DEVELOPMENT OF ASCENDING CHOLANGITIS FOLLOWING PROLONGED COURSE OF TPN: A CASE REPORT

Allison Howell, DO, MS; Janet Lavrich, DO; David Jones, MD | Sky Ridge General Surgery Residency

BACKGROUND

Total parenteral nutrition (TPN) is a critical intervention for patients with severe malnutrition or gastrointestinal dysfunction, but it can cause significant complications with prolonged use, including hepatobiliary dysfunction and cholestasis.[1] These complications may progress to life-threatening conditions such as cholangitis. The management of cholangitis, especially in patients with prior Roux-en-Y gastric bypass surgery, poses a unique challenge as traditional diagnostic and therapeutic methods including endoscopic retrograde cholangiopancreatography (ERCP) may be infeasible.[2]

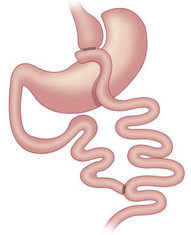
There is limited evidence of complications arising from transitioning from TPN to enteral nutrition. We present a patient who developed acute cholangitis during the transition from TPN to enteral feeds postoperatively, which was managed successfully with percutaneous transhepatic catheter (PTC) placement.

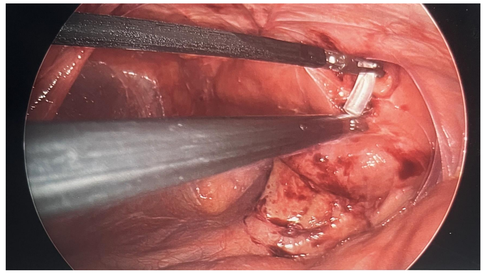
CASE PRESENTATION

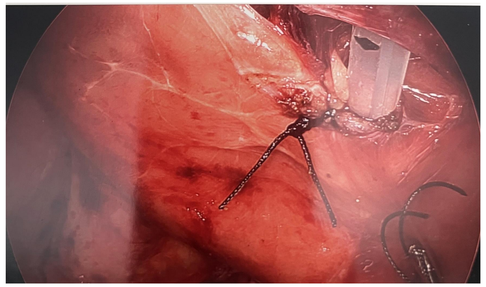
A 66-year-old female with a complex history of multiple abdominal surgeries, including laparoscopic cholecystectomy, small bowel obstruction, and Roux-en-Y gastric bypass with additional revision, was admitted for post-operative care following elective gastrostomy tube placement for gastroparesis.

This patient had been on prolonged TPN for 1.5 years without any oral nutrition supplementation. On postoperative day 5, this patient developed all the cardinal symptoms of Reynolds Pentad (right upper quadrant pain, fever, jaundice, hypotension, and altered mental status) that required ICU admission.[3] CT imaging revealed dilated intra- and extrahepatic bile ducts with choledocholithiasis, all of which were concerning for cholangitis.

Given her bypass history, ERCP was not feasible, and interventional radiology performed PTC placement for internal and external biliary drainage. In addition to her current gastrostomy tube, she did require placement of a jejunostomy tube for nutrition. The patient's condition improved post-procedure and she was discharged home with a plan for prolonged antibiotics. The PTC tube was exchanged 4 weeks later following percutaneous biliary stone extraction.







- **Image 1**: Schematic representation of Roux-en-Y gastric bypass[4]
- **Image 2:** Intraoperative image of patient's laparoscopic J-tube placement
- **Image 3:** Close view of approximated J-tube

DISCUSSION

Prolonged TPN use is associated with hepatobiliary dysfunction including cholelithiasis and cholangitis.[5] The etiology of TPN-induced cholestasis is complex and multifactorial, involving the absence of normal enteral nutrition signaling, direct toxicity from TPN components, and the underlying disease necessitating TPN.[6]

While complications during the transition from TPN to enteral nutrition are rare, in this case reintroducing enteral feeds likely reactivated biliary function exacerbating the patient's pre-existing common bile duct obstruction and precipitating cholangitis.

Additionally, in patients with a Roux-en-Y gastric bypass, traditional ERCP is not feasible, which makes alternative methods like PTC placement necessary for biliary drainage.

CONCLUSION

This case highlights the challenges of transitioning from prolonged TPN to enteral nutrition, which can precipitate complications such as cholangitis in patients with underlying cholestasis or biliary obstruction. In cases where traditional ERCP is not feasible, particularly in patients with altered gastrointestinal anatomy, alternative approaches like PTC can effectively manage cholangitis. Careful monitoring during the weaning process from TPN to enteral feeds is essential to prevent complications and ensure successful recovery.

REFERENCES

1. Guglielmi FW, Boggio-Bertinet D, Federico A, et al. Total parenteral nutrition-related gastroenterological complications. *Digestive and Liver Disease*. 2006;38(9):623. doi: 10.1016/j.dld.2006.04.002.
2. Nguyen KD, Sundaram V, Ayoub WS. Atypical causes of cholestasis. *WJG*. 2014;20(28):9418. doi: 10.3748/wjg.v20.i28.9418.
3. Houshang A, Alizadeh M, Hospital T. Cholangitis: Diagnosis, treatment and prognosis. *Journal of Clinical and Translational Hepatology*. 2017;5(4):1. doi: 10.14218/jcth.2017.00028.
4. Cho YM. A gut feeling to cure diabetes: Potential mechanisms of diabetes remission after bariatric surgery. *Diabetes Metab J*. 2014;38(6). doi: 10.4093/dmj.2014.38.6.406.
5. Rangel SJ, Calkins CM, Cowles RA, et al. Parenteral nutrition–associated cholestasis: An american pediatric surgical association outcomes and clinical trials committee systematic review. *Journal of Pediatric Surgery*. 2012;47(1):225. doi: 10.1016/j.jpedsurg.2011.10.007.
6. Cahova M, Bratova M, Wohl P. Parenteral nutrition-associated liver disease: The role of the gut microbiota. *Nutrients*. 2017;9(9). doi: 10.3390/nu9090987.

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.