Recurrence of hepatocellular carcinoma at surgical incision site: case series and review of literature

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ABSTRACT

First reported two decades ago, isolated incisional recurrence of hepatocellular carcinoma is an extremely rare clinical entity. We present two cases of recurrence: one recurring over 10 years after initial resection, and the second presenting with a port site recurrence 3.5 years following laparoscopic radiofrequency ablation. Clinical case presentation, including radiographical, pathological, laboratory and intraoperative images are reported, together with a review of the current literature surrounding this uncommon hepatocellular carcinoma presentation.

KEYWORDS

Hepatocellular carcinoma – Recurrence – Liver imaging

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Introduction

Cutaneous recurrence of hepatocellular carcinoma makes up less than 1% of all malignant cutaneous metastases, with incisional involvement even more infrequent.¹ Despite its rare nature, recognition of recurrences is essential to limit morbidity. We report two unique cases of extrahepatic hepatocellular carcinoma incisional recurrence: one occurring 10 years after initial resection, the other within the laparoscopic port site used for liver mobilisation prior to delivery of radiofrequency ablation. These patients represent the longest interval between resection and wound site recurrence and, to our knowledge, the only reported case of port site recurrence after laparoscopic ablation.

Case Report

Patient 1

A 53-year-old man with a history of hepatitis C underwent a screening ultrasound for hepatocellular carcinoma. A 2.5-cm lesion was seen in segment 6 of the liver, which prompted computed tomography (CT; Fig 1A). On imaging, an arterially enhancing mass with venous washout raised concern for malignancy. This was confirmed as hepatocellular carcinoma on biopsy and he underwent an open exploration and resection of segment 6. Final pathology revealed a margin-negative, 3-cm well-differentiated lesion with glandular and trabecular growth pattern consistent with

hepatocellular carcinoma (Fig 1C). His alphafetoprotein (AFP) level at the time of initial resection was 2.8 ng/ml and remained stable for 11 years when a rise to 9.3 ng/ml was noted. Imaging revealed a 6.2-cm mass beneath the most lateral aspect of the incision involving the eleventh rib (Fig 1B). The liver remained disease free. Percutaneous biopsy of the mass confirmed recurrence of hepatocellular carcinoma. The patient subsequently underwent resection of the abdominal wall mass with en-bloc chest wall resection and reconstruction. Pathology revealed a 6-cm mass involving the soft tissue of the incision without bony involvement of abutting ribs. Tumour cells stained focally positive for glypican-3 and demonstrated a canaliculi pattern consistent with hepatocellular carcinoma (Fig 1D). Today, the patient remains disease free and his AFP level has decreased to 6 ng/ml.

Patient 2

A 64-year-old man with a history of medically refractory hepatitis C was found on ultrasound scan to have two abnormal hepatic lesions. A 3.7-cm lesion in segment 4a and a 1-cm lesion in segment 5 were confirmed on CT with imaging characteristics that were consistent with hepatocellular carcinoma (Fig 2A). His AFP at the time was 11.9 ng/ml, which supported the diagnosis. The patient's religious beliefs precluded blood transfusion and proximity of the tumours to the middle hepatic vein limited safe resection options.

Figure 1 Patient 1: (A) Pathology specimen from primary intrahepatic resection in 2002. (B) Pathology specimen from incisional recurrence in 2012. (C) Initial intrahepatic tumour imaging. (D) Right lateral incisional recurrence (arrows) 2012.

Figure 2 Patient 2: (A) Initial intrahepatic imaging. (B) Anterior port site incisional recurrence (arrows) 2016.

Subsequently, he underwent laparoscopic ablation of the lesions and disease control was confirmed on a follow-up CT. He was followed postoperatively per surveillance guidelines and his AFP remained stable for 40 months until it precipitously rose from 16 ng/ml to 1182 ng/ml. Imaging did not identify recurrent hepatic disease; however, an enlarging mass in the rectus abdominis muscle was noted at the site of a laparoscopic port used during ablation (Figure 2B). The patient subsequently underwent an en-bloc resection of his port site. Notably, the port site was distant from the percutaneous access point for the ablation probe, which was in the sub-xyphoid region. Pathology revealed a 4.2-cm mass consistent with hepatocellular carcinoma involving the abdominal wall muscle and adipose tissue without the

peritoneal invasion (Fig 3). He recovered from surgery and his AFP has returned to near baseline.

Discussion

Hepatocellular carcinoma is a common malignancy, with an incidence of 2.1 per 100,000 in North America and 80 per 100,000 in some Asian countries.² Surgery remains the mainstay of treatment, with other locoregional management options including radiofrequency ablation, ethanol injection, transarterial chemotherapy and transarterial radioembolisation for patients who are not candidates for resection or transplantation. Although rare, cutaneous metastases from both resection and invasive locoregional treatments have been reported. Koffi *et al.* first reported on incisional recurrences after resection.¹ In their three patient case series, five commonalities were noted among patients: primary tumours were well differentiated with clear margins, incisional recurrence occurred without intrahepatic recurrence, AFP levels were never elevated, recurrences presented as firm, painless lesions without ulceration or erythema and lesions were not associated with widespread metastases.¹ Similarly, our patients displayed isolated extrahepatic recurrence and re-resection revealed a well-differentiated lesion with clear margins. Our patients remain disease free after

Figure 3 Patient 2: incisional mass, post-excision.

incisional mass resection, suggesting that such recurrences are less aggressive than other hepatocellular carcinoma metastases. In contrast to prior reports, the diagnosis of recurrence in our patients was made secondary to elevation in AFP levels, as opposed to a palpable mass. Additionally, our patients experienced recurrence much longer after their initial presentation than previously reported, with patient 1 recurring after 10 years.

Patient 2, in particular, is extremely rare, as his recurrence occurred at a laparoscopic port site used for radiofrequency ablation. Hepatocellular carcinoma resection via a laparoscopic approach has increased in popularity as large-scale meta-analyses have reported less blood loss and pain and shorter hospital stays without oncological compromise. One concern with minimally invasive resection is the potential for port site recurrence. Incidences of port site recurrence in other malignancies vary based on tumour type, with reports of up to 40% recurrence in gallbladder cancer yet exceedingly low rates, comparable to open resection, in laparoscopic colorectal cancer resections.⁵ Isolated abdominal wall recurrence after laparoscopic hepatocellular carcinoma interventions are limited to case reports, with no previous reports of port site metastasis following laparoscopic radiofrequency ablation.⁴

It is important to contrast surgical incisional recurrence with that seen after percutaneous tumour access. Tumour seeding in the setting of percutaneous biopsy, radiofrequency ablation and ethanol injection is more frequently reported.⁵ In contrast, laparoscopic interventions do not involve contact of a tumour-impregnated needle with the

incision site, suggesting a different, potentially hematogenous spread of tumour cells to the incision.⁶

Conclusion

Extrahepatic, isolated, incisional recurrence of hepatocellular carcinoma continues to be an extremely rare clinical presentation two decades after it was first described.¹ Despite its infrequent presentation, these two cases highlight the importance of postoperative surveillance after hepatocellular carcinoma resection focusing not only on the liver but also extrahepatic sites. Both patients are alive and their positive outcome is secondary to investigation of all possible sites of recurrence, including their incision sites.

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