

Hepatocellular Carcinoma Presenting as a Solitary Metastasis to the Scapula

Case Report and Review of the Literature

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ABSTRACT: Although primary hepatocellular carcinoma is uncommon, metastasis to the upper extremity as a presenting symptom is even more rare. Recent case reports and autopsy surveys document that extrahepatic spread of this carcinoma occurs in 30% to 78% of patients, who usually are without regional symptoms involving bone. Although metastatic spread to the lungs and lymph nodes occurs more commonly, the incidence of bone metastases has increased according to previous reports and is now estimated from 2% to 13%. This case report concerns widely disseminated hepatocellular carcinoma presenting initially without any other systemic signs except for shoulder pain and induration. Due to the aggressive nature of this tumor, early detection is crucial. Early diagnosis may offer the only real hope for establishing effective treatment and improving the chances for long-term survival.

Introduction

Primary carcinoma of the liver in Western countries is uncommon, occurring in 0.2% to 0.72% of all autopsies.^{1,2} In certain Oriental and African populations, however, this type of tumor is much more prevalent and may constitute 30.1% to 50.9% of all cancers.³⁻⁵ A highly lethal disease, hepatocellular carcinoma has a 95% mortality rate within 6 months after diagnosis. Early detection is crucial and offers the best prospect for effective treatment and long-term survival. Due to the diversity and/or lack of symptoms with which patients present, the diagnosis of a primary epithelial tumor of the liver can be difficult. This case report relates such an instance in which a patient presented with only shoulder pain and swelling as the initial manifestations of metastatic hepatocellular carcinoma.

Case Report

A 61-year-old black male, N.E., presented with a chief complaint of left shoulder pain of 3 months' duration. The patient complained of constant muscle spasm and ache radiating over the left shoulder to the forearm. He noted an enlarging scapular mass and a decreasing range of motion of the left shoulder. Over the same 3 months, there was a concomitant weight loss of 30 lb. The patient had no other systemic signs indicative of gastrointestinal, infectious, or traumatic disorders. Past medical history was significant only for chronic alcohol abuse.

On physical examination, N.E. appeared as a cachectic individual in moderate distress. The patient was afebrile and his vital signs were stable and within normal limits. Although his exam was essentially unremarkable, inspection of the left scapula revealed a prominent superior mass, measuring 10 cm × 8 cm. The mass was firm without fluctuance, warm to touch, non-pulsatile with no audible bruit, and was tender to palpation. The left shoulder girdle and upper arm demonstrated marked muscular atrophy with shoulder flexion at 0° to 40°, abduction to 20°, with no internal or external rotation secondary to pain. Examination of the abdomen showed it to be non-tender and non-distended, with active bowel sounds. The liver measured 13 cm in length along the mid-clavicular line, protruding 3-finger breadths below the right costal margin. Lab studies revealed severe anemia (hematocrit = 17.91, hemoglobin = 7.2) and abnormal liver function tests (alkaline phosphatase = 1250 ImU/ml, LDH = 257 ImU/ml, SGOT = 115 U/ml, SGPT = 54 U/ml). Basic electrolytes, CBC with differential, urine analysis and protein electrophoresis were within normal limits. AP shoulder radiographs (Fig. 1), and CT scan of thorax (Fig. 2) demonstrated marked destruction of the left scapula with erosion of the glenoid fossa and superior border. A technetium bone scan revealed increased activity only around the left shoulder, particularly the acromion, coracoid process, and glenoid fossa. A liver spleen scan demonstrated multiple, discrete filling-defects throughout the liver. Percutaneous liver and scapular biopsies were thereafter performed under local anesthesia. At both sites, histological sections (Fig. 3A, B) indicated hepatocellular

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Fig. 1: AP of left shoulder demonstrating marked destruction of the scapula.



Fig. 2: CT scan of left shoulder.

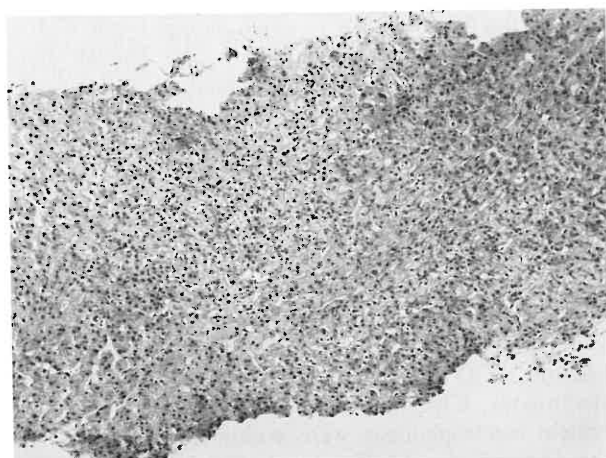


Fig. 3A: Histological section: liver 100x.

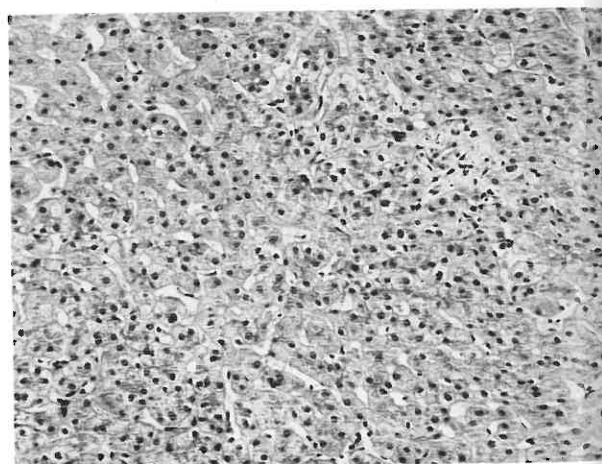


Fig. 3B: Liver carcinoma, 300x. Hepatocytes are dysplastic and distinctly abnormal along with the loss of the normal liver architecture.

carcinoma. The hepatocytes were dysplastic and distinctly abnormal; normal liver architecture was lost.

After consultation with the hematology-oncology service, no aggressive therapy was instituted. Supportive home services were arranged and the patient was discharged. His cachexia and pain subsequently progressed,

as he developed obstructive hepatomegaly and respiratory distress. The patient died one month after the diagnosis had been established.

Discussion

Earlier reports state that extrahepatic metastases of hepatoma are uncommon,^{3,6-9} but dissemination occurs in a substantial percentage of patients on a subclinical level. More recent studies demonstrate the presence of hepatoma metastases at autopsy is in 30% to 78% of cases.^{1,4,5,10,11} Metastatic spread occurs either through the pulmonary circulation or the vertebral venous plexus. Metastases involve the lung, regional lymph nodes, and bone respectively.

Metastatic spread to bone by primary carcinoma of the liver was once considered rare. In 1937, Bolken et al¹⁷

reported the first American case. In reviewing the literature, he could find only nine other previously documented cases. Subsequently, additional studies have been presented either as single case reports or have been included in autopsy studies. The spread of hepatocellular carcinoma to bone now ranges from 2% to 13%. The most common site of skeletal metastases is the vertebral column followed by the ribs and the long bones.^{5,10,12-19} To the best of our knowledge, there has been only one other case report of extrahepatic metastasis to the scapula.¹⁰ Furthermore, cases presenting with bone involvement as the initial manifestation of the disease are distinctly unusual. In this report, however, the patient clearly sought orthopedic attention because of shoulder pain and loss of motion.

Since hepatic cancer may escape early detection, it is important to recognize that such carcinomas occur 2 to 4 times more frequently in men than women. The peak incidence occurs in the fifth through seventh decades of life. Cirrhosis is found in 60% to 75% of autopsied patients with primary liver cell carcinoma. Wide variation in the incidence of hepatocellular carcinoma in different parts of the world further suggests that a number of etiologic factors such as viral hepatitis, chronic liver disease (hemochromatosis), mycotoxins, and hormones (androgen therapy) may be important in the malignant degeneration of the liver.^{3,11,20,21} Weight loss, upper abdominal pain, anorexia, and jaundice are the most common symptoms. Abdominal pain is, by far, the most common physical finding, present in 67% of patients.^{6,22} Although liver function tests are mildly abnormal in these patients, they are not of diagnostic or prognostic value. Diagnostic evaluation should include gallium-technetium scans to detect the presence of solitary or multiple hepatic tumors. Celiac axis angiography, although not commonly employed, has demonstrated "tumor blushes" within the liver parenchyma consistent with the diagnosis of hepatoma.²³ The role of alpha fetoprotein, present in the serum of 50% to 70% of patients with hepatocellular carcinoma, remains controversial as an accurate diagnostic tool. Percutaneous liver biopsy remains the accepted and most often used method for establishing the diagnosis.^{11,16,21} With the present modalities of therapy, surgical resection and/or chemotherapy²⁴⁻²⁹ offer the only real prospect of cure for those patients with primary liver cancer. The mortality is high, with most patients (95%) dying within 6 months of diagnosis as a result of gastrointestinal hemorrhage, progressive cachexia, or hepatic failure.

Certain facts regarding hepatocellular carcinoma should be stressed. It is well known that the presentation of hepatic cancer often can be unique and bizarre. Patients will present with a wide diversity of symptoms and as such, the diagnosis can often elude early detection. Accordingly, liver-spleen scans with percutaneous liver biopsy remain the accepted diagnostic modalities and,

although, metastatic spread of hepatoma was once thought to be rare, it actually occurs in a substantial percentage of afflicted patients (30% to 78%). In order of frequency, metastases involve the lung, regional lymph nodes, and bone. Extrahepatic spread to bone is now realistically assessed at 2% to 13%. The most common skeletal sites are the vertebral column, ribs, and long bones.^{13,17,18,21} A number of case reports, however, document spread to more unique areas such as the mandible, calvarium and scapula.^{10,14,15} Due to the seemingly increased incidence of extrahepatic spread of liver cancer, the orthopedic surgeon should include this entity in his differential diagnosis of carcinomas which are metastatic to bone.

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