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IMAGE | LIVER

Shoulder Mass as the Initial Presentation of Metastatic Hepatocellular Carcinoma

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CASE REPORT

A 70-year-old man with chronic hepatitis C, alcohol abuse, and an active cigarette smoking habit presented to our clinic with left shoulder pain and a soft tissue mass without history of prior trauma. Physical examination revealed a disheveled man, scleral icterus, palmar erythema, and abdominal shifting dullness. Neurological exam was significant for right arm weakness. Laboratory studies showed aspartate transaminase 2,309 IU/L, alanine transaminase 2,879 IU/L, alkaline phosphatase 570 IU/L, and total bilirubin 1.6 mg/dL. Computed tomography (CT) of the shoulder showed a 9.1 × 5.6 × 5.5 cm destructive expansile lesion at the proximal humeral metaphysis with pathologic fracture and extraosseous soft tissue extension (Figure 1). Further work-up with subsequent chest CT showed a 3.2 × 2.4 × 2.4 cm heterogeneously enhancing soft tissue mass with associated osseous destruction of the fifth right rib at the costochondral junction. A 2 × 2 cm lytic lesion of the high parietal calvarium near the vertex was identified on head CT (Figure 1). Abdominal CT showed cirrhotic liver with portal hypertension, moderate perihepatic free fluid, and multiple ill-defined hepatic parenchymal hypodensities abutting the gallbladder fossa (Figure 1).

Biopsy of the shoulder mass showed polygonal eosinophilic cells with round nuclei, prominent cherry-red central nucleoli, and scattered mitotic figures (Figure 2). Tumor cells were immunohistochemically positive for hepatocellular-specific Hep Par1 (Figure 2) and arginase, and they had a CD10 canalicular staining pattern. The cells were negative for PAX8, inhibin, and S100. These histopathologic features are characteristic of metastatic hepatocellular carcinoma (HCC). A few architectural and

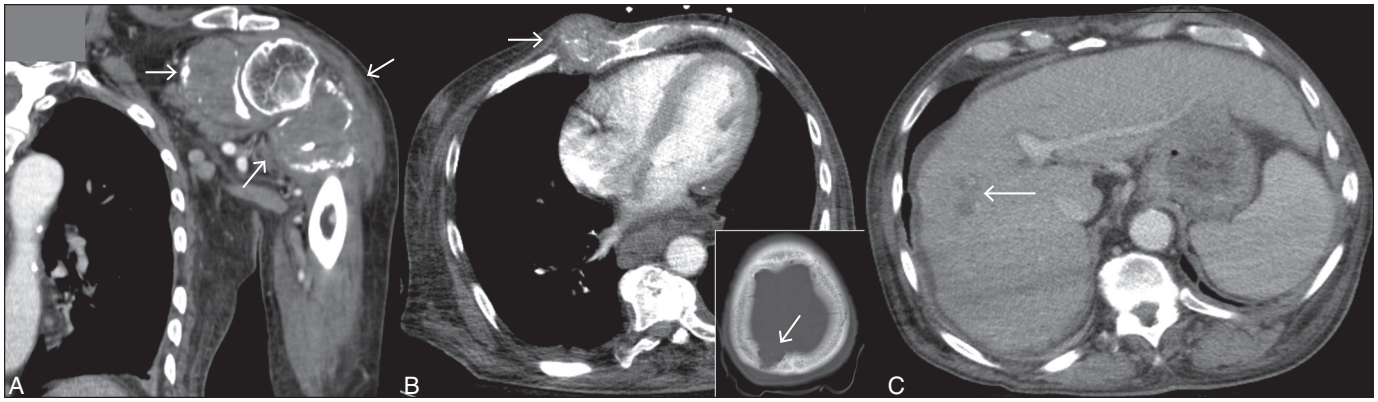

Figure 1. (A) Shoulder CT showing a 9.1 x 5.6 x 5.5 cm destructive expansile lesion at the proximal humeral metaphysis with pathologic fracture and extraosseous soft tissue extension (arrows). (B) Chest CT showing 3.2 x 2.4 x 2.4 cm heterogeneously enhancing soft tissue mass with associated osseous destruction of the fifth right rib at the costochondral junction (arrow). A 2 x 2 cm lytic lesion of the high parietal calvarium near the vertex was identified on head CT (inset, arrow). (C) Abdominal CT showed cirrhotic liver with portal hypertension, moderate perihepatic free fluid, and multiple ill-defined hepatic parenchymal hypodensities abutting the gallbladder fossa (arrow).

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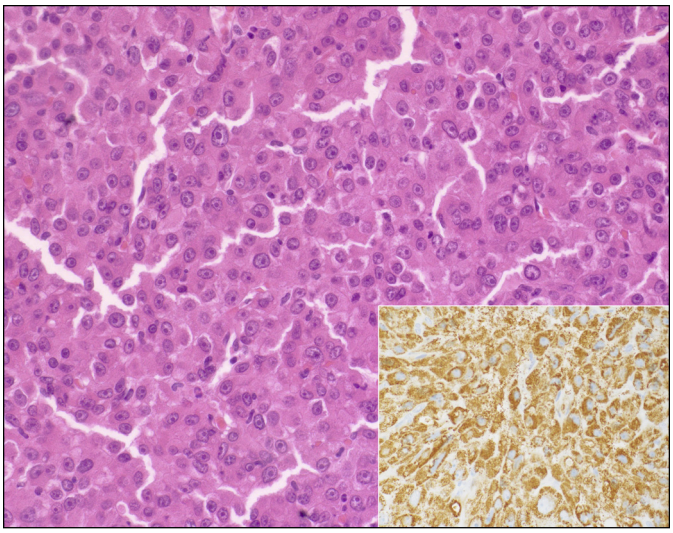

Figure 2. Biopsy of the shoulder mass showing polygonal eosinophilic cells with round nuclei, prominent cherry-red central nucleoli, and scattered mitotic figures. Tumor cells were immunohistochemically positive for hepatocellular-specific Hep Par1 (inset) and arginase, and showed a CD10 canalicular staining pattern.

cytologic patterns can be seen, but immunohistochemistry is necessary for confirmation. Classically, HCC is positive for Hep Par 1 (~90%), arginase, and glypican 3.[1] Polyclonal CEA and CD10 demonstrate a characteristic positive canalicular staining pattern.[1] Differential diagnoses includes melanoma, adrenocortical carcinoma, renal cell carcinoma, alveolar soft part sarcoma, clear cell sarcoma, and oncocytic thyroid neoplasms.

HCC is the third most common cancer worldwide, causing about 700,000 deaths annually.[2] It is associated with cirrhosis, hepatitis B and C virus, primary biliary and sclerosing cholangitis, aflatoxins, and autoimmune hepatitis.[2,3] Extrahepatic metastatic HCC, as observed in this case, occur in 30–50% of HCC patients; the most common sites are lungs, bones, adrenal glands, and lymph nodes.[4] Rare and unusual metastatic sites have been described in the literature, including the chest wall presenting as a breast mass and metastasis to the nasal septum.[5,6] Indeed, extrahepatic metastases to the humeral shoulder, chest wall, and bony lesions are exceedingly rare, as only a handful of cases have been reported.[3,7] Traditionally, a few systems have been widely employed for HCC staging (e.g. Okuda, tumor/node/metastasis), however, newer classification systems that take into account prognostication and treatment regimens are increasingly being utilized.[8] The Cancer of the Liver Italian Program (CLIP) and Barcelona Clinic Liver Cancer (BCLC) classification system are newer validated constructs that stratify patients based on stage and prognosis and take into account performance status, tumor burden, and extent of liver dysfunction.[2] Clinically, patients with extrahepatic metastases tend to have a poor prognosis, although even patients with advanced or metastatic disease may benefit from newer systemic treatments such as sorafenib, which has been shown to be the only treatment regimen that extends survival.[2,9]

DISCLOSURES

Author contributions: All authors contributed equally to the preparation of the manuscript. G. Ilyas is the article guarantor.

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