

CLINICAL CASE

Localized hyaline plaque of the diaphragmatic peritoneum: report of a rare entity mimicking a hepatic tumor

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Summary

A liver tumor (2.5X3 cm) with malignant features on computed tomography (CT) and magnetic resonance imaging (MRI) was detected in a 69-year-old man with hepatitis B virus (HBV)-associated cirrhosis.

On exploratory laparotomy a mass at the right dia-

phragmatic dome adherent to the liver segment VIII was found.

En-block resection of this segment and the part at diaphragm hosting the tumor was carried out. On histology the tumor was a diaphragmatic hyaline plaque while in the resected liver no tumor was found.

Key words: hyaline plaque, liver, peritoneum, tumor

Introduction

Various non-neoplastic processes that resemble grossly or histologically primary or metastatic neoplasms develop on the peritoneum [1-3].

Peritoneal localized hyaline or fibrous plaque is a rare and recently described entity and about 20 such cases have been reported up to date [1]. Most of these cases concern patients with hepatic cirrhosis or ascites [2].

Hyaline plaques resemble histologically pleural plaques that develop in patients with asbestos exposure. Asbestos, apart from its relation with pleural mesothelioma, is considered as the etiological factor

for the development of peritoneal mesotheliomas and certain gastrointestinal tract neoplasms [1].

In certain cases of peritoneal hyaline plaques, exposure to inorganic substances is reported [3]. We present the case of a male patient with no exposure to asbestos or other chemical substances who developed a hyaline plaque on the diaphragm.

Case presentation

A male patient, 69 years of age, with HBV and hepatic cirrhosis was admitted to our hospital to receive surgical treatment for a liver carcinoma located at the segment VIII. Preoperative diagnosis was based on CT and MRI. No exposure to asbestos or other chemical substances was reported.

A surgical exploration of the liver showed cirrhotic changes with certain large regenerative nodules. The frozen section diagnosis was negative for malignancy. A large tumorous mass was discovered on the peritoneal surface of the right diaphragm adherent to segment VIII and this was resected en-block with part of segment VIII of the right hepatic lobe.

Pathological examinations showed: 1) a part of right hepatic lobe weighting 110 g and measuring 6X5.5X3 cm, with cirrhotic changes of mixed type and

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dense inflammatory infiltration of the portal spaces; 2) a tumorous mass, fusiform in shape, measuring 7.5X5 cm, with thickness of 1 cm (at the periphery) to 4 cm (centrally), circumscribed, whitish and firm. Focally, it was bone-hard in consistency and these foci were decalcified by Calci-clear rapid solution. After formalin fixation, multiple sections of the specimen were examined under light microscopy.

A hyalinized fibrous tissue with benign morphology was observed (Figure 1), consisting mainly of collagenous fibres, rare fibrous cells, and calcium deposition.

Focally, on the surface of this plaque, a mesothelial lining was preserved. A few striated muscle fibres and some fibrous adhesions were observed adherent to the described plaque. The diagnosis of a localized hyaline fibrous plaque of the diaphragmatic peritoneum was made.

Discussion

Hyaline plaques of the pleura and the peritoneum present grossly as white hard plaques, frequently

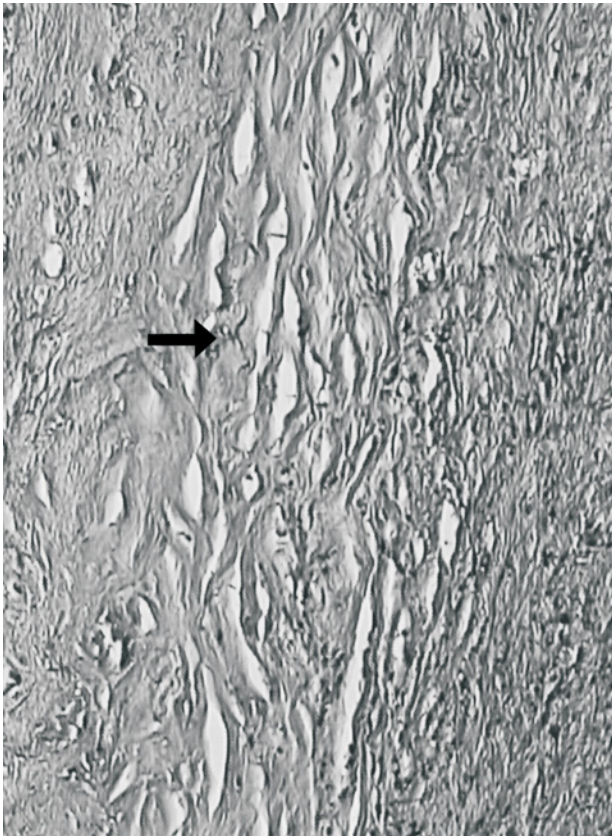


Figure 1. Histological section of hyaline diaphragmatic plaque showing the characteristic “basket wave” feature (arrow) (H&E X100).

showing calcium deposition. They are fusiform, with a thickened center and thin periphery measuring from 0.5-0.6 cm. When small, they present as white nodules, frequently multiple, in the thoracic cavity, and are located at the lower part of the diaphragm and never at the superior parts of the pleura [4-7].

Hyaline plaques consist of acellular or paucicellular collagenized fibrous tissue with wavy fibres that look like a “basket wave”.

The deposition of calcium is frequent. Mesothelial cells usually cover the surface. Pleural hyaline plaques are almost always observed in patients with a history of asbestos exposure.

Peritoneal plaques are similar to pleural plaques and it is of special interest that most of these cases are observed in patients with hepatic cirrhosis. The hemodynamic changes of the blood flow of the pelvis, due to the cirrhotic process, is considered the main etiologic factor.

The differential diagnosis of a peritoneal hyaline plaque must be made from calcifying fibrous pseudotumor of the peritoneum, inflammatory pseudotumor and fibroplastic hyaline granuloma [8-10]. A calcifying pseudotumor consists of compact collagenous tissue with rare benign fusiform cells, psammoma bodies and lymphocytic infiltration.

An inflammatory pseudotumor is characterized by dense, band-like inflammatory infiltrations of lymphocytes. Hyalinized granuloma is characterized by large epithelioid cells. In our case no band-like inflammation or epithelioid cells were observed.

The misdiagnosis of the CT and MRI must be attributed to the overlapping of the diaphragmatic process on the liver.

In conclusion, the reported hyaline diaphragmatic plaque presents similarities with the pleural plaques, but no relation to asbestos exposure was found. A possible explanation could be that the presence of hepatic cirrhosis might act as a pathogenetic mechanism because of local blood flow disturbances.

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