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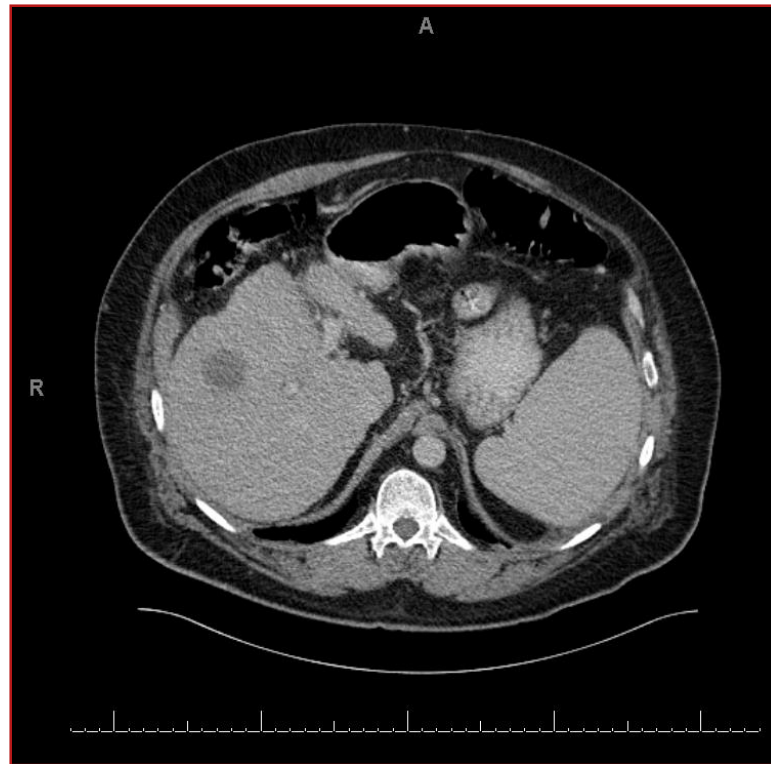
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Pyogenic liver abscess vs. Hepatocellular carcinoma, the challenge of diagnosis without a biopsy.

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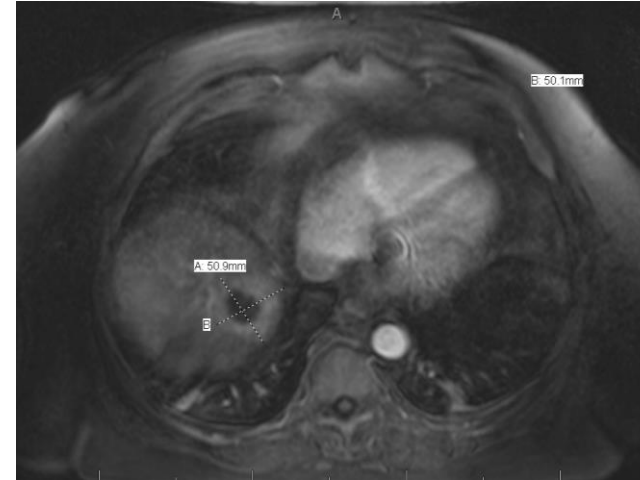
BACKGROUND

A liver mass in a cirrhotic liver should always raise the concern for hepatocellular carcinoma (HCC), and expert guidelines state that diagnosis can be made with imaging alone in some settings. The causes of focal liver lesions are diverse, and may range from benign lesions with an indolent clinical course to aggressive malignant tumors. They are common findings as a result of the increasing use of cross-sectional imaging techniques in patients with nonspecific abdominal complaints. Clinical evaluation and noninvasive radiologic imaging are critical for decision making in the management of most patients with liver lesions [1]. Our case illustrates that care must be taken to consider other etiologies before making that diagnosis.



CASE DESCRIPTION

A 57 year old man with alcoholic liver cirrhosis came to the ED complaining of 1 month of severe, intermittent abdominal pain with associated subjective fever and chills. A CT abdomen on admission reported 2 ill-defined hypodense liver lesions concerning for HCC (left image). In the setting of liver cirrhosis and a hepatic mass, work up for HCC was initiated, including an AFP which was later found to be normal. IR was consulted for possible biopsy, however because the patient had an elevated INR and thrombocytopenia it was deferred and a triple phase MRI was instead recommended to further evaluation. Infection was initially lower on the differential due to lack of fever and normal WBC. On hospital day 2 one of the BCXs from admission revealed *Streptococcus viridians* (later updated to *Strep milleri*). On hospital day 3, fevers, tachycardia and leukocytosis developed. An abscess was now more likely. The patient was initially monitored without antibiotics, but after the positive culture and the episode of fever, he was started on ceftriaxone and a second set of BCX were drawn which later revealed the same organism. The MRI showed two rim enhancing lesions in the right hepatic lobe which in the setting of infectious symptoms, were favored to represent abscesses (right image). ID was consulted and recommended 6 weeks of IV ceftriaxone. A TEE showed no evidence of endocarditis. A repeat CT showed the masses to be decreased in size and the patient was discharged with Clindamycin 300mg TID for an additional month. His last CT continued to show evidence of improvement and he was clinically improved as well, so clindamycin was discontinued and he was discharged from the Infectious Disease clinic.



DISCUSSION

A mass lesion seen in a patient with hepatitis B or C infection, particularly when associated with features of chronic liver disease, should raise the threshold for suspicion of a malignancy, such as hepatocellular carcinoma (HCC) [1]. Our patient came to the ED complaining of vague symptoms of abdominal pain and had concerning risk factors that makes a malignancy higher in the differential diagnosis. The initial signs and symptoms are typically indolent and advance lesions may have mild to moderate upper abdominal pain, weight loss, early satiety, or a palpable mass in the upper abdomen [2]. Theoretically the anatomopathological assessment is the gold standard for the diagnosis of any liver mass, however given the invasiveness and procedural risks of the intervention is not the initial tool for the diagnosis, specially with accessible imaging modalities such as CT and MRI or tumor markers such as Alpha-Fetoprotein (AFP). In a setting such as our patient, a contrast CT scan of the liver and/or magnetic resonance imaging (MRI) study is often the initial diagnostic test. In patients with cirrhosis, any dominant solid nodule that is not clearly a hemangioma should be considered a HCC unless proven otherwise [3].

According to current guidelines, a mass found incidentally or on screening in the setting of a patient with known hepatitis B or cirrhosis of other etiology is likely to be HCC [4]. Whenever a liver lesion of more than 1 cm is present in the right clinical setting, this should be either evaluated by MRI or CT with contrast and if the appearance is typical of HCC, then no further investigations are required [4]. Unfortunately in our case the initial CT was concerning but still equivocal for HCC, in such cases the next approach can be either pursuing another imaging modality or trying to biopsy the lesion. But after consultation with interventional radiology it was deemed that the risk of the percutaneous biopsy might be too elevated since the patient had an elevated INR and thrombocytopenic, therefore the second imaging modality was chosen.

Another widely used tool is the serum marker AFP, it is a glycoprotein that is normally produced during gestation by the fetal liver and yolk sac, the serum concentration of which is often elevated in patients with HCC. However the serum levels do not correlate well with other clinical features of HCC, such as size, stage, or prognosis. It could be elevated in other conditions such as pregnancy, gonadal origin neoplasms and other GI malignancies. It is accepted that a level >500mcg/L in a high risk patient is diagnostic of HCC [5]. However over 40% of cases have normal levels [6]. Also a variant of HCC called fibrolamellar carcinoma have normal serum levels generally. Still its use can be practical since its Sensitivity 41-65 %, specificity 80-94 % positive likelihood ratio 3.1 - 6.8 and negative likelihood ratio 0.4 - 0.6 with a cutoff of >20 mcg/L [7]. Applying this information into our case the level of AFP was measured on admission but was reported as normal, therefore still HCC could not be ruled out since the sensitivity of the test is not high.

CONCLUSION

By following these recommendations, our patient who had the common risk factors and worrisome radiological findings of HCC was spared from an invasive procedure and negative impact in his quality of life by being diagnosed with cancer. Other factors that contributed to pursue another diagnosis was obtaining blood cultures on admission, which is important to consider in the setting of a possible septic picture. All these was achieved with out obtaining a biopsy or culture from the mass, which even in the setting of an abscess would be important to consider. However the therapy was deemed appropriate since subsequent CT scans showed regression of the abscess.

WHY THIS CASE MATTERS?

1. Reminds the clinician which risk factors are concerning for a liver malignancy such as HCC but still having in mind that other differential diagnosis exist.
2. Provides the primary care provider in the outpatient setting the guidelines to work up a liver mass found incidentally on abdominal imaging such as ultrasound, CT or MRI.
3. Demonstrates that HCC can be diagnosed without the need of pathological confirmation, since most of the patients have certain degree of coagulopathy that can put them at periprocedural risk of bleeding among others.

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