Introduction

Endometriosis is characterized by the presence of functioning endometrial tissue outside the uterine cavity (1). The most common locations are within the pelvis, including the ovaries, uterine ligaments, rectovaginal septum, and peritoneum. Relatively uncommon, endometriosis has been described in several remote sites including the omentum, gastrointestinal tract, operative scars, lymph nodes, umbilicus, skin, lung, pleura, bladder, kidney, pancreas, and diaphragm (2-3). The only organ in the abdominal cavity that is apparently refractory to the disease is the spleen. Hepatic endometriosis is rare and was first described in 1986 (4). To date 22 cases of hepatic endometriosis have been reported in the literature (5-21). This rare condition raises several diagnostic and therapeutic challenges. When symptomatic, endometriosis of the liver is difficult to diagnose. It is often confused with other pathologies of the liver. We describe the case of a patient with giant hepatic endometriosis.

Case presentation

A 27-year-old nulligravida woman was referred to us because of abdominal mass that patient discovered 3 months before, without abdominal pain associated with the onset of the menstrual cycle, but constant tenderness on upper and low left abdominal quadrants (Figure 1). Physical examination demonstrated liver function tests, blood biochemistry, complete blood count, serology for echinococcal disease and the tumors markers were within normal limits. She had no history of endometriosis. Preoperative abdominal ultrasound, computed tomography scan (CT) and magnetic resonance imaging (MRI) demonstrated a 30-cm hepatic cyst in the left lobe of the liver that reached segments IV, V and VIII (Figure 2). The patient underwent diagnostic laparoscopy that excluded other peritoneal malignant or benign tissue deposits. Surgical exploration highlighted a giant cystic neoplasia, originated from left liver, that caused atrophy and shifted on left liver hepatic parenchyma (Figure 3), reached segments V and VIII and beneath covered the hepatoduodenal peduncle. Laparoscopy was converted in open approach and median laparotomy was performed. Pringle manoeuvre was prepared but not executed. Complete mobilisation of left liver and partial of right were performed. Atypical left hepectectomy tailored on right margins of lesion was performed. Va...
scalar and biliary stricture were secured by intrahepatic glissonian approach; left hepatic vein by transparenchimal approach. Histopathologic examination and immunostaining of the surgical specimen established the diagnosis of endometriosis. Postoperatively, the patient did well and was discharged on seventh day of surgery. Immediately following surgery, she missed her menses and became pregnant.

**Discussion**

Extrapelvic endometriosis is significantly less common than intrapelvic endometriosis. It occurs more frequently in women of reproductive age (10%) than in postmenopausal women (2.5%) (22). Unusual sites include the gastrointestinal tract, kidney, bladder, lungs, heart, pleura (23). Hepatic location is rare. A review of
the literature revealed only 21 (4-21) cases of hepatic endometriosis (Table 1). Mean age was 39 years and ranged between 21 and 62 years, lesion size ranged from 2.7 to 30 cm. Our report add one more rare case with a lesion sized 30 cm on diameter. The number of cases in which there was involvement of the left liver was almost equal to that of the right (11 vs. 10). One case presented with bilobar involvement. Nine patients had a history of endometriosis. Surgeons included endometriosis in the process of differential diagnosis only for four patients. Laparotomy was useful for the diagnosis of endometriosis in all patients with the exception of four cases, where a liver biopsy was performed. The pathogenesis of hepatic endometriosis is unclear; considering all the theories proposed each satisfies only some of the reported cases. The case we present about a large lesion located into the hepatic parenchyma could be better explained by lymphovascular spread of endometriotic cells. This theory, as demonstrated by presence of endometrioid cells in lymphatic vessels or locoregional lymph nodes in patients with infiltrating endometriosis, could explain intraparenchymal cases of liver endometriosis (26). Indeed no relation was found between the cyst and peritoneal surface, refusing the coelomic metaplasia theory that indicate the potentiality of microenvironment of the peritoneum to change connective tissue to endometrial tissue. The absence of previous history of endometriosis for our patient makes the implantation theory unlikely. Extrapelvic endometriosis is rare and its diagnosis is often made many years after the onset of symptoms, because only few patients presented characteristic cyclic pain related with menses. Although ultrasound, CT and MRI are helpful, no typical image of endometriosis cyst has been described so the final diagnosis can be made only by histological evaluation (27). The working diagnosis were both benign conditions, as echinococcal cyst, abscess, hematoma, cystadenoma, and malignant cystic neoplasm, as cystadenocarcinoma or metastatic disease. In our case we carried out a laparoscopic exploration. The additional benefit to notorious advantages of laparoscopic was the possibility of identifying other abdominal tissue deposits and, in case of endometrioid seeding, of treating these by laparoscopy or of avoiding a useless laparotomy in case of malignant carcinosis. Abnormal size of lesion led us to a conversion in open approach for surgical treatment of hepatic lesion. Resection of cystic endometriosis should be always considered in symptomatic patients. However the management strategy of endometriosis of the liver is so controversial because it’s unknown the natural history of hepatic endometriosis due the lack of prospective study. Malignant transformation of endometriosis is a rare event, occurring commonly in the ovary; however two cases of sarcomas and one case of adenocarcinoma arising from endometriosis of the liver have been described (28-30).

Conclusion

The exploration of the abdominal and pelvic cavity should be the considered the first step helpful for sug...
gesting intervention in cases of hepatic lesion of uncertain origin, especially in patients with history of endometriosis. Due to the difficult interpretation of radiographic images and the atypical clinic, diagnosis of hepatic endometriosis is entrusted to the skill and the high degree of suspicion of the surgeon.

### Author’s contribution
MD, FD and AI participated in the surgery of this case and AI proposed to describe the case. MD wrote the manuscript and provided the pathological images. FD and GM searched previous reports and produced the review table. All authors read and approved the final manuscript.

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### References
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