Journal of Liver: Disease & Transplantation

Opinion

A SCITECHNOL JOURNAL

A Coordinated Strategy to Treating Perihilar Cholangiocarcinoma with a Liver Transplant

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Introduction

Perihilar cholangiocarcinoma is a tiny tumour that can cause significant complications in patients. These tumours exist in the bile ducts coming out of the liver, which are very high-stakes real estate, according to a transplant surgeon at Mayo Clinic in Rochester, Minnesota. This area is crossed by an artery, a portal vein, and the bile duct. Even though these tumours are often tiny, they can impede important structures, making total removal challenging while maintaining appropriate blood supply to the liver and bile outflow [1].

Cholangiocarcinoma is divided into three types based on its location (intrahepatic, perihilar, and distal), with perihilar being the most prevalent. These tumours are frequently determined to be unresectable at the time of presentation. Initially, doctors tried an isolated liver transplant to boost the chances of achieving a full resection, but the procedure failed due to a high rate of disease recurrence [2]. It was noted that certain patients who received radiation therapy appeared to enjoy a longer period of disease-free survival, despite the fact that many of them eventually developed progressive liver damage as a result of the radiation.

Stringent Selection Drives Protocol Forward

The diagnostic criteria for this protocol at Mayo Clinic, according to a 2020 article published in the Journal of Gastrointestinal Surgery, necessitate the presence of a malignant-appearing stricture on cholangiography with at least one of the following:

- Cholangiocarcinoma confirmed or strongly suspected by endoscopic intraluminal brushings or tissue biopsy
- In the absence of acute bacterial cholangitis, a CA 19-9 level more than 100 U/ml
- Polysomy or a well-defined mass on cross-sectional imaging at the site of the malignant-appearing structure by fluorescence in situ hybridization.

Patients with metastatic disease, abdominal irradiation that precludes more radiation or a prior attempt at surgical resection are not eligible [3].

Patients get neoadjuvant chemoradiation therapy, which involves external beam therapy, high-dose brachytherapy, and oral capecitabine, after being selected as a candidate. To verify that the tumour has stayed localised to the bile duct, all patients undergo operational staging as close to the time of transplant as possible.

Although doctors still understand exactly what that window is, there is a sweet spot in the timing of transplantation after neoadjuvant therapy. If a patient obtains a transplant too soon, physiologically aggressive tumours may be ignored, increasing the patient's chance of recurrence after surgery. In addition, the treatment may cause continuing inflammation. However, if a patient waits too long for a transplant, the malignancy or underlying liver disease may advance, and the patient may experience therapy-related problems. As more patients are treated with this approach, doctors are learning more about this perfect timeframe [4].

Volume Empowers Positive Outcomes

This protocol is becoming more extensively utilised around the world, but it is a technically difficult procedure that necessitates a large team working together to achieve success. It's built exclusively for perihilar cholangiocarcinoma, and prior experience in the field makes a significant difference in outcomes. In fact, according to a study published in the Annals of Surgical Oncology in 2020 by a group at Henry Ford Medical Center, centres that had performed more than six liver transplants for perihilar cholangiocarcinoma had significantly better post-transplant outcomes than centres that had performed fewer of the same procedure [5].

The effectiveness of this procedure depends on early identification and awareness of transplantation as a therapy option. Because of its size and location, getting a good sample of this type of tumour might be difficult. Mayo Clinic physicians can help patients through the process and follow them until the diagnosis is confirmed, either through repeat endoscopic retrograde cholangiopancreatography or through a combination of imaging characteristics, biomarkers, fluorescent in-situ hybridization (FISH) on cytology, and clinical findings [6]. Before referring a patient to Mayo Clinic physicians, a clear tissue diagnosis is not required. A transperitoneal biopsy, which can distribute the tumour and make the patient ineligible for transplant, should be avoided throughout this process.

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Received: October 30, 2021 **Accepted:** November 15, 2021 **Published:** November 22, 2021

SciTechnol International Publisher of Science, Technology and Medicine

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