10.1515/chilat-2015-0008



DE GRUYTER OPEN

*CASE REPORT*

# Synchronous Renal and Hepatocellular Carcinomas

**Solveiga Jekabsone, Tatjana Bogdanova, Arnis Abolins, Andrejs Vanags, Janis Gardovskis, Ilze Strumfa**
Riga Stradins University, Riga, Latvia

**Summary**
Multiple synchronous primary tumours can cause diagnostic difficulties regarding primary origin versus metastatic spread. Greater awareness of concurrent carcinogenesis is necessary as more frequent occurrence of multiple primary cancers can be expected in future due to the growing tumour burden in the aging world population along with improved treatment efficacy. Here we report a 58-year-old male patient, who was diagnosed with two rare synchronous tumours: hepatocellular carcinoma and renal clear cell carcinoma. Both tumours were radically removed by simultaneous liver and kidney resection.
**Key words:** hepatocellular carcinoma, renal clear cell carcinoma, multiple cancers, synchronous cancers

## AIM OF THE DEMONSTRATION

The aim of our report is to show a case of two synchronous malignant tumours in the liver and kidney in order to increase the awareness about multiple primary cancers and the related diagnostic approach.

## CASE REPORT

A 58-year-old male was admitted to a university hospital for surgical treatment of malignant tumour within kidney and liver. Metastatic spread was suspected. By upper laparotomy approach, the liver segments S5 and S6 were resected. Cholecystectomy and right kidney resection was performed simultaneously.

The removed liver segment, gall bladder and kidney segment were sent for histological examination. Grossly, the liver segment measured 11.5x12.5x7.0 cm. A grey, relatively well-demarcated, homogeneous lesion was detected within the removed liver tissue 1.0 cm apart from resection line. Multiple tissue sections were submitted for microscopic evaluation and measurements. Microscopically, an invasive hepatocellular carcinoma was found (Figure 1). The tumour displayed trabecular structure and moderate cellular atypia. Although clear cell areas were present, the cytoplasmic fat vacuoles and rich presence of Mallory hyaline were suggestive of hepatocellular origin. The clear cell areas also contained Mallory hyaline. Areas of typical morphology were present as well.

Gall bladder was also removed during the course of operation. It measured 9.0x3.7cm; and the thickness of wall was 0.4 cm. Only tiny cholesterol polyps were identified in the mucosa. There were no signs of malignancy within the gall bladder.

Kidney segment grossly measured 6.0x5.4x5.5 cm. At grossing, the resection surface was inked by Alcian blue. In the cross section, a tumour mass 3.4x3.7x4.8 cm was observed. The tumour was soft, yellow with extensive haemorrhage and greyish areas. Multiple sections were submitted for microscopic evaluation yielding invasive renal carcinoma, clear cell type. The malignant tumour cells had irregular morphology, clear cytoplasm, dark and round central nuclei and small nucleoli visible at high magnification corresponding to grade II by Fuhrman (Figure 1). Within tumour mass, secondary changes were present – large areas of necrosis and haemorrhages. Tumour was surrounded with fibrous pseudocapsule which was focally penetrated by tumour cells spreading to renal parenchyma. There was no evidence of invasion into perirenal or hilar fat, or large blood vessels.

By immunohistochemistry, hepatocellular carcinoma showed focal cytoplasmic expression of TTF1 and canalicular pattern of CD10 but lacked cytokeratin 7. Renal clear cell carcinoma displayed focal membranous expression of CD10. Canalicular pattern of CD10 or any expression of TTF-1 was absent. The proliferation activity (by Ki-67, clone MIB-1) was 14% in both tumours.

Thus, based on histological and immunohistochemistry findings, synchronous primary hepatocellular carcinoma, pT1NxG2R0 and renal clear cell carcinoma, pT1bNxG2R0 were diagnosed. The postoperative period was uneventful.

## DISCUSSION

The incidence of multiple primary tumours in Western world is growing significantly (Lopez et al., 2009). Consequently, cancer survivors need secondary surveillance. Evaluating a mass lesion in patient diagnosed with another cancer, metastasis must be differentiated from other tumour as the treatment options and prognosis can change dramatically.

Multiple primary tumours can be metachronous or – less frequently – synchronous, defined as tumours diagnosed within 2 months. Synchronous other malignant tumour has been reported in 2.2 – 2.5% of renal and 2.5% liver cancer patients (Hayat et al., 2007; Kilciksiz et al., 2007). In addition, both hepatocellular carcinoma and renal clear cell carcinoma are uncommon tumours. Therefore synchronous primary hepatocellular carcinoma and renal clear cell carcinoma are considered very rare (Lee et al., 2014) and only few such cases have been reported (Shetty et al., 2013; Lee et al., 2014) including a liver transplant recipient (Garcia et al., 2007). Adiposity and metabolic syndrome has been associated with hepatocellular and renal carcinomas (Imura et al., 2014; Lu et al., 2014); possibly attributable to adiposity-induced hypoxia in normally

highly vascularised epithelial tissues and thus activation of angiogenetic pathways (Rosmorduc et al., 2010). In addition, hepatitis C virus infection has recently been associated with extrahepatic tumours (Rustagi et al., 2014).

In conclusion, we report on a rare coexistence of two uncommon primary tumours – hepatocellular carcinoma and renal clear cell carcinoma. Histological and immunohistochemical evaluation can establish diagnosis ensuring the diagnostic background for radical surgical treatment and avoiding over-diagnosis of distant metastasis implying tumour dissemination with worse prognosis.

**Conflict of interest:** None

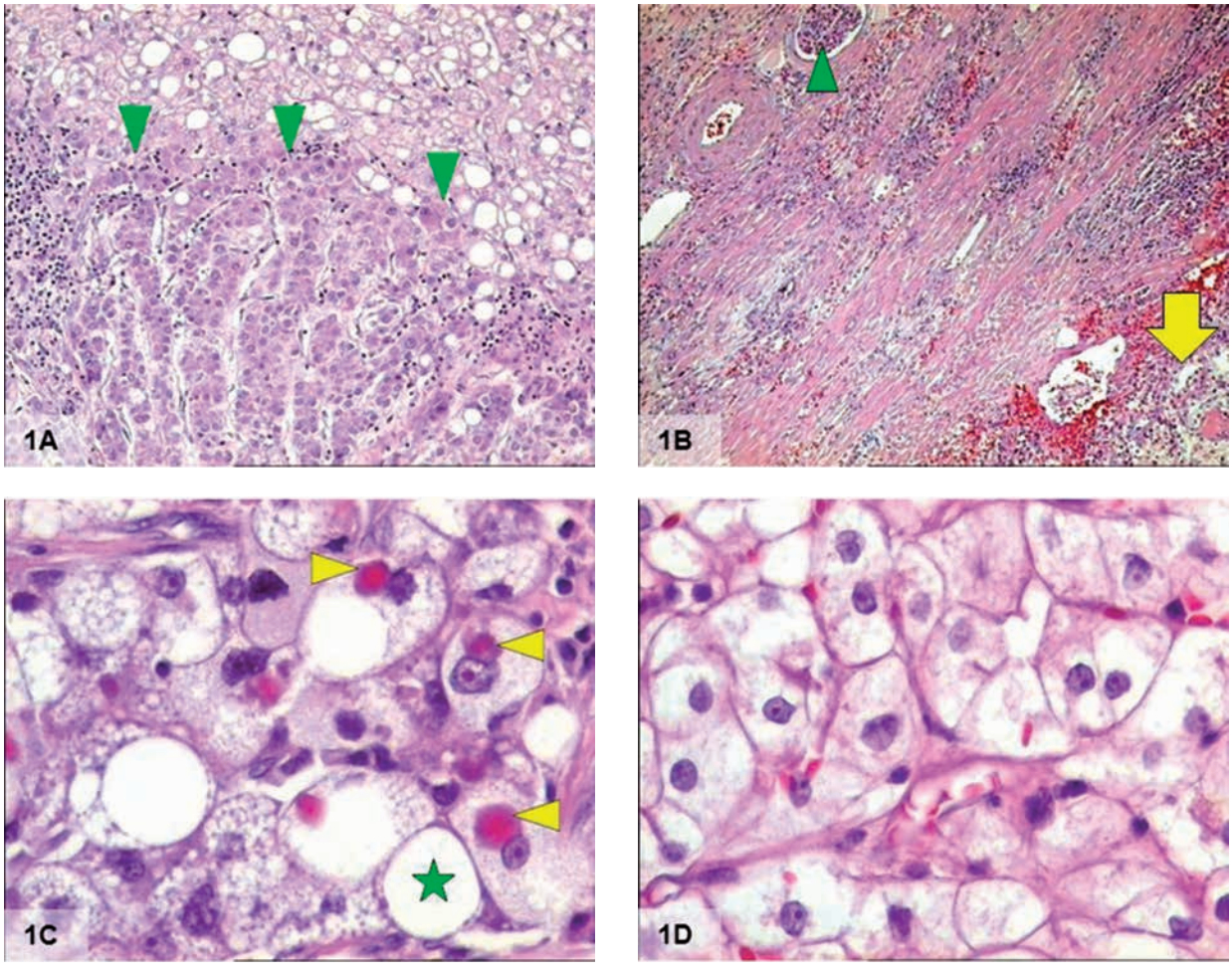


**Fig. 1. Tissue structure of liver and renal tumours. 1A, Hepatocellular carcinoma. The invasive border is highlighted by green arrowheads. Note the trabecular architecture of the tumour and the steatosis in the surrounding liver tissue. Haematoxylin-eosin (HE), original magnification (OM) 100x. 1B, Renal carcinoma. An adjacent glomerulus is highlighted by a green arrowhead, the tumour – by yellow arrow. HE, OM 50x. 1C, Mallory hyaline (yellow arrowheads) and fat vacuoles (green star) in hepatocellular carcinoma cells. HE, OM, 400x. 1D, Renal carcinoma, clear cell variant, Fuhrman nuclear grade II. HE, OM 400x.**

## REFERENCES


1. Garcia JH, Coelho GR, Cavalcante FP, Valenca JT, Brasil IR, Cesar-Borges G, Costa PE, Viana CF, Rocha TD, Vasconcelos JB. Synchronous hepatocellular carcinoma and renal cell carcinoma in a liver transplant recipient: case report // Transplantation, 2007; 84:1713
2. Hayat MJ, Howlader N, Reichman ME, Edwards BK. Cancer statistics, trends, and multiple primary cancer analyses from the Surveillance, Epidemiology, and End Results (SEER) Program // Oncologist, 2007; 12(1):20 – 37
3. Imura S, Shimada M, Utsunomiya T, Morine Y, Ikemoto T, Mori H, Arakawa Y, Kanamoto M, Iwahashi S, Miyake H. Clinicopathological characteristics of patients with non-B non-C hepatocellular carcinoma: a special reference to metabolic syndrome // Hepatogastroenterology, 2014; 61:129 – 135
4. Kilciksiz S, Gokce T, Baloglu A, Calli A, Kaynak C, Kilic B, Eski E, Nalbantoglu G, Yigitbas HA. Characteristics of synchronous- and metachronous-type multiple primary neoplasms: a study of hospital based cancer registry in Turkey // Clin Genitourin Cancer, 2007; 5: 438 – 445
5. Lee YS, Kim JH, Yoon HY, Choe WH, Kwon SY, Lee CH. A synchronous hepatocellular carcinoma and renal cell carcinoma treated with radio-frequency ablation // Clin Mol Hepatol, 2014; 20:306 – 309
6. Lopez ML, Lana A, Diaz S, Folgueras MV, Sanchez L, Comendador MA, Belyakova E, Rodriguez JM, Cueto A. Multiple primary cancer: an increasing health problem. Strategies for prevention in cancer survivors // Eur J Cancer Care (Engl), 2009; 18:598 – 605
7. Lu K, Song XL, Han SL, Wang CH, Zhong N, Qi LF. Potential study perspectives on mechanisms and correlations between adiposity and malignancy // Asian Pac J Cancer Prev, 2014; 15:1057 – 1060
8. Rosmorduc O, Chevreau C, Dielenseger P, Ederhy S, Goldwasser F, Grange JD, Mortier L, Neidhardt-Berard ME, Robert C, Scotte F, Seitz JF. Use of sorafenib in patients with hepatocellular or renal carcinoma // Gastroenterol Clin Biol, 2010; 34: 161 – 167
9. Rustagi T, Zarookin EI, Qasba O, Diez LF. Chronic hepatitis C as a risk factor for colorectal adenoma // Int J Colorectal Dis, 2014; 29(1):75 – 80
10. Shetty GS, Bhalla P, Desai SM, Wagle PK, Mehta HS. Synchronous hepatocellular carcinoma with renal cell carcinoma: a case report and review of literature of multiple synchronous primary malignancies // Indian J Surg , 2013; 75 (Suppl 1):S290 – S292



**Address:**
**Tatjana Bogdanova**
**Department of Pathology, Riga Stradins University, Dzirciema Street 16, LV 1007, Riga, Latvia**
**E-mail:** Tatjana.Bogdanova@rsu.lv