Long-term survival of stage IV hepatocellular carcinoma treated with multimodal approach

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A 42 year old diabetic lady presented with a recent history of ankle swelling and shortness of breath. On further evaluation, she was found to have Child's class A cirrhosis with a model for end stage liver disease score of 9. Liver imaging and echocardiogram showed a typical hepatocellular carcinoma (HCC) in segment VIII of the liver extending into the right hepatic vein, inferior vena cava (IVC) and into the right atrium (Figure 1). There was a secondary thrombus in the IVC. Right atrial inflow and outflow showed features of impending obstruction. Considering her excellent general condition, it was decided to perform a combined thoraco-laparotomy.

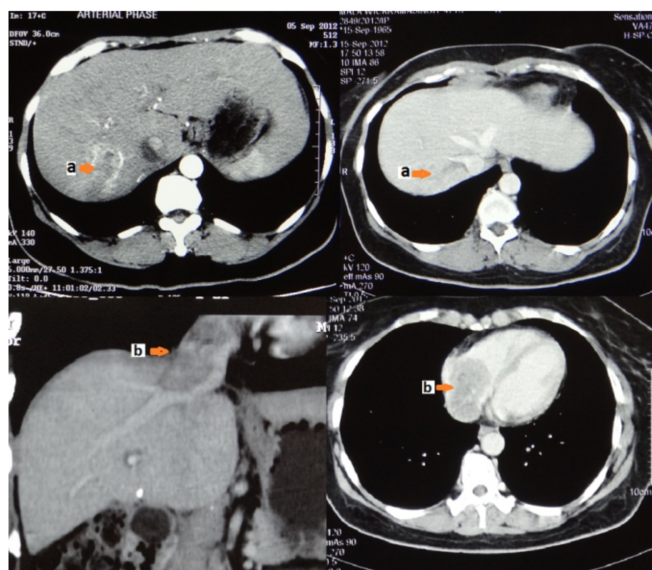

Figure 1. Tumour in segment VIII of the liver (location as indicated by the arrows). a - Arterial phase before surgery; b – Tumour invading the right hepatic vein; c – Tumour extension into the inferior vena cava; d - Tumour in the left atrium

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During laparotomy, the liver had significant macroscopic changes of cirrhosis. We decided to abandon the liver resection and to only remove the atrial tumour to palliate symptoms. The right atrium was opened under cardiopulmonary bypass and the atrial tumour was removed from its origin at the right hepatic vein (Figure 2). A secondary clot in the IVC was also removed.

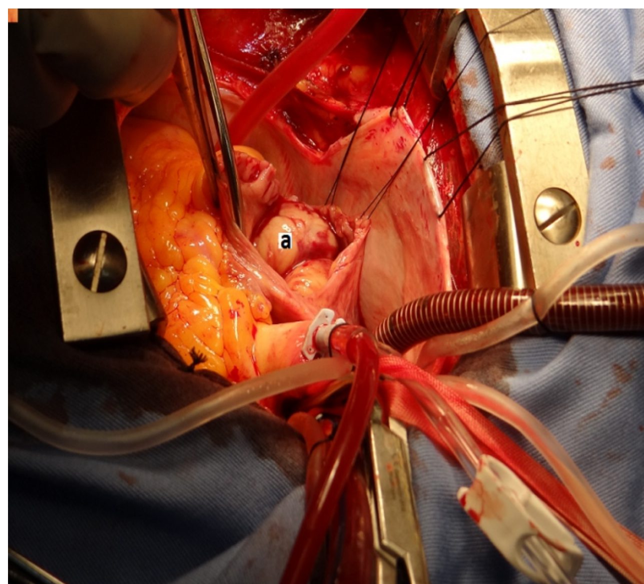

Figure 2. Intra-operative photograph of the tumour (a) in the opened left atrium

On the 5th post-operative day she underwent trans-arterial chemo embolization of the tumour (TACE). This was followed by a second TACE session after six weeks (Figure 3). At the follow-up computerized tomogram (CT) after 3 months, the right portal vein appeared thrombosed. The right lobe was atrophic and there was significant hypertrophy of the left lobe (Figure 3). Based on these findings, she subsequently underwent a right hepatectomy. She remains free of recurrence at 36 months after the initial surgery.

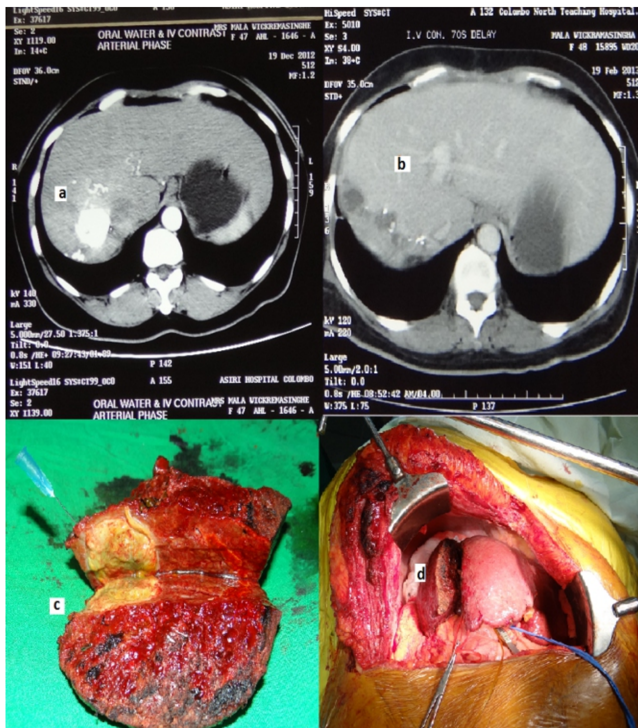

Figure 3. a – Computerised tomogram image of tumour after first trans-arterial chemoembolisation (TACE) also shows left lobe hypertrophy; b - Computerised tomogram after right hepatectomy; c - Right hepatectomy specimen after two cycles of TACE - the tumour had 100% necrosis reported at microscopy; d - Intra-operative view after splitting the liver.

Tumours with major vascular invasion are considered a contraindication for surgery [1]. Invasion of the left atrium is an extreme situation. Overall survival in these patients is reported to be less than three months [2]. Only a few cases have been reported to have had long-term survival. Our approach in this patient was unique. Multiple modes of treatment were combined at different stages, depending on the patient's clinical status. This case highlights the need to individualise treatment. Combination of one treatment modality with another is becoming a popular option in treating HCC [3]. A multimodal approach gave us the option to control the primary tumour and offer curative resection at a later stage.

References

1. Forner A, Reig ME, de Lope CR, Bruix J. Current strategy for staging and treatment: the BCLC update and future prospects. *Semin Liver Dis*. 2010; 30: 61–74
2. Kim SU, Kim YR, Kim do Y, Kim JK, Lee HW, Kim BK, et.al. Clinical features and treatment outcome of advanced hepatocellular carcinoma with inferior vena caval invasion or atrial tumor thrombus. *Korean J Hepatol*. 2007; 13(3): 387-95.
3. Cabibbo G, Latteri F, Antonucci M, Craxì A. Multimodal approaches to the treatment of hepatocellular carcinoma. *Nat ClinPract Gastroenterol Hepatol*. 2009; 6(3):159-69.

Key Points:

- Treatment for hepatocellular carcinoma is best decided on an individual basis. Selected patients beyond standard criteria can achieve long-term survival with aggressive treatment.
- Aggressive but rational combinations of treatment should be considered in treating hepatocellular carcinoma.