Hyperkalemia in the setting of newly diagnosed hepatocellular carcinoma

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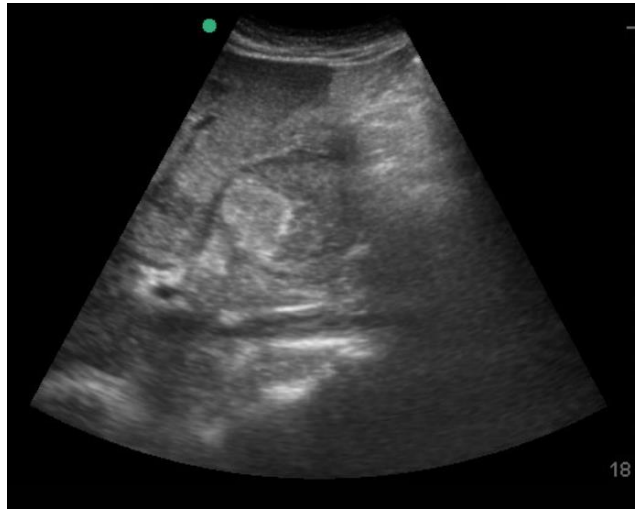
Clinical Presentation

A 63-year-old African American male with history of alcohol abuse and hypertension presented with two days of worsening epigastric abdominal pain. Bedside US showed significant hepatomegaly with areas of heterogeneity concerning for malignancy. CT imaging revealed multiple mass lesions consistent with multifocal multilobular hepatocellular carcinoma (HCC). He was scheduled for hepatic angiogram. Day of procedure, pre-operative labs revealed potassium 6.3 mg/dL, sodium 131 mg/dL, and bilirubin 5.6 mg/dL. Lactate 2.3 mg/dL, uric acid 9.1 mg/dL, calcium 9.9 mg/dL, and phosphate 4.2 mg/dL. Repeat CT showed significant progression of disease. Laboratory abnormalities thought secondary to spontaneous tumor lysis syndrome (STLS) in the setting of a high-grade HCC, though could not exclude effects from spironolactone and furosemide. Eight days later, patient presented to the emergency department with decreased level of consciousness. Labs consistent with multiorgan failure with potassium 7.1 mg/dL, HCO3 <10 meq/L, creatinine 3.74 mg/dL, total bilirubin of 15.9 mg/dL, and AST of 956 units/L. Phosphorus elevated to 9.9 mg/dL, lactate 15.1 mg/dL, with pH of 7.17. He was transitioned to hospice cares and unfortunately passed several hours later.

Discussion

STLS has not been widely reported in HCC, though has been associated with increased mortality, high tumor burden, rapid expansion or infiltration, and/or large areas of tumor necrosis. This increase in mortality is likely related to delayed diagnosis, as with HCC, hyperkalemia is often attributed to medical therapies used for management of cirrhosis. In patients at risk for STLS who are not responsive to potassium shifting, treatment with aggressive fluid resuscitation and addition of allopurinol vs. rasburicase should be considered. Little research has been done on the use of rasburicase for prevention of STLS in solid tumors, though may be beneficial in patients with high tumor burden or rapidly progressive disease.

Figure 1: IMBUS of RUQ liver lesion



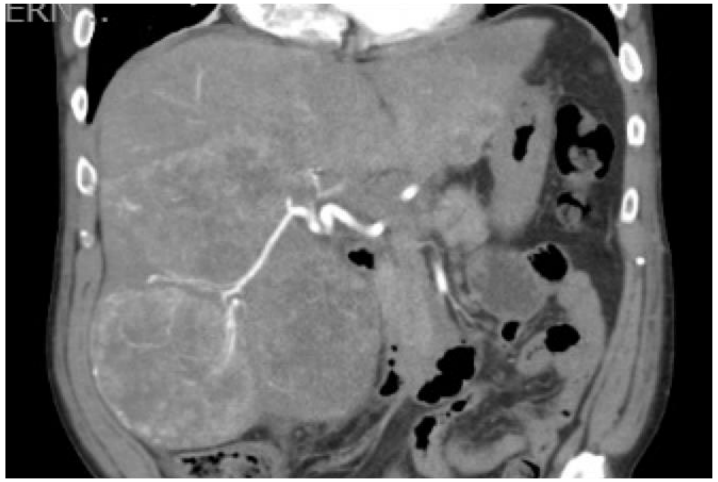


Figure 2: CT imaging of liver mass

Conclusion

STLS is a rare, but highly morbid, oncologic emergency. Though less common in solid tumors, several case reports have been documented. Notably, STLS in solid tumors is diagnosed later in hospital course and predicts poorer outcomes compared to STLS in hematologic malignancies. This is likely due to confounding diagnoses and medication use. In patients with rapidly progressive solid tumors and electrolyte derangements that do not correct as predicted, STLS should be considered, and treatment altered accordingly in order to improve outcomes.

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