Case Report

Repeat curative liver resection for metachronous HCC in a non-cirrhotic liver: Precision surgery in a technically hostile terrain

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Abstract

Background: Hepatocellular carcinoma (HCC) in a non-cirrhotic liver is relatively uncommon, accounting for approximately 10–20% of cases. While primary resection is the standard of care, metachronous recurrence presents a significant surgical challenge due to dense adhesions and altered anatomy from previous major hepatic surgery.

Key words: Hepatocellular carcinoma (HCC); Curative hepatectomy; Non-cirrhotic liver

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1. Introduction

Recurrence of Hepato Cellular Carcinoma (HCC) after curative hepatectomy remains a significant clinical challenge. However, not all recurrences mandate transplantation. In carefully selected patients particularly those with preserved liver function and non-cirrhotic parenchyma repeat liver resection offers a definitive, organ-preserving, and oncologically sound strategy.

This case highlights the role of aggressive yet precise surgical re-intervention in achieving disease control while avoiding the morbidity and resource burden of transplantation.

2. Case presentation

A 57-year-old female, previously operated 3 years ago with an open right hepatectomy for HCC, presented on routine surveillance.

- No underlying viral etiology (HBV/HCV negative).
- No evidence of cirrhosis clinically or radiologically.
- Maintained good functional and nutritional status.

3. Follow-up imaging revealed

- Segment IV lesion ~5 × 5 cm.
- Segment II lesion ~2.5 × 2 cm, located in a technically demanding position—adjacent to the left portal structures and inferior to the left hepatic vein.
- PET evaluation showed no evidence of extrahepatic disease. FNAC from suspicious cervical lymph node suggested reactive pathology, ruling out systemic spread.

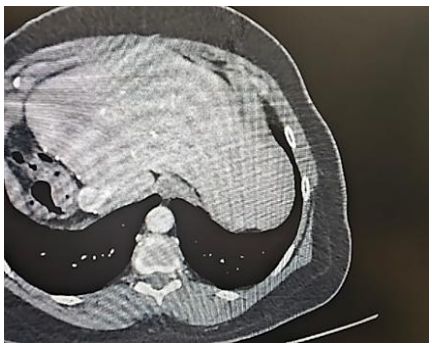

Fig (1): CECT Segment 4A Lesion

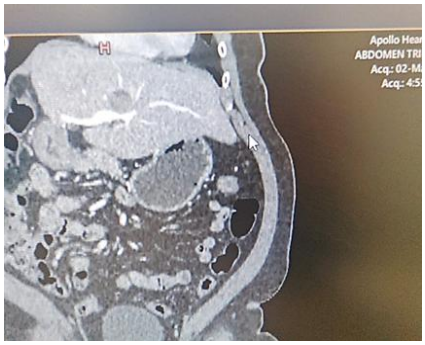

Fig (2): CECT Segment 2 Lesion on LPV

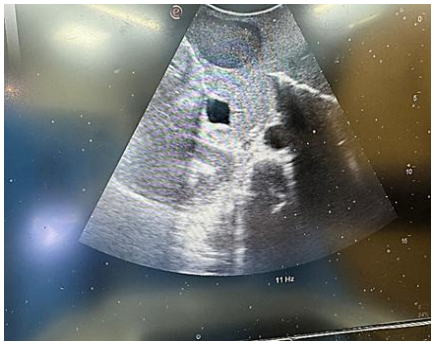

Fig (3): Intra-OP USG Segment 4A Lesion

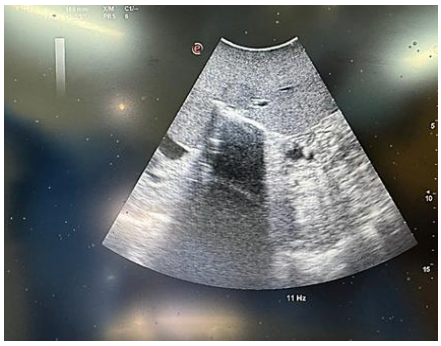

Fig (4): Intra-OP USG Segment 2 Lesion

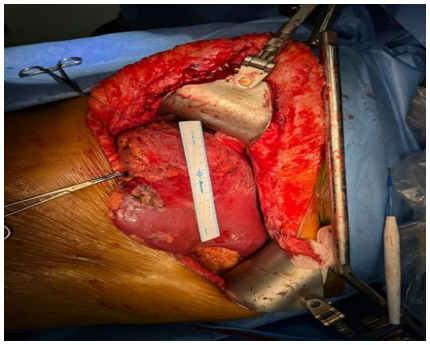

Fig (5): Post Right Hepatectomy – Hypertrophied Left Lobe

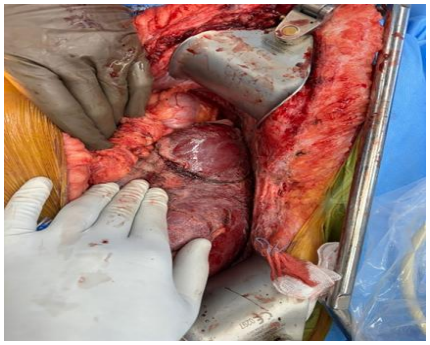

Fig (6): Segment 4A Lesion

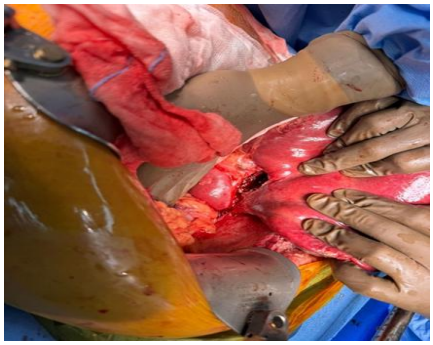

Fig (7): Segment 2 Lesion After Excision

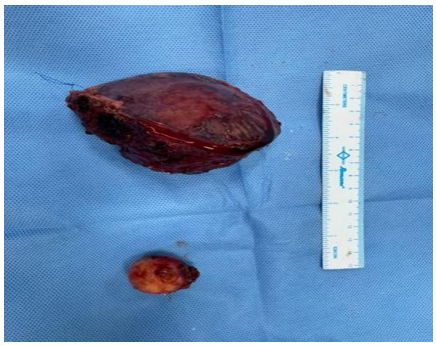

Fig (8): Segment 4A and Segment 2 Lesion – Post Excision

4. Clinical decision making

Why Surgery?

This was not a transplant case. The decision to proceed with resection was based on clear logic:

4. 1. Absence of Cirrhosis

- Adequate future liver reserve.
- Low risk of postoperative liver failure.
- Makes repeat resection safe and rational.

4. 2. Localized Disease

- Two intrahepatic lesions only.
- No vascular invasion.
- No extrahepatic spread.

4. 3. Transplant not justified

- No decompensation.
- No diffuse or multifocal disease beyond resectability.
- Avoids lifelong immunosuppression and its complications.

4. 4. Oncological principle: In non-cirrhotic liver, repeat resection provides survival outcomes comparable to primary resection, without transplant-related burden.

5. Operative strategy

Given prior major hepatectomy and altered anatomy, this was a technically high-risk preoperative field.

- Dense adhesions from previous surgery- needed careful adhesiolysis
- Detailed intraoperative anatomical reassessment performed.

- Non-anatomical (parenchyma-sparing) resections planned to preserve maximal liver volume.

6. Procedures performed

- Segmentectomy- Segment IV A tumour (~5 cm)
- Precision excision of Segment II lesion, located: just above left portal pedicle and below left hepatic vein

This required meticulous dissection in a vascularly crowded zone, with strict control of inflow/outflow.

7. Intraoperative highlights

- Excellent exposure despite prior surgery.
- No major vascular injury.
- Minimal blood loss.
- No need for vascular clamping or transfusion.

8. Post-Operative course

- Uneventful recovery.
- Liver function tests remained stable.
- Early mobilization and oral intake.
- Discharged on Post-operative Day 5.

Why surgery helped this patient

Achieved complete macroscopic disease clearance (R0 intent).

Preserved native liver—no need for transplant.

Avoided

- Immunosuppression.
- Donor-related risks.
- Long waiting times.

Maintained excellent postoperative physiology with rapid recovery.

In non-cirrhotic patients with localized recurrence, resection is not just an option, it is the superior strategy.

9. Discussion

This case underscores three critical principles:

- Biology over protocol – Not all recurrences behave aggressively.
- Parenchyma preservation – Key in repeat surgeries.
- Surgical precision outweighs extent – Especially in hostile anatomy.

The Segment II lesion represented a high-risk location, where uncontrolled dissection could compromise major vascular structures.

10. Take-Home message

Recurrent HCC does not equal transplant by default.

In non-cirrhotic liver, repeat resection is:

- Safe.
- Effective.
- Curative in intent.

Proper patient selection and surgical expertise can convert recurrence into long-term survival opportunity.

11. Conclusion

This case demonstrates that repeat liver resection, even in technically complex locations and post-major hepatectomy status, can be executed safely with excellent outcomes. It reinforces the principle that tailored surgical strategy, rather than protocol-driven escalation to transplant, delivers the best patient-centric care.