Case Report

HCC masquerading as gluteal mass: A rare presentation

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ABSTRACT

Hepatocellular carcinoma (HCC) is the most common primary tumor of the liver. Extrahepatic metastasis occurs mostly through the hematogenous route and is seen in around one-third of patients with the common sites of involvement being the lungs, regional lymph nodes, bone, adrenal glands, and pancreas. Soft-tissue metastasis from HCC is an extremely rare condition. Here, we present a rare case of an elderly male, with HCC presenting as a soft-tissue mass in the gluteal region. We further provide a detailed discussion regarding the investigative approach used to arrive at the diagnosis and the treatment modalities offered. Case reports like this may offer insight into the possibilities of such unusual presentations and aid the clinician in his endeavor to the early diagnose and treat the patient.

Key words: Hepatocellular carcinoma, Metastatic hepatocellular carcinoma, Soft-tissue metastasis, Unusual metastasis

Hepatocellular carcinoma (HCC) is the most common primary cancer of the liver accounting for around 90% of the cases [1]. Etiological factors include hepatitis B virus (HBV) infection, hepatitis C virus (HCV) infection, non-alcoholic steatohepatitis, metabolic diseases, and environmental toxins. The geographic incidence of liver cancer reflects the variability in the geographic incidence of HCV and HBV infections, which account for 75% of the cases worldwide [1]. The tests used to diagnose HCC include radiologic studies and pathologic diagnosis with a biopsy. Core biopsies are most preferred due to the tissue architecture given by this technique. Liver imaging reporting and data system are both a set of standardized terminology and a classification system for imaging findings in liver lesions [2]. The American association for the study of liver diseases and the European association for the study of the liver [3] have outlined non-invasive criteria for the diagnosis of HCC based on imaging characteristics [4]. The prognosis in patients with HCC is also influenced by the severity of the underlying liver disease. The Child-Pugh scoring system is the most commonly used tool for assessing cirrhosis. Elective surgery is usually considered in Child class A patients and child class B patients can proceed with surgery after medical optimization but still has increased risk. Elective surgery is contraindicated in Child class C patients [5].

As modern diagnostic techniques and treatment options become increasingly available, a larger number of metastases are found; hence, there is a possibility to encounter more unusual sites of extrahepatic dissemination [6].

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CASE REPORT

A 74-year-old gentleman, diabetic and hypertensive, presented with complaints of a soft-tissue mass in the gluteal region which was associated with severe pain with restriction of movement.

On examination, a soft-tissue swelling of size 15×12 cm was found in the left gluteal region. The swelling was soft to firm in consistency, tender, and restricted mobility with normal overlying skin. There was no evidence of inguinal lymphadenopathy or similar swellings elsewhere in the body. The performance status of the patient was categorized as eastern cooperative oncology group 2. The rest of the systemic examination revealed no other clinically apparent abnormal findings.

A magnetic resonance imaging (MRI) of the gluteal region and a core-needle biopsy was planned. MRI gluteal region revealed a 14.1×12.4 cm lesion involving the left ilium and acetabulum extending into intermuscular and subcutaneous planes of the left side of the pelvis and the left thigh. MRI was suggestive of chondrosarcoma as a differential diagnosis. To aid the diagnosis, a computed tomography (CT)-guided core needle was performed with local anesthesia, obtaining samples from the gluteal lesion for histopathological and immunohistochemistry (IHC) examination.

Biopsy sections revealed a tumor composed of atypical hepatoid cells arranged in sheets and trabeculae with interspersed vascular channels. The cells showed nuclear polymorphism,

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atypical mitosis, and a fair number of intranuclear inclusions (Fig. 1a). IHC revealed tumor cells reactive to Hep PAR-1 and Glypican 3 (Fig. 1b). Based on the above findings, a diagnosis consistent with soft-tissue metastasis from HCC was made.

We followed this up with a whole-body fluorodeoxyglucose-positron emission tomography (PET) scan which showed uptake in the left gluteal mass consistent with the MRI findings and also uptake in the left external iliac lymph node. However, there was no PET avid lesion detected in the liver (Fig. 2). Hence, to establish the primary, a triphasic contrast-enhanced CT abdomen was done and it picked up a lesion in Segment V of the liver 9.4 mm in diameter which showed enhancement of peripheral rim in the portal venous phase and complete washout in the delayed phase. This was accompanied by an alpha-fetoprotein (AFP) level of >7000. Consequently, the diagnostic dilemma was put to rest, and the diagnosis of an HCC presenting as a huge soft-tissue metastatic lesion was established.

After a multidisciplinary tumor board discussion, the patient decided on radiotherapy to the left iliac bone (30 gray in ten fractions) for local control and palliation of pain. For systemic therapy, the patient was evaluated as per the Barcelona clinic liver cancer criteria. His biochemical and hematological parameters were within normal limits except for the raised AFP levels. His hepatic functional status was categorized as Child-Pugh-A.

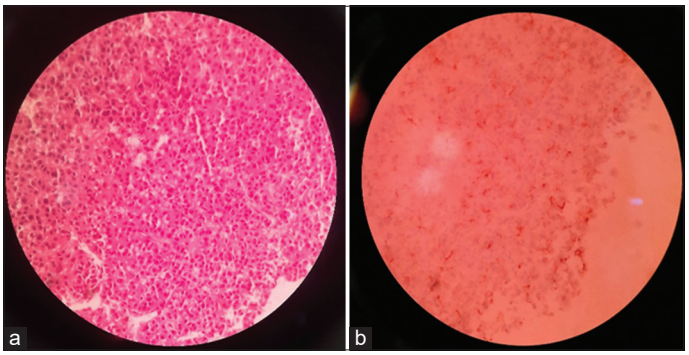

Figure 1: (a) Histopathological examination of the cells showed nuclear polymorphism, atypical mitosis and fair number of intranuclear inclusions; (b) immunohistochemistry revealed tumor cells reactive to Hep PAR-1 and Glypican 3

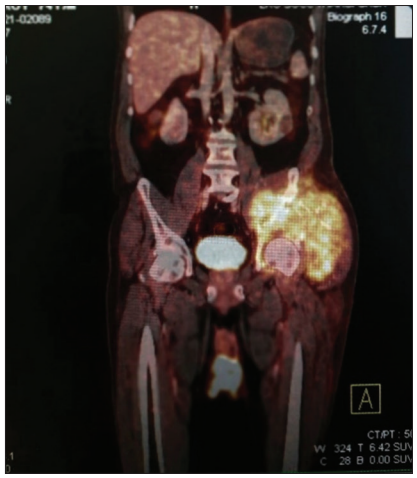

Figure 2: Whole-body fluorodeoxyglucose-positron emission tomography (PET) scan showing PET avid metastatic lesion

However, considering his performance status and associated comorbidities, it was decided to put him on a single agent lenvatinib 8 mg daily (bw <60 kg) as systemic therapy.

The patient faired well on the decided treatment protocol with improvement in pain and general status. He is currently on regular follow-up and is awaiting the response evaluation by a PET CT scan.

DISCUSSION

Patients with HCC usually require a multidisciplinary approach to ensure optimal outcomes. There are several treatment options (both surgical and non-surgical) based on the stage and presentation of the disease [7]. Liver resection is the preferred treatment for non-cirrhotic patients with HCC. Many local treatments including transarterial chemoembolization, percutaneous radiofrequency ablation, percutaneous ethanol injection, or stereotactic body radiotherapy are also used in selected patients [8]. For HCC, a large number of controlled and uncontrolled clinical studies have failed to show the benefit of systemic chemotherapy on survival in HCC [9].

Given the fact that vascular endothelial growth factor (VEGF) promotes HCC development and metastasis, and that increased levels of VEGF have been associated with inferior survival [10], antiangiogenic agents have been extensively studied in advanced HCC. Systemic therapy is recommended for patients where the disease is advancing with locoregional therapies and also in patients with extrahepatic metastasis. The combination of atezolizumab and bevacizumab is the first-line recommendation among patients with the Child-Pugh A category. Other options in first-line therapy are sorafinib and lenvatinib. Lenvatinib is recommended as Class 1 in patients with Child-Pugh A liver function status only [11]. It targets VEGFR1 to VEGFR3, fibroblast growth factors 1–4 receptor 1–4, PDGFR, RET, and c-KIT.

Given the rarity of this presentation, an HCC presenting as a gluteal soft-tissue mass is challenging and often a diagnostic dilemma. On review of similar reports in the literature, we found a few such cases reported worldwide. One of the earlier cases to report such an unusual presentation was by Fernández *et al*. in 1989, where a patient who had a mass in the gluteal region of 3 years evolution, turned out to be a metastasis of hepatocarcinoma [12]. A similar case of gluteal metastasis from HCC primary was also reported, again from Spain, by Díez *et al*. in 2008 [13]. More recently, in 2018, Balea *et al*. presented a detailed report with their approach to diagnosis and challenges in a 69-year-old male old male patient with a 10 years history of hepatitis C infection and presenting with a self-perceived left gluteal mass that was later diagnosed as a metastatic lesion from an HCC primary. He was treated with sorafenib as systemic therapy [14]. Although rare, other unusual sites of presentation of HCC primary as soft-tissue tumors have been reported. One such case report was presented by Wu *et al*. where the site of metastasis was the left psoas muscle [15]. Similarly, an incident of metastasis from an HCC in a 65-year-old female with no previous history of liver disease who presented with a left shoulder region mass was reported by Patel *et al*. [16]. Even in cohorts, the incidence for muscle metastases from HCC is very low. A recent study on 995

consecutive cases diagnosed with HCC and followed at regular intervals only revealed one muscle metastasis from 151 patients that presented metastases (0.7% incidence) [7].

In light of the above discussion, it is evident that ours is one of the rarer reports of such unusual presentations of HCC available in the literature. We also provide a full diagnostic workup and a scientific detail of the step-by-step evaluation and diagnosis of the patient with records of treatment modalities applied.

CONCLUSION

Soft-tissue metastasis from HCC is a rare condition. As such, it poses a diagnostic challenge and sometimes creates a delay in using the diagnostic armamentarium and coming to a definitive diagnosis and initiation of treatment. In such circumstances, case reports and discussions like this may offer insight into the possibilities of such unusual presentations and aid the clinician in his endeavor to treat the patient. Furthermore, discussions on treatment modalities offered and responses achieved, may help others dealing with such unusual circumstances where accepted guidelines for treating conventional presentations may not suffice.

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