

A Rare Presentation of Mandibular Bone Metastasis from Primarily Diagnosed Hepatocellular Carcinoma: A Case Report

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Learning Point of the Article:

This case presents an aggressive, non-healing, rapidly expanding mandibular ulcer due to a rare presentation of a mandibular secondary metastatic lesion, which is related to primary hepatocellular carcinoma developed due to a decade-old hepatitis C virus infection.

Abstract

Introduction: Hepatocellular carcinoma (HCC), the sixth most frequently diagnosed malignancy, typically metastasizes to the lungs (55%), abdominal lymph nodes (41%), long bones (28%), and brain. Metastasis to the oral cavity, particularly the mandible, is an exceptionally rare phenomenon occurring in <1% of cases. In this case, the patient was presented as metastatic jaw malignancy without preceding any clinical symptoms or diagnosis of the primary intrahepatic tumor. Because these metastatic neoplasms lack pathognomonic clinical or radiological distinctions, they are frequently misdiagnosed as benign dental or maxillofacial conditions, such as periodontal disease or post-extraction complications. Accurate diagnosis is confirmed through histopathological studies identifying clusters of hepatocytes with sinusoid-like blood vessels, alongside immunohistochemistry demonstrating positive staining for human hepatocyte paraffin (Hepar 1) antibody. This report details the clinical course and complex palliative management of a patient whose occult Hepatitis C virus (HCV)-driven HCC first manifested as an aggressive mandibular mass.

Case Report: A 62-year-old female presented with progressive right-sided mandibular swelling following a routine tooth extraction. A deep tissue jaw biopsy and immunohistochemical profiling confirmed metastatic HCC, Grade 2 (positive for Hepar-1 and Glypican 3). Staging investigations revealed a primary multi-lobar intrahepatic tumor, advanced liver cirrhosis, and portal hypertension secondary to a chronic, previously undiagnosed HCV infection linked to a 1987 blood transfusion. The patient received systemic Lenvatinib and palliative hypofractionated radiotherapy (3600 cGy in 12 fractions) to the mandible. Over 9 months, the disease rapidly progressed, culminating in an emergency admission with a bleeding, exophytic fungating mandibular mass, multi-lobar hepatic progression, left portal vein tumor thrombosis, and a new L3 spinal metastasis.

Conclusion: This case highlights the diagnostic challenge of extrahepatic HCC masquerading as dental pathology and emphasizes the critical role of multidisciplinary palliative care in managing complex end-stage oncological complications.

Keywords: Hepatitis C virus, hepatocellular carcinoma, extrahepatic metastasis, mandibular metastasis, palliative care.

Author's Photo Gallery



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Introduction

Hepatocellular carcinoma (HCC) typically metastasizes to the lungs, regional lymph nodes, and long bones. Metastasis to the oral cavity, particularly the mandible, is an exceptionally rare phenomenon [1,2,3]. In highly unusual instances, a metastatic jaw lesion can precede any clinical symptoms or diagnosis of the primary intrahepatic tumor [4]. Consequently, these lesions are frequently misdiagnosed as benign dental or maxillofacial conditions, such as periodontal disease or post-extraction complications [5]. This report details the clinical course and complex palliative management of a patient whose occult, Hepatitis C virus (HCV)-driven HCC first manifested as an aggressive mandibular mass.

Case Report

Initial evaluation and diagnostic timeline

A 62-year-old female developed progressive right-sided facial and mandibular swelling shortly after a routine tooth extraction performed on January 12, 2025. Due to persistent growth of the mass, a right mandible tissue biopsy was performed on February 11, 2025 (Fig. 1, 2, 3).

Histopathological evaluation of the deep tissue demonstrated fragments of bone and soft-tissue heavily infiltrated by

trabeculae of neoplastic hepatoid cells with endothelial wrapping, moderate nuclear atypia, and prominent nucleoli. To definitively establish the tissue of origin, immunohistochemistry (IHC) was conducted. The tumor cells demonstrated strong positivity for Hepar-1 [6] (Fig. 4) and Glypican 3 [7,8], and weak positivity for alpha-fetoprotein (AFP) [9], while staying entirely negative for CK-7, Cdx-2, and PAX-8. This specific immunophenotype confirmed a diagnosis of metastatic HCC, Grade 2 [10].

Staging and underlying etiology

Baseline serum AFP was recorded at 172 ng/mL. A staging positron emission tomography-computed tomography scan on February 21, 2025, revealed a massive (66 × 59 × 60) mm osteolytic metastatic lesion in the right mandible (Fig. 3), a (43 × 44 × 24) mm primary lesion in the left lobe of the liver, and multiple satellite hepatic nodules (Fig. 5).

Subsequent gastroenterology workup revealed that the patient was positive for HCV, directly tracing back to a remote blood transfusion received in 1987. Clinical and sonographic features confirmed advanced underlying chronic liver disease, staged as Child-Pugh Class B [11], Barcelona clinic liver cancer (BCLC) Stage C [12,13], with a baseline MELD-Na score of 14 [14,15].

Treatment protocol and clinical progress

In this case, the discharging sinus has a perforated only outer cortex of the mandibular ramus. The inner cortex of the mandible is still intact, so the fracture is incomplete and stable. Hence, the surgical fixation of the mandible is not required as a



Figure 1: Non-healing ulcer on right cheek. Clinical photograph of the right facial region displaying a fungating, exophytic metastatic tumor eroding through the cutaneous layer of the cheek, demonstrating central ulceration, focal necrosis, and active capillary hemorrhage.



Figure 2: Non-healing ulcer on right cheek. Extended oblique view of the maxillofacial lesion illustrating extensive cutaneous infiltration, slough-covered necrotic beds, and peripheral tissue edema resulting from rapid cortical breach of the underlying mandibular body.



Figure 3: Computed tomography mandible. Reconstructed 3D and axial computed tomography scans of the mandible. The 3D render demonstrates a severe, osteolytic, destructive lesion centered at the right mandibular angle and ramus with total cortical destruction, creating an impending fracture risk. The axial soft-tissue cuts confirm a massive bicortical mass measuring 59.6 × 40.5 mm in cross-section with pharyngeal space compromise.

palliative surgery, as the pain is very minimal at jaw.

Surgical resection was not planned in the present case because the patient was in the advanced stage of HCC (Child-Pugh Class B, BCLC Stage C, baseline MELD-Na score - 14, high), so the surgical risk was high. Treatment for HCC metastasis is typically palliative, and radiation therapy has been shown to be effective palliative therapy for bony metastasis in patients with HCC. In addition, targeted drugs for advanced HCC are also the standard treatment; Lenvatinib is a commonly used anti-angiogenic agent.

Systemic and local radiotherapy (February–March 2025)

In late February 2025, the patient was initiated on systemic targeted therapy with the tyrosine kinase inhibitor Lenvatinib (Tab. Lenvima). Concurrently, to address the severe local pain and tumor burden, she received palliative hypofractionated external beam radiotherapy three-dimensional conformal

radiation therapy to the right mandibular region.

She completed a total dose of 3600 cGy in 12 fractions over 13 days (February 28–March 12, 2025). Local radiotherapy was well tolerated with only Grade 1 mucositis. However, concurrent systemic Lenvatinib had to be temporarily discontinued after 2 weeks due to severe dysphagia and debilitating oral ulcers, before being cautiously restarted at a modified dose following side-effect resolution.

Abdominal disease evolution (August 2025)

A follow-up abdominal ultrasound on August 19, 2025, documented significant intrahepatic tumor progression. The primary mass in segments II and III of the liver had increased in size to (7.5 × 4.6) cm up from (4.6 × 2.8) cm. Multiple separate, hypoechoic metastatic lesions across both hepatic lobes also exhibited an increase in size and structural number.

Late-stage complications and emergency presentation (November 2025)

In November 2025, the patient presented to the emergency

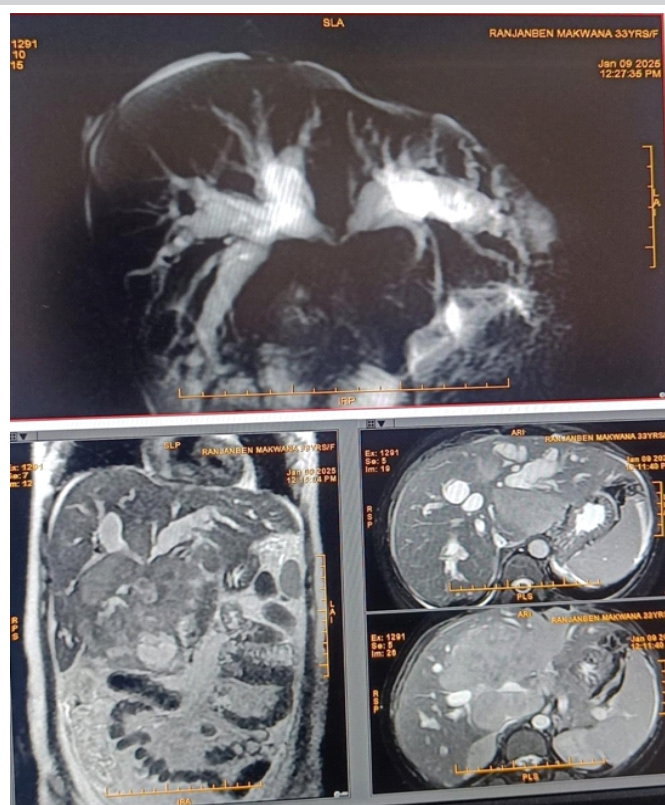


Figure 4: Triple phase magnetic resonance imaging abdomen. Triple-phase abdominal magnetic resonance imaging. Coronal and axial contrast-enhanced images demonstrate a large, multi-lobar hypervascular intrahepatic tumor in the left liver lobe with classical arterial enhancement and venous phase washout (LI-RADS 5), underlying background cirrhosis, dilated intrahepatic bile ducts, and an invasive left portal vein tumor thrombus.

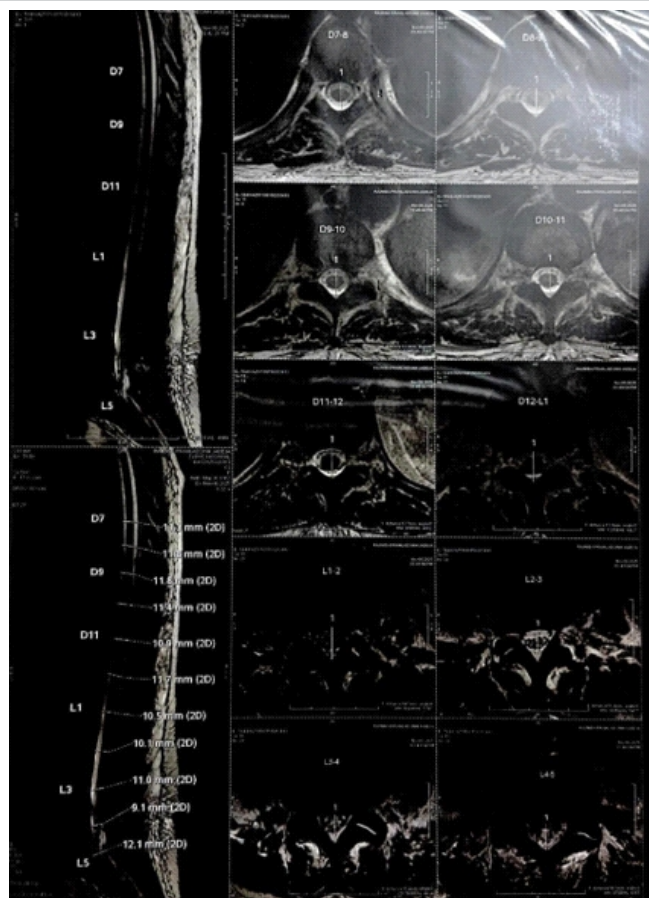


Figure 5: Magnetic resonance imaging (MRI) spine. Sagittal and axial T2-weighted and T1-contrast 3T MRI of the dorso-lumbar spine. Images depict focal altered signal intensity within the left pedicle, lamina, and posterior elements of the L3 vertebra, accompanied by facet joint effacement and diffuse posterior disc protrusions causing thecal sac compression.

department with a high fever, chills, severe localized back pain, progressive breathlessness, and recurrent episodes of active oral bleeding (Fig. 1 and 2). Physical examination revealed that the right mandibular tumor had eroded through the overlying skin layers, forming a large, fungating, ulcerated, and actively bleeding exophytic mass.

Emergency diagnostic imaging highlighted critical, multi-system progression:

1. Vascular tumor invasion: An abdominal ultrasound demonstrated advanced liver cirrhosis and a new left portal vein tumor thrombosis (Fig. 5), indicating direct vascular invasion by the malignancy.
2. Spinal metastasis: A 3T dorso-lumbar spine magnetic resonance imaging (MRI) revealed an irregular area of altered signal intensity involving the left pedicle, lamina, and transverse process of the L3 vertebra, causing effacement of the left L3-L4 facet joint – consistent with a new skeletal metastasis (Fig. 6).
3. Neurological structural compression: The spine MRI also documented broad-based posterior disc protrusions at L3-L4

and L4-L5 causing direct compression of the thecal sac and nerve roots, alongside intramedullary T2 hyperintensities and mild cord expansion from D11-L2, highly suggestive of concurrent myelitis (Fig. 6).

Stabilization and discharge palliative care

Following emergency inpatient stabilization, severe hypokalemia was corrected. For her systemic vascular thrombosis, she was initiated on low-molecular-weight heparin (Inj. Fragmin 2500 IU S/C daily). Direct antiviral therapy for her underlying disease was started using Sofosbuvir/Velpatasvir (Tab. Velpanat). Tab Lenvatinib is commonly used as an anti-angiogenic agent, which is considered a targeted drug for advanced HCC. For multi-site pain control, she was stabilized on an aggressive palliative analgesic regimen, including scheduled base medications and short-acting narcotics (Tab. Morphine 10 mg SOS for breakthrough pain), before being transitioned to home-based supportive care.

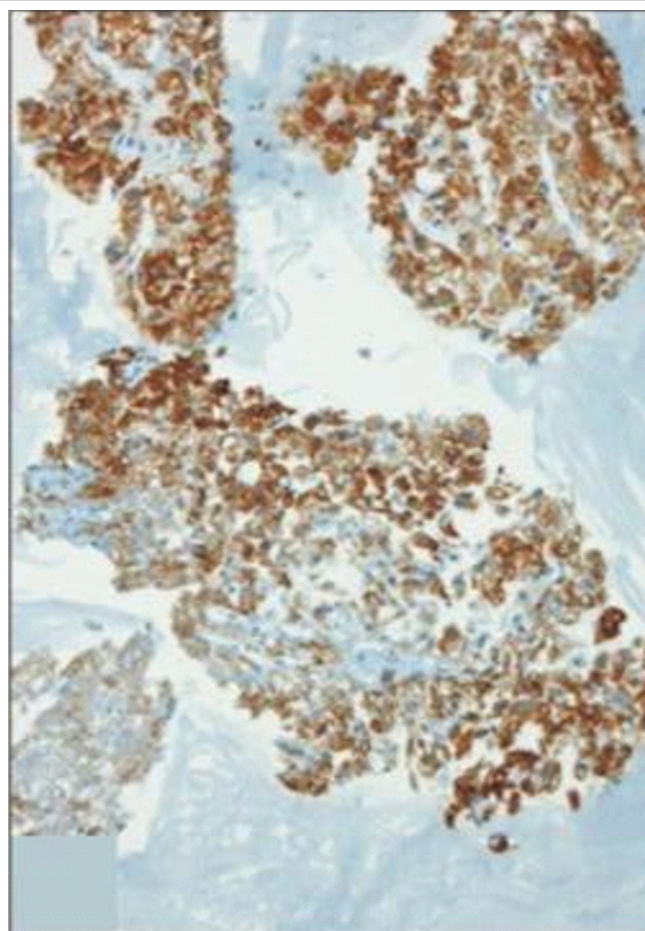


Figure 6: Tumor cells stained for Hepar-1 antibody. Immunohistochemical findings suggest that the tumor cells stained for Hepar-1 antibody ($\times 200$) are proof of hepatocyte.

Discussion

In 1998, Chin et al. published a review on metastatic tumors in the oral cavity. The majority of patients were male, with a male-to-female ratio of 1.6:1, and 90% of patients were over 50 years of age. The mandible was the most frequently involved site, with the anatomical distribution of cases reported as follows: Mandible: 40 cases, Maxilla: 8 cases, Tonsil: 1 case, Both Mandible and Maxilla: 1 case.

This case illustrates a highly unusual clinical trajectory where a hidden abdominal malignancy first declared itself via extrahepatic skeletal metastasis to the jawbone. Metastatic lesions in the maxillofacial region are notoriously difficult to diagnose early because their clinical and radiographic presentations closely mimic benign dental infections or standard post-extraction healing failures [5,16,17]. The immediate acceleration of facial swelling following her tooth extraction represents a classic example of a tumor capitalizing on the local inflammatory response and vascular remodeling of a healing dental socket to expand rapidly [18].

From a pathologic perspective, this case highlights the absolute necessity of IHC in clarifying tumors of unknown primary origins displaying “hepatoid” features. The diagnostic profiling – showing strong positivity for Hepar-1 [6] and Glypican 3 [7] – allowed the pathology team to confidently differentiate the mandibular mass from primary maxillofacial or clear-cell variants, bypassing the need for invasive liver biopsies in a patient with advanced background cirrhosis.

The final phase of this patient’s disease underscores the immense clinical challenge of managing advanced, simultaneous oncological complications. The development of a fungating, ulcerated facial mass represents a profound palliative hurdle, requiring highly specialized wound management to address constant capillary oozing, secondary bacterial colonization, and severe localized pain. Furthermore, the emergence of a portal vein tumor thrombosis simultaneously elevates the risk of internal variceal bleeding from exacerbated

portal hypertension while demanding the cautious use of systemic anticoagulation.

Finally, the addition of an L3 spinal metastasis with structural thecal sac compression and underlying cord edema places the patient at extreme risk for rapid neurological decline, necessitating precise multi-specialty care.

Conclusion

1. Maintain high suspicion for unresolved jaw masses: Clinicians must consider metastatic malignancy in the differential diagnosis of any aggressive, non-healing, or rapidly expanding jaw lesion following a routine dental extraction, particularly in patients with a history of previous blood transfusions or unknown viral hepatitis status.
2. The long latency of chronic HCV: This case serves as a reminder of the multi-decade latency period of the HCV contracted through previous blood products before modern screening protocols, which silently drives liver cirrhosis and aggressive HCC.
3. Primacy of multidisciplinary palliative care: In advanced oncological states, systemic targeted therapies are restricted by severe side effects and liver dysfunction; the focus must shift entirely to integrated palliative care. Coordinated efforts between Medical Oncology, Radiation Oncology, Interventional Gastroenterology, and Palliative Wound Care are vital to optimize comfort, manage skin barrier integrity, titrate opioid analgesics safely, and preserve dignity at the end of life.

Clinical Message

Unresolved jaw pain, soft-tissue swelling, or persistent post-extraction socket healing failures require a high index of suspicion for metastatic bone disease. Comprehensive orthopedic evaluation – incorporating structural stability scoring and fracture risk assessment – is vital to determine whether prophylactic fixation or non-invasive palliation should be executed in patients with poor physiological reserve.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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