Transfusion-Free Laparoscopic Pancreatectomy Utilizing ICG Fluorescence in Jehovah's Witness Patients

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Introduction

Background: Despite improvements in surgical technique and preoperative preparation, patients undergoing pancreatectomy often require blood transfusion. Jehovah's Witness patients' refusal of blood transfusion places the surgeon in an ethical and moral dilemma during intra- and perioperative care of these patients. Although bloodless surgery protocols have been implemented, minimizing bleeding risk is the most effective modality.

Objective: To assess the feasibility of continuous ICG infusion to minimize blood loss during laparoscopic pancreatic surgery at a tertiary referral center.

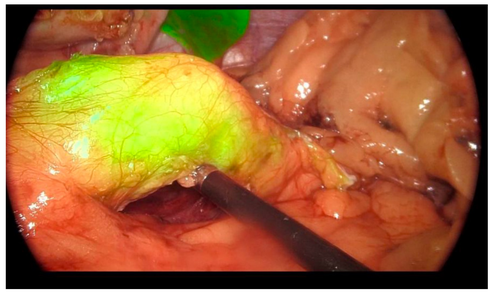
Methods

Setting: We retrospectively analyzed outcomes of 6 Jehovah's Witness patients who underwent laparoscopic distal pancreatectomy and splenectomy for diagnoses of pancreatic neuroendocrine tumor (PNET, n=2), intraductal papillary mucinous neoplasm with high-grade dysplasia (IPMN, n=3), and mucinous cystic neoplasm (MCN) (n=1).

Technique: After mobilization of the stomach from the spleen, continuous ICG infusion was started at a rate of 0.5 mg/min. Pancreatic dissection was started after visualization of ICG fluorescence signal within the pancreatic parenchyma.

Intraoperative Technique

Continuous low dose ICG infusion facilitates the visualization of the pancreatic parenchyma and small blood vessels without interference from intrabdominal adipose tissue.



Parenchymal fluorescence persists after discontinuation of the infusion.

Results

Technical Factors:

- Mean operative time = 107 (75-150) minutes
- Time to vascular visualization = 1 minutes
- Time to parenchymal visualization = 5 minutes
- Mean blood loss = 30 (10-80) mL

Patient Outcomes:

- No patients required conversion to open
- No perioperative mortality

Summary of Findings

Continuous low-dose ICG infusion improves the precision of dissection and prevents violation of surgical planes and tissues during laparoscopic distal pancreatectomy and splenectomy, and in our experience has been instrumental in achieving minimal blood loss.

Continuous ICG infusion should be considered as an adjunct during laparoscopic pancreatectomy especially in patients refusing blood transfusion.

References

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