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## Metastatic Hepatocellular Carcinoma to Parotid Glands

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Statistical Analysis C  
Data Interpretation D  
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**Conflict of interest:** None declared

**Patient:** Male, 66  
**Final Diagnosis:** Hepatocellular carcinoma  
**Symptoms:** Abdominal distension • painful right facial swelling • weight loss  
**Medication:** —  
**Clinical Procedure:** —  
**Specialty:** —

**Objective:** Rare disease  
**Background:** Hepatocellular carcinoma is a common cancer, but it rarely metastasizes to the salivary glands. A review of the literature revealed only 5 reported cases of hepatocellular carcinoma metastatic to parotid glands. We here report an additional case of this rare association.

**Case Report:** A 66-year-old male with a background of type 2 diabetes mellitus and post-alcoholic decompensated liver cirrhosis presented with a progressively enlarging painful right facial swelling for 2 months that was eventually found to be due to hepatocellular carcinoma metastatic to the right parotid gland. Fine needle aspiration from the right parotid showed sheets and single malignant cells that were interpreted as carcinoma not otherwise specific. However, biopsy showed metastatic hepatocellular carcinoma into the right parotid gland.

**Conclusions:** We report an additional case of the rare metastasis of hepatocellular carcinoma to the parotid glands. It should therefore be considered in a patient with decompensated liver cirrhosis presenting with a parotid swelling. Furthermore, the present case demonstrates the importance of the tissue biopsy for obtaining an accurate final diagnosis.

**MeSH Keywords:** Carcinoma, Hepatocellular • Gastrointestinal Neoplasms • Neoplasm Metastasis • Neoplasm Metastasis • Parotid Gland

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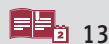
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## Background

Hepatocellular carcinoma is one of the most prevalent cancers worldwide. It commonly metastasizes to the lungs, lymph nodes, peritoneum, adrenal glands, and bone, although there are uncommon reports of metastases to the ovaries, skin, heart, pharynx, orbit, and external auditory canal [1–6]. Metastasis to parotid glands is rare and to the best of our knowledge only 5 cases of hepatocellular carcinoma metastatic to parotid glands have been reported [7–11]. We report the case of a 66-year-old male who presented with a 2-month history of a progressively enlarging right facial swelling that was eventually found to be hepatocellular carcinoma with metastases to the right parotid gland.

## Case Report

A 66-year-old male Sudanese patient with a background of type 2 diabetes mellitus and post-alcoholic liver cirrhosis presented with a progressively enlarging painful right facial swelling for 2 months (Figure 1). He also reported a history of significant weight loss and progressive abdominal distention and discomfort. His past medical history was significant for 1 episode of variceal bleeding that was treated with sclerotherapy and a history of heavy alcohol intake. Physical examination revealed right-sided swelling in the face of about 7×7 cm on the upper part of the right mandible extending to the right ear that was firm and mildly tender to palpation, as well as hepatosplenomegaly. Shifting dullness was positive by percussion and hepatic bruit was present on auscultation.

Initial laboratory investigations revealed WBC  $2.2 \times 10^3$  /uL, RBC  $3.6 \times 10^6$ /uL, hemoglobin 11.9 g/dL, platelets  $71 \times 10^3$ /uL, and MCH 31.4 pg. Urea 8.9 mmol/L, serum creatinine 87 umol/L, albumin 23 g/L, total protein 70 g/L, sodium 132 mmol/L, potassium 4.9 mmol/L, total bilirubin 21 umol/L, bicarbonate 25 mmol/L, ALT 100 u/L, and AST 73 u/L. Alpha-fetoprotein was 3525 IU/ml, PT 11.3 seconds, INR 1, and PTT 26.5 seconds.

Abdominal ultrasound showed cirrhotic liver with a heterogeneous mass in the right upper lobe, signs of portal hypertension, splenomegaly, and ascites. A tri-phasic CT scan of the abdomen showed a cirrhotic liver, portal hypertension, and multicenter hepatocellular carcinoma of the right lobe of the liver; the largest mass was 7×10 cm and another smaller mass was 3 cm in diameter. The lesion showed hypo-attenuation in the venous phase and delayed phase with iso-dense arterial phase (Figure 2A, 2B). There was no evidence of lung metastasis. The result of ascetic fluid examination for cytology was negative for malignant cells. CT scan of the neck showed right mandibular angle osteolytic destructive lesion with buckle side soft tissue mass infiltrating the masseter muscle and ventrally indenting the right parotid salivary gland (Figure 3A, 3B), findings indicating

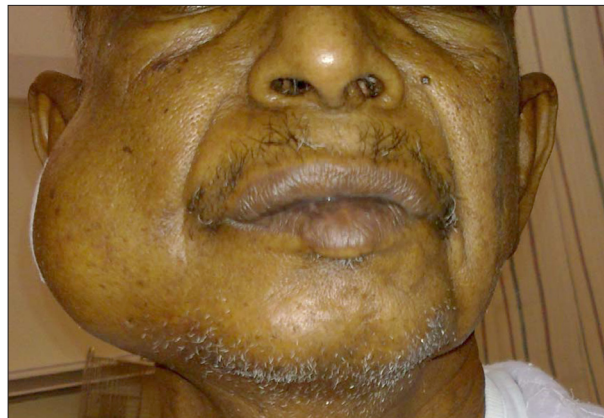


Figure 1. The right facial swelling.

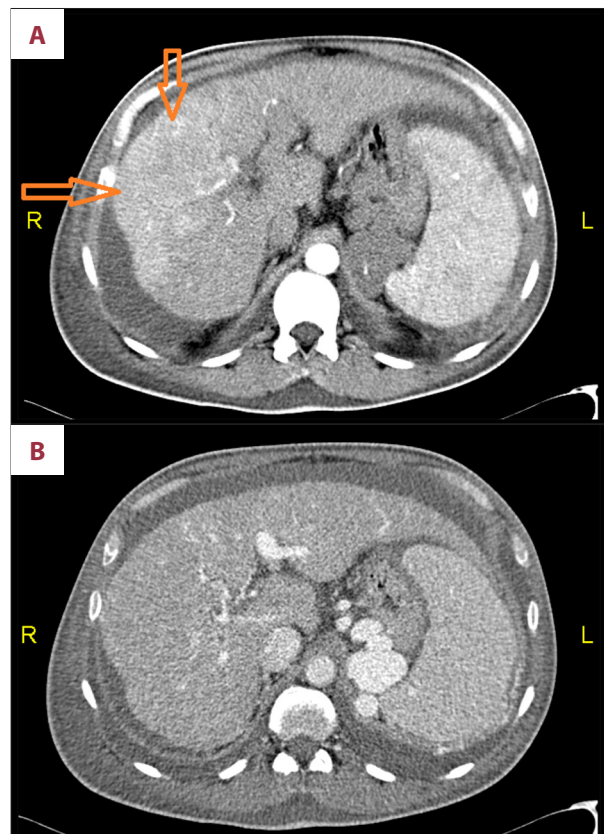
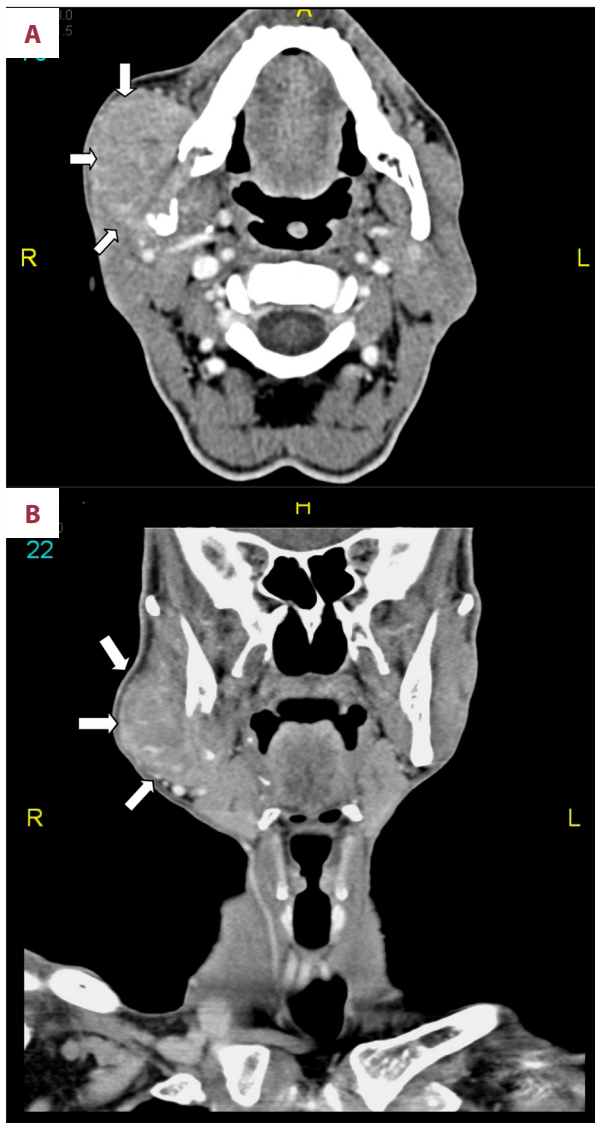


Figure 2. CT scan of the upper abdomen in arterial (A) and venous (B) phases revealed a small cirrhotic liver with wide spread infiltrative type of hepatocellular carcinoma involving almost the whole right lobe and segment IV of the left lobe which showed patchy areas of arterial enhancement (arrows) with washout in venous phase. Splenomegaly and portal hypertension associated with spleno-renal shunt and extensive varicose veins formation is seen as well as bilateral pleural effusion and ascites.

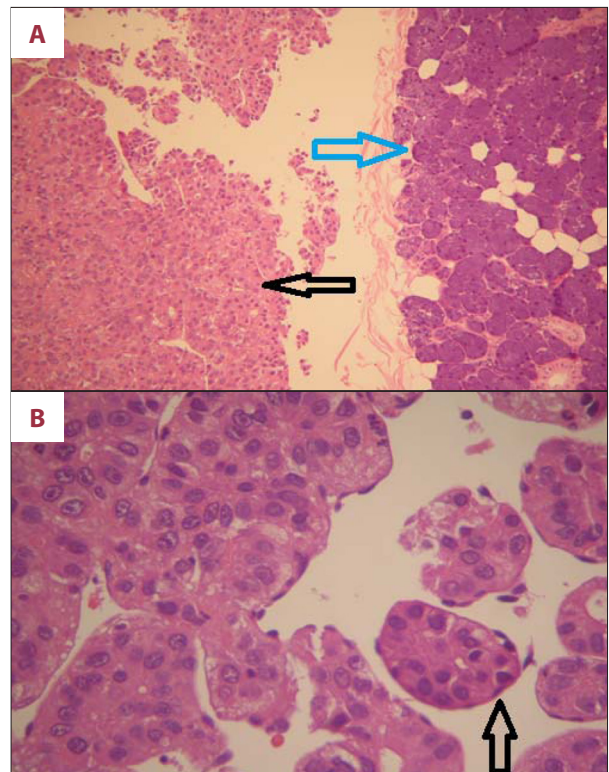
a malignant tumor lesion, most likely metastatic (considering the patient history and CT-scan abdomen findings). A bone scan



**Figure 3.** Post contrast CT scan axial (A) and coronal (B) shows right mandibular angle osteolytic destructive lesion with buckle side soft tissue mass infiltrating the masseter muscle and ventrally indenting the right parotid salivary gland (black arrows).

showed increased uptake in the right mandible, representing reactive hyperemia to the soft-tissue tumor or bone involvement. There was no evidence of metastatic lesion.

Fine-needle aspiration from the right parotid showed sheets and single malignant cells that were interpreted as carcinoma not otherwise specific. Tru-cut biopsy from the right parotid gland was then performed and histopathology examination showed metastatic hepatocellular carcinoma into parotid gland tissue (Figure 4A, 4B). The metastatic deposits are formed of cords and acinar structures with moderate nuclear atypia and immunohistochemical profile indicating hepatocellular



**Figure 4.** (A) Microscopic appearance of the tumor to the left side (black arrow) adjacent to the salivary gland tissue in the right half of the picture (blue arrow) (H&E  $\times 100$ ). (B) Details of the tumor cells which are arranged in trabeculae and nests (arrow) with sinusoidal cells covering the tumor cells (H&E  $\times 400$ ).

origin: positive CK18, HepPar 1, and canalicular pattern staining for pCEA.

Based on these findings, the final diagnosis was multicentric hepatocellular carcinoma with right parotid gland metastases in a patient with Childs C liver cirrhosis. Palliative care was the final plan of treatment for the patient. The patient's hospital course was complicated by an episode of hepatic encephalopathy, spontaneous bacterial peritonitis, hypoglycemia, and peritoneal bleeding. Computed tomography angiography of the abdomen revealed a focal defect in the liver capsule. After supportive treatment, the patient was discharged in stable condition and planned for out-patient follow-up. He died 2 months later due to massive upper GI bleeding.

## Discussion

In the present report we described the case of a male Sudanese patient with decompensated liver cirrhosis complicated with end-stage multicentric hepatocellular carcinoma (stage D according to Barcelona Clinic of Liver Cancer, BCLC, staging classification)

**Table 1.** Summary of previous reported cases of hepatocellular carcinoma (HCC) patients metastasis to parotid glands.

Author/year (reference)	Age/gender	Patient's origin	Risk factor for cirrhosis	Liver lobe site of HCC	Size of HCC (cm)	Other metastasis than parotid gland	Parotid lobe involved	AFP level at diagnosis (IU/ml)	Treatment/outcome	FNA	Histopathology
Current case	66/male	Sudanese	Alcoholism	Right	10×7	No	Right	3525	Died after 2 months	Not diagnostic	Diagnostic
Dargent JL, et al., 1998 [7]	62/male	Zairian	HCV, alcoholism	–	3.5×2.8	Bone	Right and left	3520	Not reported	Typical for HCC	Diagnostic
Romanns M, et al., 2004 [8]	47/male	Not reported	HCV, alcoholism	Right	7×7	No	Right	Normal	Died after 4 months	Typical for HCC	Diagnostic
Vitale AR et al., 2009 [9]	82/male	Caucasian	Not reported	Not reported	3.8 (on US)	No	Right	Not reported	Died after 6 months	Not diagnostic	Diagnostic
Moore F, et al., 2010 [10]	75/male	Not reported	Alcoholism	Right	Not reported	Bone	Right	Not reported	Stable at 2 years on chemotherapy	Not Diagnostic	Diagnostic
Yu YD, et al., 2013 [11]	36/male	Korean	HBV	Right	Multiple largest 9.3×7.5	No	Left	Normal	Stable at 1 year	Not diagnostic	Diagnostic

HBV – hepatitis B virus; HCV – hepatitis C virus; HCC – hepatocellular carcinoma; US – ultrasound of the liver.

[12,13] with right parotid gland metastasis and without lung metastasis. Based on our review of the English literature, we were able to locate only 5 cases of metastatic hepatocellular carcinoma to parotid glands since 1966 [7–11], suggesting that this association is rare. Table 1 summarizes all 5 previous case reports of metastatic hepatocellular carcinoma to the parotid glands and compares it with the present case report. The right parotid gland was involved in 4 of the 5 previously reported cases [7–10], as well as in the present case. However, the left parotid was only involved in 1 case [11] and additionally involved in another [7]. Moreover, as in the present case, the primary lesion was in the right lobe of the liver in the 2 case reports [8,10] in which details about the imaging studies of the liver were provided.

In the present patient, FNA of the right parotid lesion showed malignant cells but did not suggest the presence of metastatic hepatocellular carcinoma cells, similar to 2 previous reported cases [9,11]. In the other reported cases [7,8,10], FNA was suggestive of metastatic hepatocellular carcinoma. In all cases, including our case, biopsy of the right parotid confirmed the diagnosis.

In 2 of the case reports the outcome was death within a few months [8,9], 2 cases reported apparently stable patients during follow-up [10,11] and another case was lost to follow-up [7]. The present case died 2 months later due to massive upper GI bleeding.

## Conclusions

In conclusion, metastasis of hepatocellular carcinoma to the parotid glands is rare, but it should be considered in a patient with a history of hepatocellular carcinoma presenting with parotid swelling. Biopsy of the affected parotid gland is needed for definite histological diagnosis of metastasized hepatocellular carcinoma and it is superior to fine-needle aspiration.

## Conflict of interest

No conflict of interest to declare.

## References:

- Kim TH, Cheung DY, Chung WB et al: A case of metastatic hepatocellular carcinoma of the ovary. *Korean J Gastroenterol*, 2004; 43(3): 215–18
- Masci G, Magagnoli M, Grimaldi A et al: Metastasis of hepatocellular carcinoma to the heart: a case report and review of the literature. *Tumori*, 2004; 90(3): 345–47
- Yamanishi K, Kishimoto S, Hosokawa Y et al: Cutaneous metastasis from hepatocellular carcinoma resembling granuloma teleangiectaticum. *J Dermatol*, 1989; 16(6): 500–4

4. Oida Y, Ishii M, Dowaki S et al: Hepatocellular carcinoma with metastasis to the pharynx: report of a case. *Tokai J Experimental Clin Medicine*, 2005; 30(1): 31–34
5. Font RL, Maturi RK, Small RG, Garcia-Rojas M: Hepatocellular carcinoma metastatic to the orbit. *Arch Ophthalmol*, 1998; 116(7): 942–45
6. Yasumatsu R, Okura K, Sakiyama Y et al: Metastatic hepatocellular carcinoma of the external auditory canal. *World J Gastroenterol*, 2007; 13(47): 6436–38
7. Dargent JL, Deplace J, Schneider E et al: Hepatocellular carcinoma metastatic to the parotid gland: initial diagnosis by fine needle aspiration biopsy. *Acta Cytol*, 1998; 42(3): 824–26
8. Romanas MM, Cherian R, McGregor DH et al: Hepatocellular carcinoma diagnosed by fine-needle aspiration of the parotid gland. *Diagn Cytopathol* 2004;30(6): 401–5
9. Vitale AR, Compilato D, Coletti G et al: Metastatic hepatocellular carcinoma of the parotid region without lung metastasis: a case report. *Int J Oral Maxillofac Surg*, 2009; 38(6): 696–98
10. Moore FR, Bergman S, Geisinger KR: Metastatic hepatocellular carcinoma mimicking acinic cell carcinoma of the parotid gland: a case report. *Acta Cytol*, 2010; 54(5 Suppl.): 889–92
11. Yu YD, Kima DS, Jung SW et al: Metastatic hepatocellular carcinoma to the parotid gland: Case report and review of the literature. *Intern J Surg Case Report*, 2013; 4(1): 76–80
12. Liovet JM, Bru C, Bruix J: Prognosis of Hepatocellular carcinoma: the BCLC staging classification. *Semin Liver Dis*, 1999; 19(3): 329–38
13. 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(1): 61–74