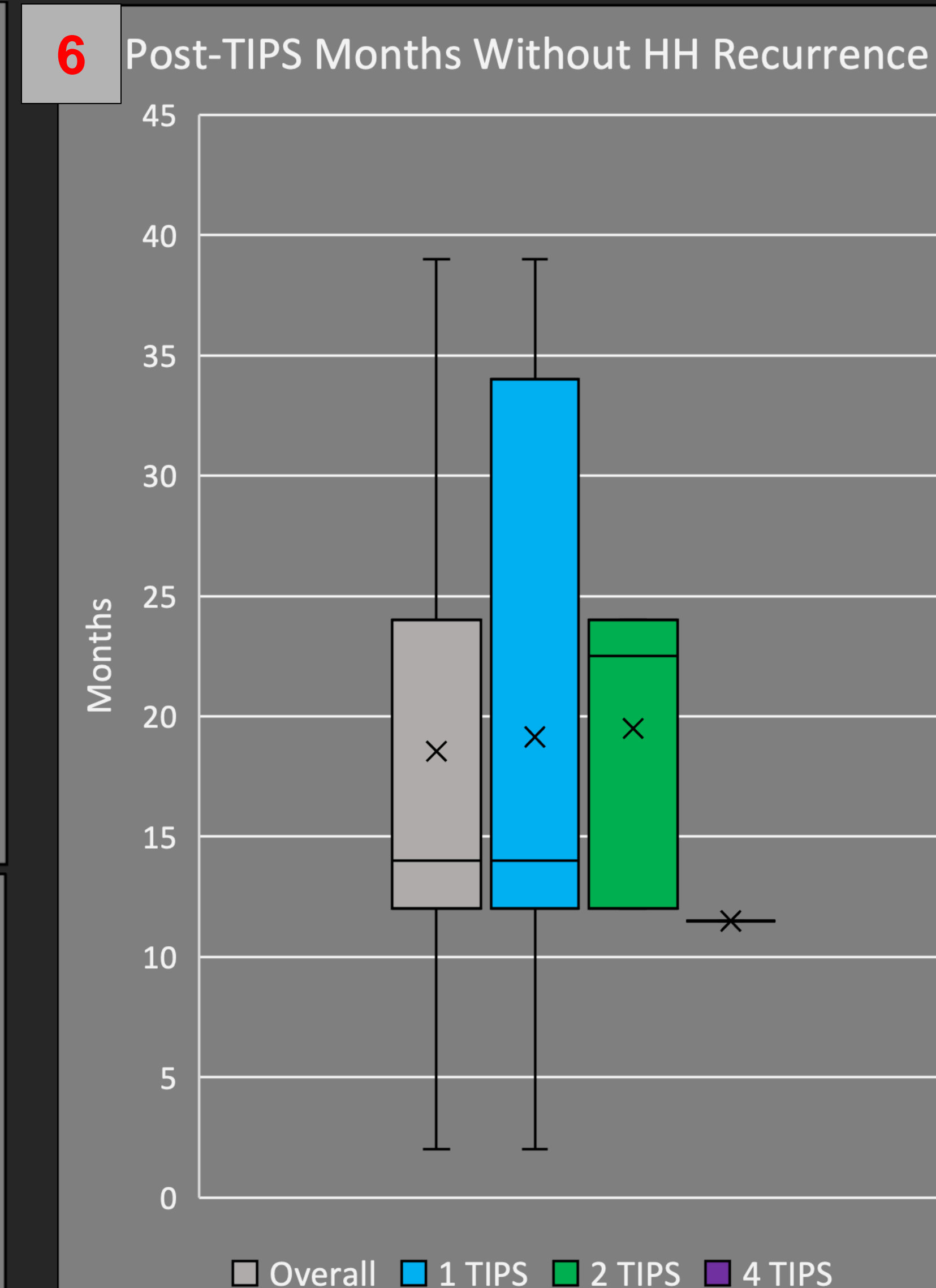
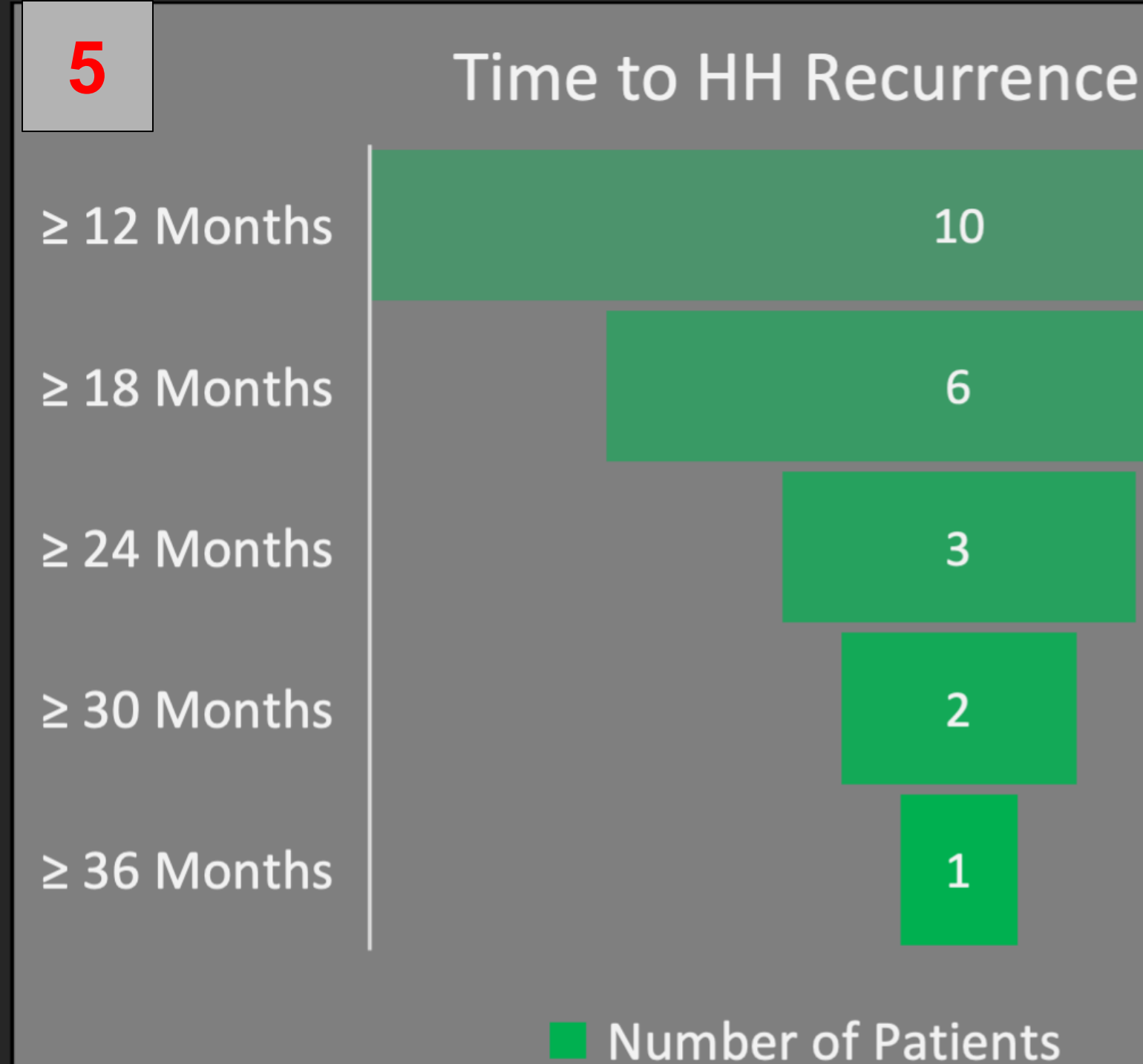


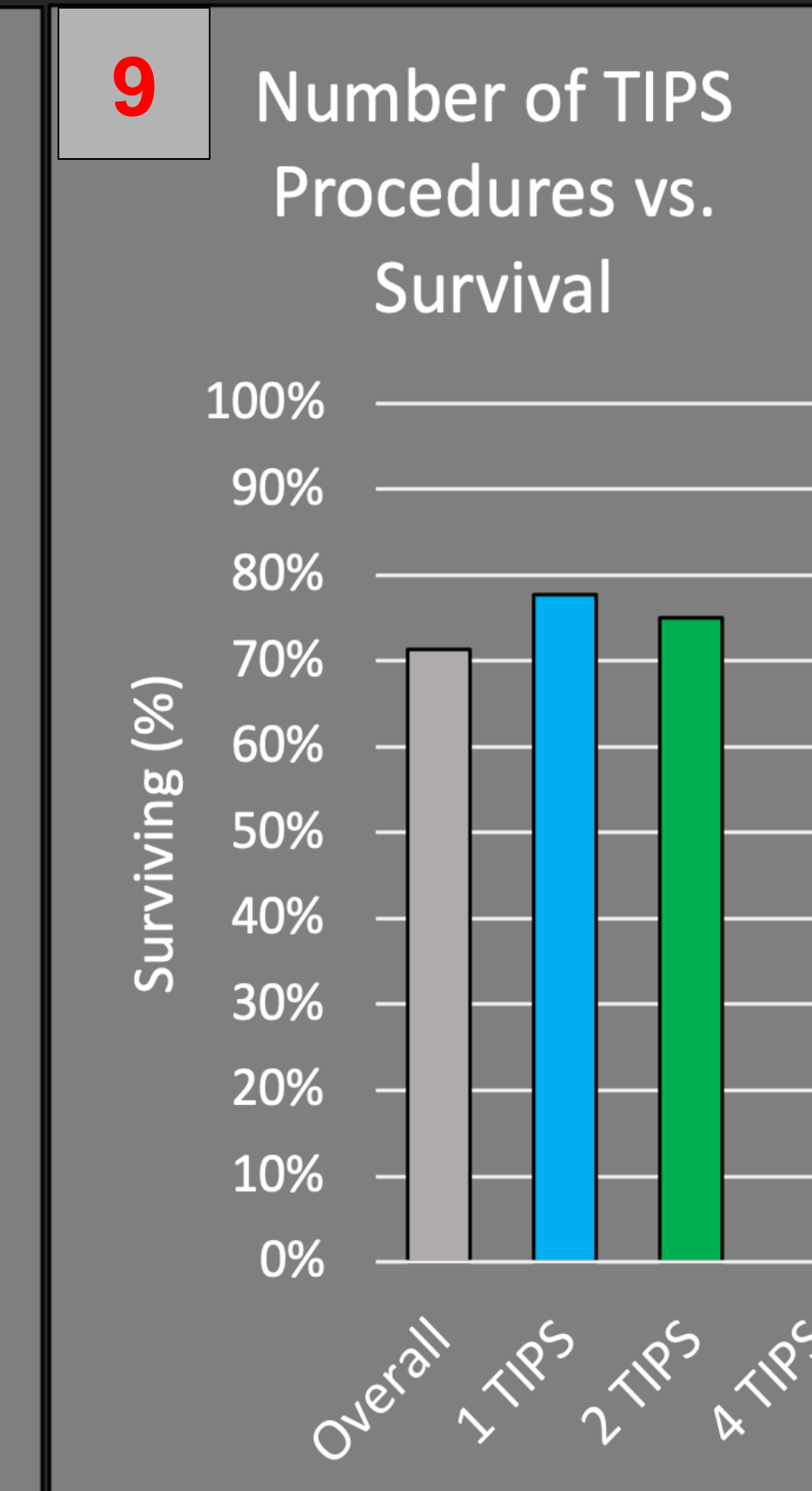
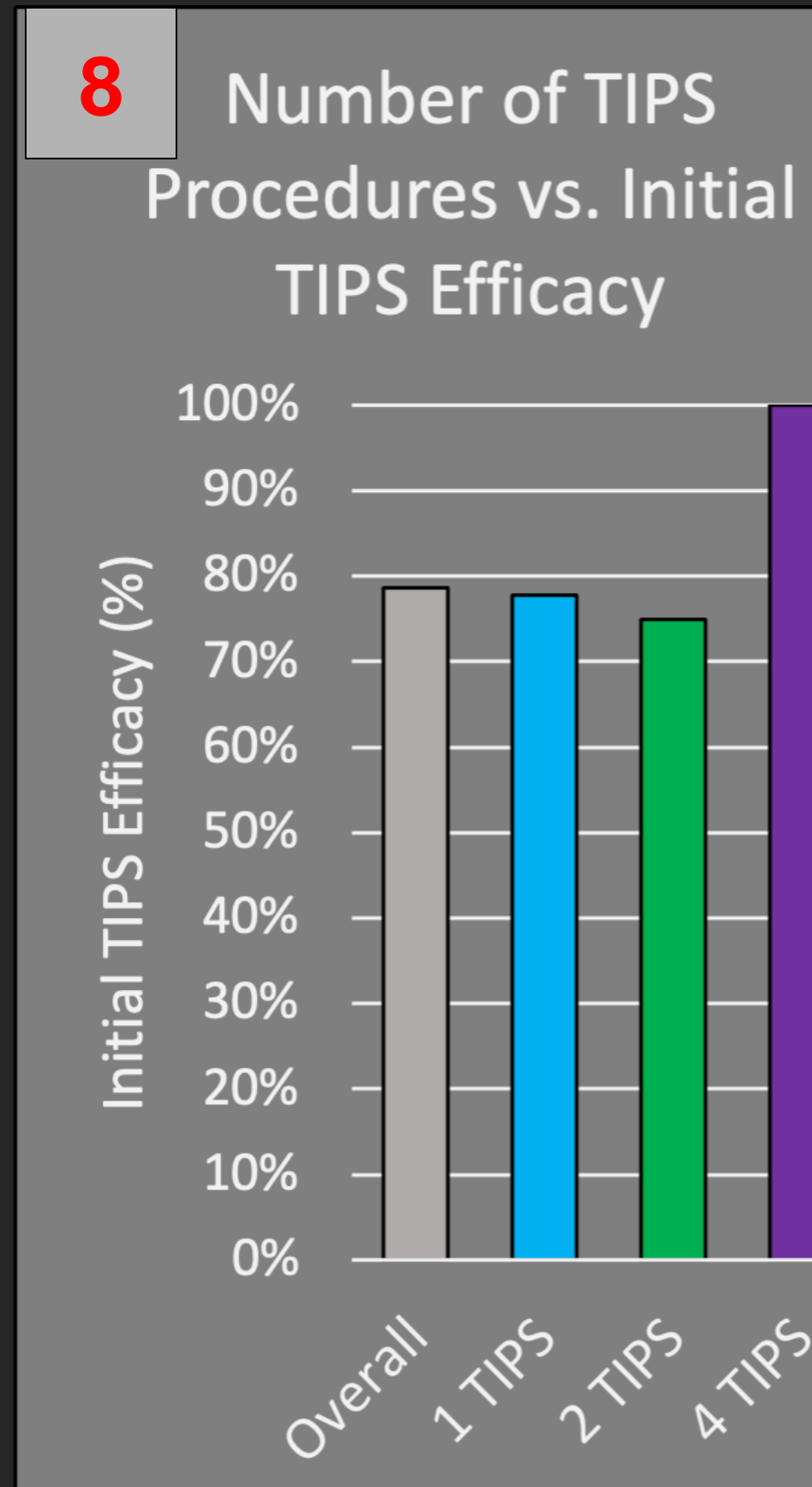
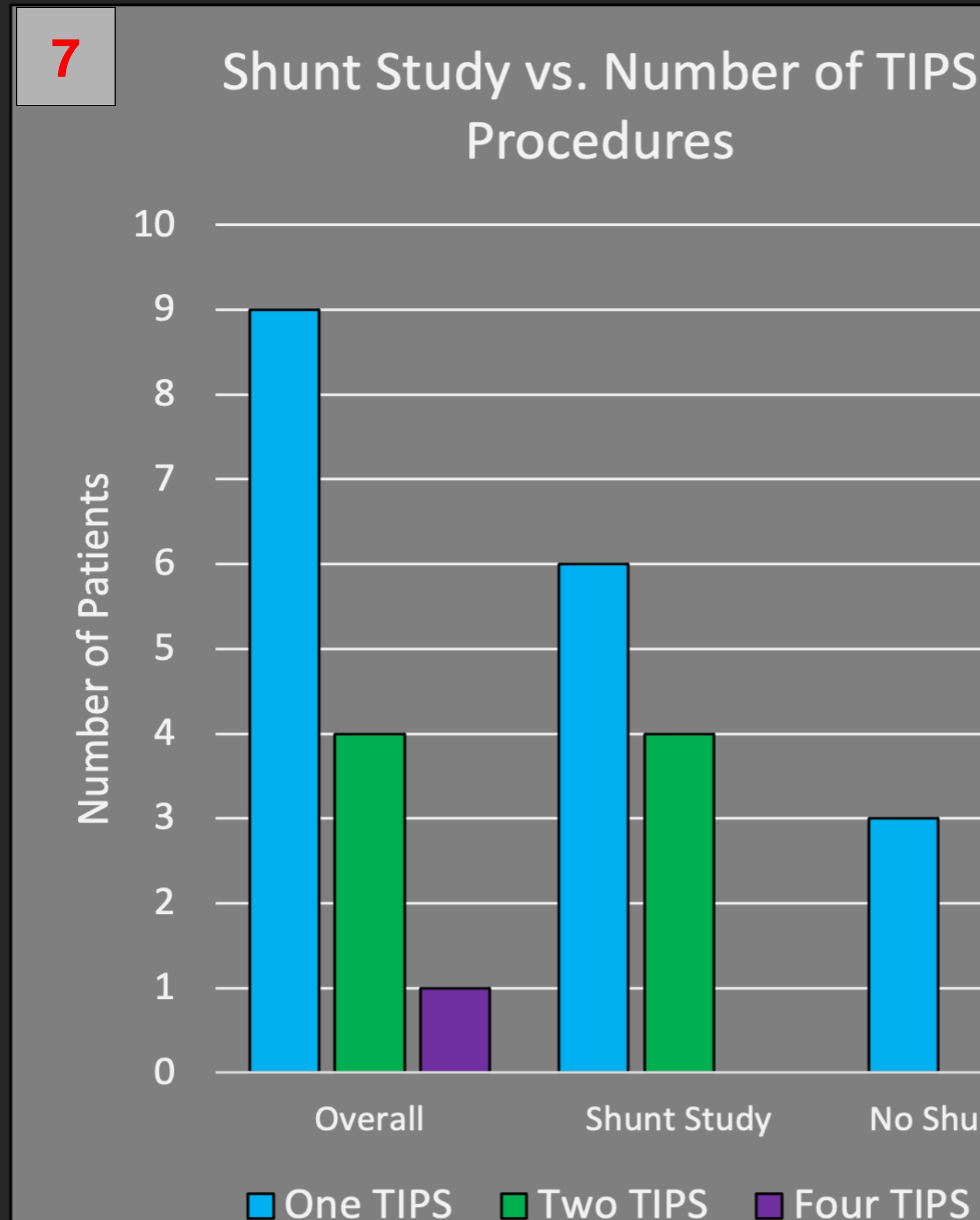
Figure 5: Overall time to HH recurrence post-TIPS for HH that resolved with initial TIPS.

Figure 6: Months until HH recurrence by number of TIPS revisions for HH that resolved with initial TIPS.

Figure 7: Relationship between whether shunt study was performed and number of TIPS revisions for all patients in this study.

Figure 8: Total number of TIPS revisions required and relationship to efficacy of the initial TIPS for all patients in this study.

Figure 9: Total number of TIPS revisions required and relationship to overall survival for all patients in this study.



Objective

- Investigate differences in patients who receive varying number of TIPS procedures.
- Measure long-term outcomes for these patients based on the number of TIPS procedures performed.

Methods

- An institutional review board-approved chart review at the University of Louisville from July 1, 2017 to June 30, 2022 revealed 68 patients with hepatic cirrhosis and pleural effusion that did not otherwise meet exclusion criteria with 14 receiving shunt studies and were included in this study.
- Charts were searched for TIPS procedures, TIPS revisions, nuclear medicine peritoneopleural shunt studies, HH recurrence, long-term complications, and survival.
- Patients whom TIPS was not initially effective were not used to calculate time to HH recurrence.

Conclusions

- TIPS and TIPS revisions are efficacious treatments for HH
- TIPS procedures may need to be repeated to provide morbidity and mortality benefits for patients

Future Directions

- Does the performance of a shunt study improve outcomes?
- Does the performance of a shunt study affect TIPS utilization?

References

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