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Primary intrahepatic mesotheliomas: A case presentation and literature review

Hishaam Ismael*, Steven Cox

Department of Surgery, The University of Texas Health Northeast, Tyler, TX, USA

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ABSTRACT

INTRODUCTION: Primary Intrahepatic mesotheliomas are malignant tumors arising from the mesothelial cell layer covering Glisson's capsule of the liver. They are exceedingly rare with only fourteen cases reported in the literature. They have nonspecific signs and symptoms and need a high index of suspicion and an extensive workup prior to surgery. Surgery remains the mainstay of treatment.
PRESENTATION OF CASE: 48 year old male presented with a 3 months history of abdominal pain, productive cough, anemia and weight loss. He had no history of asbestos exposure. A computed tomography scan and magnetic resonance study demonstrated a heterogeneous subscapular mass within the dome of the right hepatic lobe measuring 11.3 × 6.1 cm involving the diaphragm. Combined resection of the liver and diaphragm was performed to achieve negative margins. Pathology demonstrated an epithelioid necrotic intrahepatic mesothelioma that stained positive for calretinin, CK AE1/AE3, WT-1, D2-40 and CK7.
DISCUSSION: Primary intrahepatic mesotheliomas originate from the mesothelial cells lining Glisson's capsule of the liver. They predominantly invade the liver but may also abut or involve the diaphragm. Surgery should include a diagnostic laparoscopy to rule out occult disease or diffuse peritoneal mesothelioma. Complete resection with negative margins should be attempted while maintaining an adequate future liver remnant. Attempts at dissecting the tumor off the involved diaphragm will result in excessive bleeding and may leave residual disease behind.
CONCLUSION: Intrahepatic mesotheliomas are rare peripherally-located malignant tumors of the liver. They require a high index of suspicion and a comprehensive workup prior to operative intervention.

1. Introduction

Malignant mesothelioma is a rare neoplasm of mesothelial cells arising most frequently in the pleura or peritoneum and less frequently in the liver [1]. Eighty percent of cases are pleural in origin and are related to asbestos exposure [2]. Peritoneal malignant mesothelioma usually affects the liver through hematogenous spread at advanced stages. Apparent direct invasion of the liver is rare as this tumor has a locally-expansive rather than infiltrative growth pattern [3]. Primary intrahepatic mesotheliomas arising from the mesothelial cells of the Glissonian capsule are exceedingly rare and are difficult to diagnose [1].

Most malignant mesotheliomas grow widely over the serosal membrane surfaces and eventually encase organs surrounding the involved site [4]. Less commonly, mesotheliomas have a localized presentation and appear as a well-circumscribed tumor with the microscopic appearance of diffuse malignant mesothelioma [4]. These can be difficult to differentiate from primary intra-hepatic tumors as both tumors can involve the diaphragm.

Some authors believe that primary intrahepatic mesotheliomas originate from mesothelial cells of Glisson's capsule which subsequently invade the liver [4]. Others believe that Glisson's capsule consists of collagen fibers, fibroblasts and small blood vessels and has no mesothelial cells of its own, suggesting that intrahepatic mesotheliomas are simply localized peritoneal malignancies [5]. Mesothelial cells cover the parietal walls of cavities and the surfaces of visceral organs as well. In fact, mesothelial cells are easily recognized covering Glisson's capsule in liver sections under the microscope [6]. They play an active role in liver development, fibrosis and regeneration [7]. It is our understanding that these cells are the origin of intrahepatic mesotheliomas. Primary intrahepatic mesotheliomas originate and are therefore largely based in the liver, may abut or involve the diaphragm, and demonstrate no diffuse spread.

The differential diagnosis should include other primary and secondary liver neoplasms such as hepatocellular carcinoma, cholangiocarcinoma and adenocarcinoma from a known or unknown site [1]. The presentation is non-specific and the preoperative evaluation should include tumor markers, imaging studies

* Corresponding author.
E-mail addresses: Hishaam.Ismael@uthct.edu (H. Ismael), Steven.Cox@uthct.edu (S. Cox).

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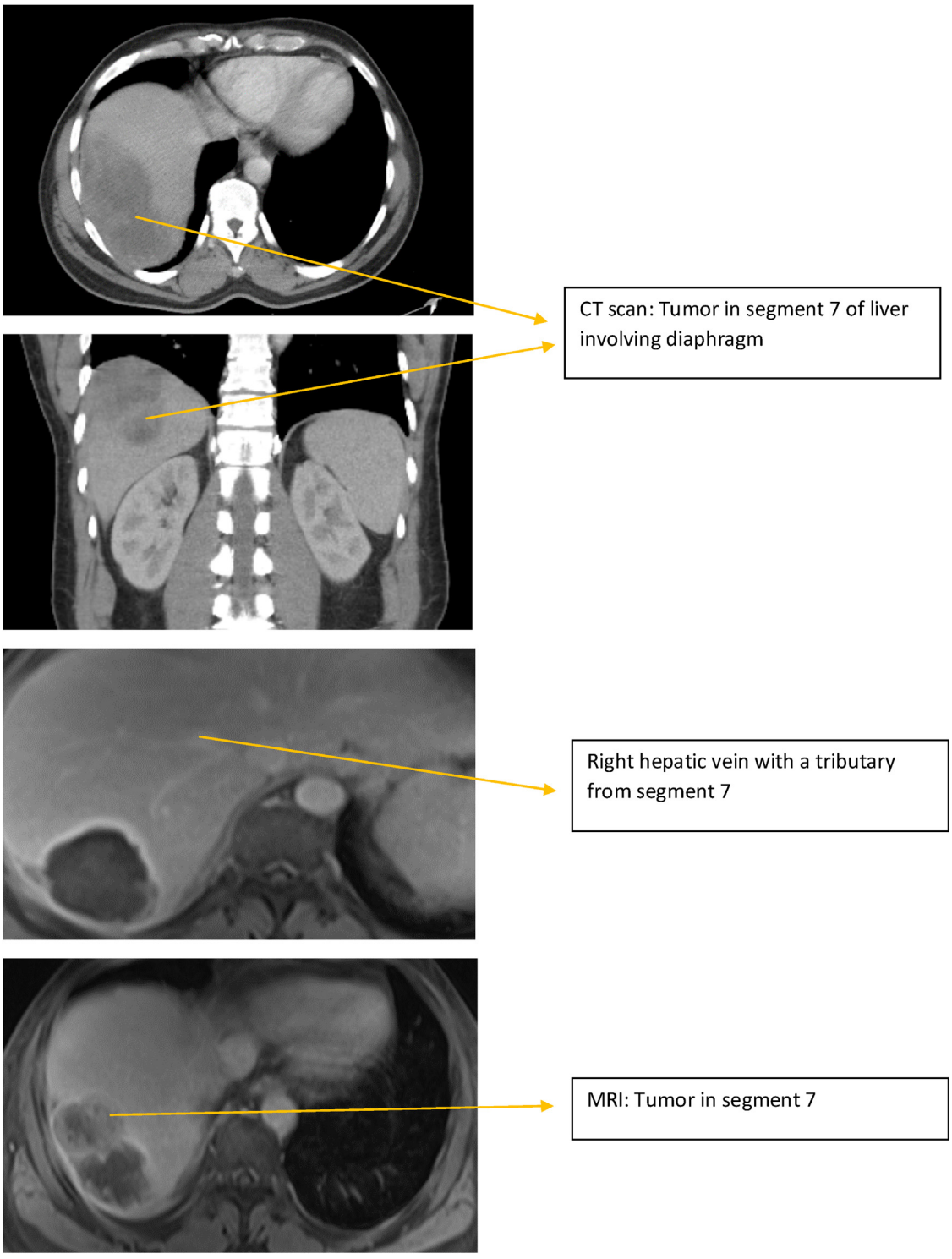

Fig. 1. CT and MRI images of the tumor.

and a biopsy to help establish the diagnosis. Surgery is the mainstay of treatment for localized disease. The nonsurgical therapeutic options are very limited. Radiation is only feasible for local tumor control and multimodality treatments with chemotherapy can often only achieve partial remission [5,8]. We present a case of primary intrahepatic mesothelioma, review the literature and summarize the presentation and management of this rare tumor. The work has been reported in line with the SCARE criteria [9].

2. Case presentation

Forty-eight year old male with a remote history of alcohol abuse presented to the emergency department with a 3-months history of right upper quadrant pain, productive cough and a forty pound weight loss. He had no history of asbestos exposure.

His blood work demonstrated a white blood cell count of 8.7 k/ul, hemoglobin of 8.2 mg/dl and a platelet count of 585 k/ul. He had an albumin of 3.3 mg/dl, aspartate transaminase of 41 IU/L,