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## Molecular Imaging

# Hindgut gastropancreatic neuroendocrine carcinoma mimicking hydatid disease

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### ABSTRACT

Primary neuroendocrine tumors of the colon are usually very rare and difficult to spot on a nonfunctional imaging. Metastatic lesions are mostly hypervascular, with only a small percentage appearing as cystic or hypovascular lesions. We present a case of a 34-year-old Hispanic female with a history of dull aching upper abdominal pain lasting for a few months. Initial abdominal ultrasound revealed multiple cystic lesions replacing the hepatic parenchyma concerning for a hydatid disease. Liver biopsy was obtained due to negative serology for hydatid disease, which surprisingly revealed a metastatic neuroendocrine tumor of unknown etiology. The primary disease was depicted within the sigmoid colon on a whole-body Octreotide single-photon emission computed tomography-computed tomography done following the biopsy.

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## Introduction

Primary neuroendocrine tumors (NETs) of the distal colon are extremely rare. Newer researches have shown near-complete recovery if the primary tumor is resected, even if metastases exist [1].

The diagnosis incidence of the NETs has significantly increased in recent years [1,2].

NETs with somatostatin receptors can be easily depicted on functional imaging such as OctreoScan and Gallium-68 receptor positron emission tomography-computed tomography [3,4].

## Case report

A 34-year-old Hispanic woman without significant medical history presented with a vague upper left quadrant pain. An abdominal ultrasound obtained demonstrated multiple cystic lesions within the liver, some of which showed internal septations as well as daughter cysts concerning for a hydatid disease (Fig. 1).

A computed tomography (CT) scan of the abdomen was performed, showing multiple low attenuation lesions throughout the liver with a majority identified as cystic lesions and a few

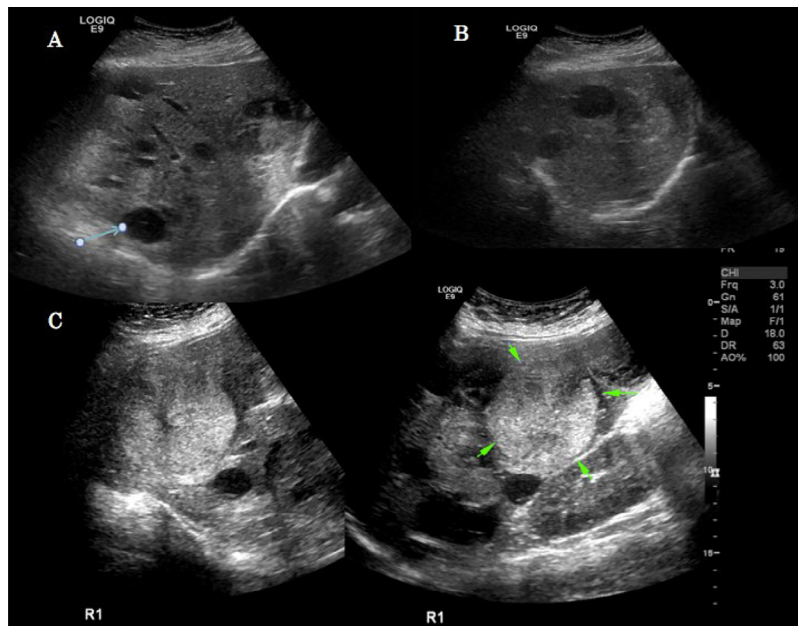
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**Fig. 1 – Abdominal US images showing (A, B) cystic lesions in segment V and VII of the liver (blue arrow). (C) Large hyperechoic solid lesion (green arrows). US, ultrasound.**

solid lesions. Cystic lesions showed a thick capsule with internal septations suggestive of *Echinococcus* disease. The largest lesion was identified as 8.8 cm in size (Fig. 2). The two solid masses were indeterminate.

Magnetic resonance imaging (MRI) of the liver was performed using a hepato-specific paramagnetic gadolinium-based contrast agent (Eovist, Bayer HealthCare LLC, Whippany, NJ), revealing findings consistent with a hydatid disease with cyst classification following the World Health Organization guidelines into CE1 through CE4 subdivisions (Fig. 3). There were also complex cysts in the pancreatic head and in the retroperitoneum suggestive of extrahepatic hydatid disease.

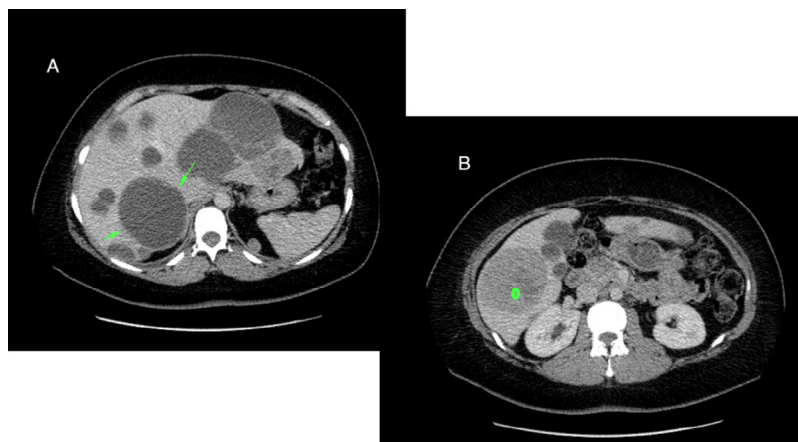
A solid lesion in segment V/VI was indeterminate.

Common tumor markers including AFP, CA 19-9, and CEA were all negative. The patient was empirically started on

albendazole for presumed hydatid disease before possible drainage or surgical resection. No ova or parasites were detected. *Echinococcus* antibody, immunoglobulin G, serum by enzyme-linked immunosorbent assay was negative.

There was no significant response to the treatment, and the abdominal pain persisted. The patient was further evaluated and underwent exploratory laparotomy, liver biopsy, appendectomy, and cholecystectomy. Pathology surprisingly revealed a neuroendocrine carcinoma of unknown primary origin (Figs. 4, 5).

The patient had a follow-up nuclear medicine Octreotide (single-photon emission computed tomography [SPECT]) scan depicting a primary tumor in the rectosigmoid area with metastases to the liver, pancreas, and upper abdominal lymph nodes (Fig. 6). Laboratory work was done to check for



**Fig. 2 – (A) CT images showing an encapsulated hypodense lesion in segment VII/VIII of the liver with no appreciable enhancement of the capsule (green arrows); smaller hypodense lesions are present in both hepatic lobes. (B) Slightly hypoattenuating solid mass within segment V/VI (green circle). CT, computed tomography.**

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