Dermoid Cyst in the Hepatoduodenal Ligament: Report of a Case

VASILEIOS SOUFTAS¹, ALEXANDROS POLYCHRONIDIS², ALEXANDRA GIATROMANOLAKI³, SEBACHEDIN PERENTE², and CONSTANTINOS SIMOPOULOS²

Departments of ¹Medical Imaging and ³Pathology, and ²Second Department of Surgery, Medical School, Democritus University of Thrace, 15 Kolokotroni Street, Alexandroupolis 68100, Greece

Abstract

We report an unusual case of a mature cystic teratoma, or dermoid cyst, in the hepatoduodenal ligament of a young woman. Mature cystic teratomas are rarely found in extragonadal sites, especially the hepatoduodenal ligament. Surgical resection remains the mainstay of therapy and is required for a definitive diagnosis. Patients who undergo complete resection of a mature cystic teratoma normally have an excellent prognosis.

Key words Dermoid cyst · Mature cystic teratoma

Introduction

Teratomas are rare congenital neoplasms that develop from the three embryonic germ layers, and are characterized by virtually any tissue type.³⁻⁵ Mature teratomas are benign neoplasms, which are usually cystic, and dermoid cysts are a special form of mature teratoma with a predominantly ectodermal derivation. Most mature cystic teratomas are found in gonadal sites, although they are occasionally found in extragonadal sites such as the retroperitoneum, mediastinum, central nervous system, lung, liver, spermatic cord, or gastrointestinal tract, but rarely in the hepatoduodenal ligament. To our knowledge, there are only three reports of a teratoma in the hepatoduodenal ligament.¹⁻⁷ We report a case of a primary dermoid cyst, or a mature cystic teratoma, in the hepatoduodenal ligament of a 26-year-old woman.

Case Report

A 26-year-old woman was admitted to our hospital for investigation of mild but progressively increasing pain in the right upper quadrant of the abdomen, which she had first experienced about 2 months earlier. Physical examination revealed a hard palpable mass. Laboratory data, including the serum tumor markers, carcinoembryonic antigen (CEA), carbohydrate antigen (CA)-19-9, CA-15-3, and CA-125, were within the normal range. Abdominal ultrasonography revealed an infrahepatic cyst, 11 cm in diameter. Computed tomography (CT) and magnetic resonance imaging (MRI) showed an intraperitoneal cyst with thick fibrous walls located above the lower hepatic surface of the transverse colon adjacent to the gallbladder, head of the pancreas, and duodenum. The low CT density values and the high signal intensity on both T1- and T2-weighted images clearly indicated the presence of fat or lipid material within the lesion. A focal area of calcification was also evident. Magnetic resonance imaging analysis of the content demonstrated thread-like structures with a low magnetic signal, and muscle-density structures with an intermediate signal. These preoperative images were compatible with a mature cystic teratoma in the hepatoduodenal ligament (Fig. 1).

The patient underwent laparotomy via a midline incision, which revealed a thick-walled cyst strongly adherent to the surrounding tissues, in the hepatoduodenal ligament. The cyst was filled with yellowish fluid and contained many strands of hair (Figs. 2 and 3). We excised the tumor and performed a cholecystectomy. A drain was placed, which was removed on postoperative day 3. Histological examination confirmed the diagnosis of a dermoid cyst. The patient had an uneventful postoperative course and was discharged on postoperative day 8. There have been no signs of recurrence in 33 months of follow-up.
Discussion

Teratomas are composed of derivatives of the three germ layers; with structures derived from the ectoderm, mesoderm, and endoderm commonly represented. Four histologic variants of teratoma have been described: mature teratoma, immature teratoma, teratoma with malignant transformation, and monodermal teratoma. Mature teratomas are usually cystic and composed of fully mature elements. Most mature teratomas are benign, but they occasionally undergo a malignant change in one of their elements. Dermoid cysts are a special form of mature teratoma with a predominantly ectodermal derivation. They are characteristically uniloculated and lined by skin, complete with special structures such as sebaceous glands, hair follicles, and teeth.

There are two macroscopic variants of teratoma: cystic, which is usually benign; and solid, which is more likely to be malignant. Mature cystic teratomas are found most commonly during the reproductive years, but there is a much wider age distribution from infancy to very old age. Mature cystic teratomas are usually asymptomatic and hence, diagnosed incidentally unless obstructive symptoms develop. In contrast, malignant teratomas tend to progress rapidly and are generally diagnosed at advanced stages when symptoms develop.

Plain abdominal radiographs show calcification in most (60%) extragonadal teratomas, either in the wall of the cyst or in structures such as teeth or bones. Computed tomography is generally the most helpful imaging modality for diagnosis. However, MRI allows for improved soft-tissue identification, and is useful for diagnosing the encasement or invasion of blood vessels, which aids in assessing malignant potential and resectability. Magnetic resonance imaging may also indicate if a wider resection is required, although it is very difficult to establish the origin of a teratoma preoperatively by imaging examinations alone, so all results should be analyzed carefully and careful preparation made for unexpected intraoperative findings. The serum levels of alpha-fetoprotein, CEA, and CA 19-9 are elevated in some patients, but this does not appear to be helpful clinically.

We based our diagnosis of mature cystic teratoma on the imaging findings of an encapsulated mass with a lipid or fat component, thread-like structures, and broad-based ingrowths containing calcified material. The cystic mass had imaging characteristics identical to those of an adnexal mature cystic teratoma. Non-lipid-containing cystic masses were excluded, and the imaging criteria also excluded extrahepatic or exophytic liver lipid-containing masses, such as mesenteric cystic lymphangioma, lipoma, liposarcoma, lipopeliosis, pseudo...