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## Intraoperative indocyanine green clearance in liver surgery: a useful tool to promote parenchymal preservation?

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### CASE REPORT

A 66-year-old female was diagnosed with sigmoid carcinoma with bilobar unresectable liver metastases (Fig. 1), and primary tumor resection was performed. Neoadjuvant chemotherapy was administered to downstage liver disease. Following FOLFOX/panitumumab treatment (four cycles), disease progression was observed in the liver. Therefore, the chemotherapy regimen was switched to FOLFIRI/cetuximab (12 cycles).

At restaging, seven out of ten metastases showed complete radiologic response and three showed disease progression. Selective internal radiation therapy (SIRT) with Yttrium-90 was performed on these three metastases, with very good local radiologic response (1) (Fig. 2). Thus, surgical resection with curative intent was attempted.

Indocyanine green (ICG) was administered 72 hours before surgery to help locate the liver metastases. Intraoperatively, very poor ICG clearance was demonstrated and therefore, parenchyma-sparing resections were performed (segment II, III, IV and VII) (Fig. 3). At final histology, major pathologic response was observed with steatosis of the liver parenchyma.

The postoperative course was uneventful and adjuvant capecitabine was administered (eight cycles). No recurrence was demonstrated after 38 months of follow-up. However, 18 months

following surgery, she developed impairment of hepatic function and portal hypertension.

## CONCLUSION

Preoperative ICG administration could be helpful to detect intraoperatively patients that can develop late post-hepatectomy impairment of hepatic function, especially following SIRT (2), and promote parenchymal preservation.

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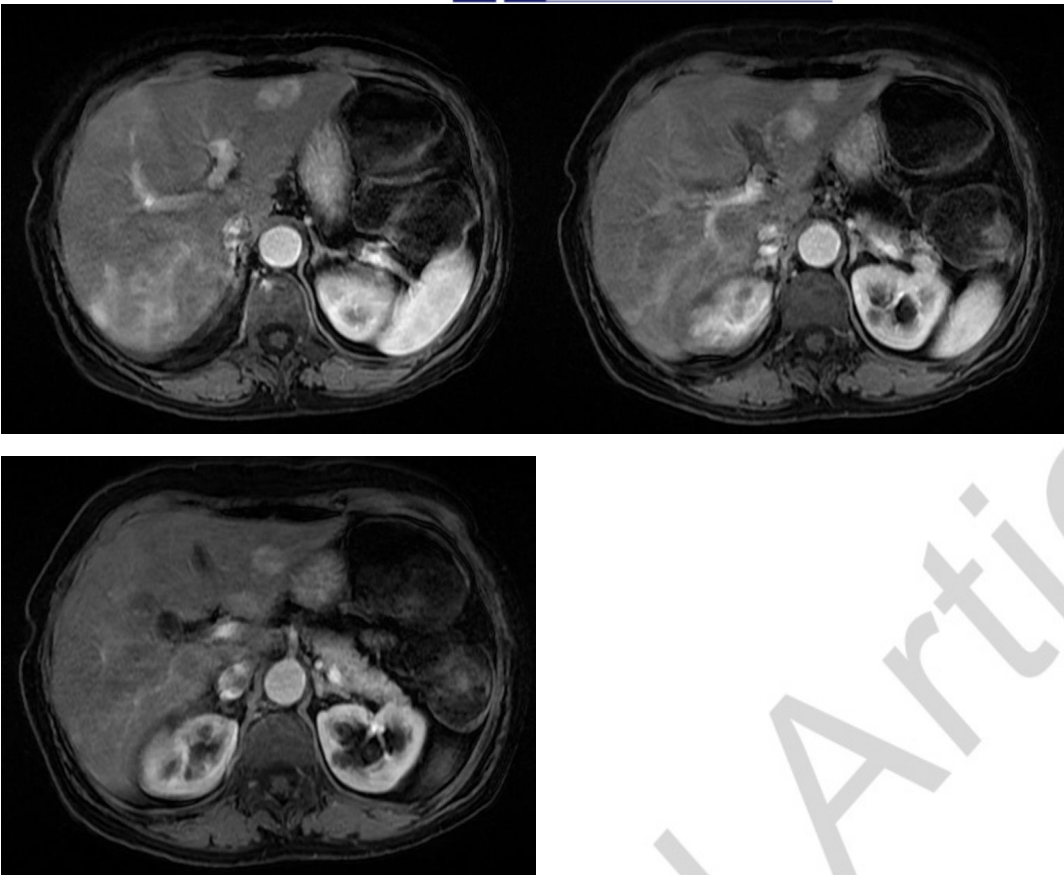


Fig. 1. A-C. Liver magnetic resonance image at disease diagnosis showing synchronous, multiple and bilobar colorectal cancer liver metastases (15 metastases).

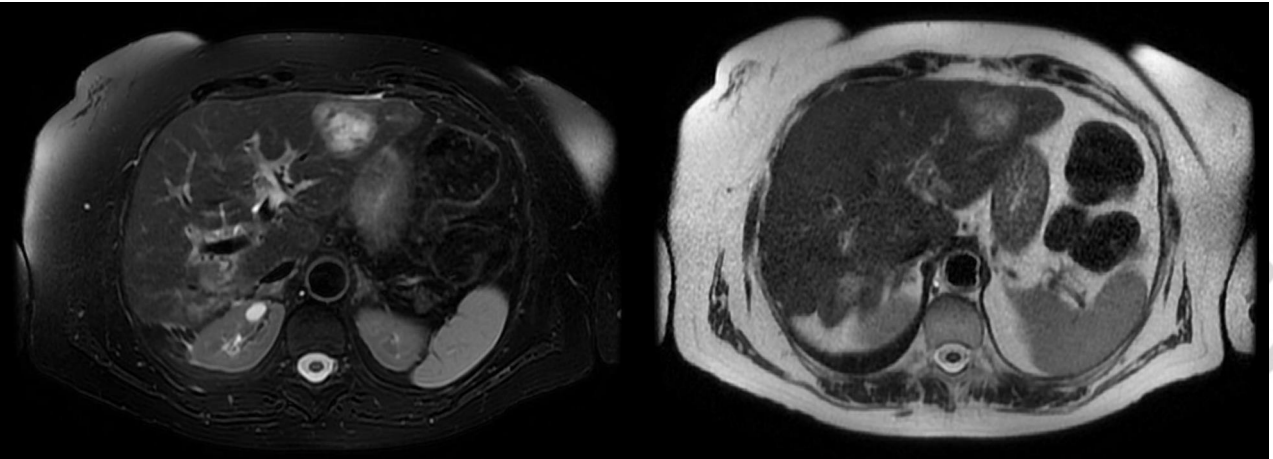


Fig. 2. A and B. Preoperative liver magnetic resonance showing a good response after systemic chemotherapy and selective internal radiation therapy with Yttrium-90. Remnant metastases at segment II, III, IV and VII.

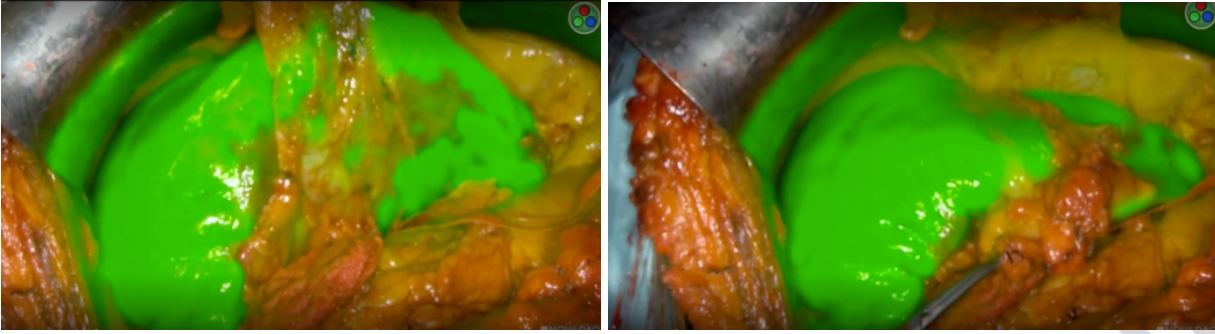


Fig. 3. A and B. Intraoperative liver image assessing indocyanine green (ICG) clearance. ICG was administered 72 hours prior to surgery; intraoperative assessment showed very poor clearance.

Accepted Article