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## Mature splenic teratoma: A rare case report

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## ABSTRACT

**INTRODUCTION:** Teratomas are germ cell neoplasms that can be malignant or benign. Their occurrence is more prevalent in gonads, but there are rare extragonal reports, and splenic teratomas are exceptionally uncommon.

**CASE REPORT:** A 44-year-old woman with a report of abdominal pain on the left flank for 12 h, was evaluated with TC that visualized spleen showing an oval, intraparenchymal, hypodense image with dense areas, submitted to conventional splenectomy, what identified mature cystic teratoma.

**DISCUSSION:** Dermoid cysts have nonspecific symptoms, usually related to extrinsic compression of other structures or rupture of the splenic capsule; the diagnosis is complex, since the alterations in imaging exams are not very specific. Thus, the confirmation is made through anatomopathological analysis.

**CONCLUSION:** Mature splenic cystic teratomas are rare and treatment should be evaluated according to the presence or absence of symptoms and diagnostic certainty.

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## 1. Introduction

Teratomas are germ cell neoplasms classified as mature or immature, corresponding to benign and malignant, respectively. The term immature teratoma is used for tumors that contain primitive neuroectodermal, endodermal or mesodermal tissues [1,2] that is, with partial somatic differentiation, similar to that observed in embryonic or fetal tissue [3]. Mature teratoma, also called a dermoid cyst, is a slow-growing lesion with well-differentiated elements from all germ layers [4].

Dermoid cysts have been observed in various anatomical positions, mostly in the gonads, but there are reports of hepatic [5], pancreatic [3], bladder [6] and splenic [7]. These being rare, with few cases described [8].

Next, we will present a case of mature cystic teratoma with splenic location. The follow paper was based on SCARE criteria 2018 [9].

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## 2. Case report

A 44-year-old woman was admitted with a report of abdominal pain on the left flank for 12 h, colic type, of moderate intensity, with no improvement or worsening factors and no irradiation. She previously referred mild pain, with similar characteristics, of chronic and intermittent character. She denied fever, urinary, gastrointestinal symptoms and abdominal trauma. Absence of significant medical history, obese (IMC = 39 kg/m<sup>2</sup>) and without other comorbidities or addictions.

On physical examination, she was in regular general condition, hemodynamically stable, with no respiratory, neurological or dermatological changes. The abdominal examination showed hydro-air noises, a globose, normotympanic, flaccid abdomen, slightly painful on palpation of the left flank and left hypochondrium. Liver not palpable, without visceromegaly. No signs of peritonitis, negative Giordano sign bilaterally. No abdominal scarring or bruising.

Laboratory tests with mild leukocytosis and increased C-reactive protein were performed, CT scan of the total abdomen was also performed (CT), visualized: spleen showing an oval, intraparenchymal, hypodense image with dense areas, measuring 11 × 10 cm, on the axial axis (hematoma?). Accessory spleen. Free fluid in the slightly dense abdominal cavity, notably in the pelvis (Fig. 1).

Due to the maintenance of pain and in the face of the hypothesis of splenic hematoma, follow-up was maintained through the red series, which showed a progressive fall in the following three days, after which a new CT was performed: spleen showing an oval,



**Fig. 1.** CT showing the beginning of the celiac trunk, part of the liver and splenic lesion with hypodense areas, hematoma?



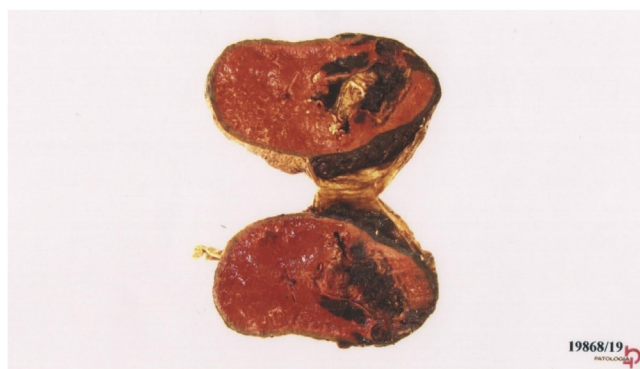
**Fig. 2.** CT showing the beginning of celiac trunk, part of the liver, spleen containing lesion with alteration in shape, expanding or bleeding hematoma?

intraparenchymal, hypodense image, measuring  $11 \times 10$  cm, on the axial axis. Accessory spleen (Fig. 2).

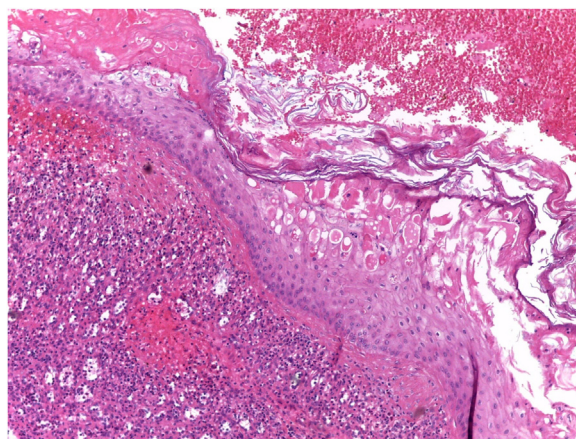
After careful comparison of the images, maintenance of the size was noted, but alteration in the shape of the lesion.

Thus, laparoscopic splenectomy was programmed and during the procedure was not seen macroscopic signs suggesting malignancy. Due to the difficulty of accessing the splenic store (obese patient) and the increase in surgical time. It was necessary the conversion to conventional splenectomy, that was performed without complications by adept general surgeons of Santa Casa de Misericórdia de São José do Rio Preto including some authors of this case report. The material was sent for anatomopathological analysis, with the following result:

The spleen weighed 225 g and measured  $12.1 \times 7.6 \times 4.4$  cm (Fig. 3). The external surface is smooth, brownish-brown in color and has a cystic lesion (A), measuring  $6.6 \times 5.4$  cm in its major axes.



**Fig. 3.** Splenectomy product sent for pathology, subcapsular cystic lesion and intraparenchymal lesion are noted, corresponding respectively to subcapsular hematoma and mature teratoma.



**Fig. 4.** Histological analysis with hematoxylin-eosin.

When cutting, reddish liquid and fluid are released. In the internal lining, a blackened area is observed. The splenic parenchyma is finely granular in appearance, brownish-brown in color and a cystic lesion (B) measuring  $5.3 \times 2.7$  cm in its major axes is observed. This lesion has irregular, ill-defined, blackish-colored edges and touches the splenic hilum. The consistency is firm-elastic.

### 2.1. Subcapsular cystic lesion

Splenic rupture of the capsule and parenchyma with the formation of a hematoma located between the peritoneum and the splenic surface. Acute peritonitis.

### 2.2. Intraparenchymal cystic lesion

Mature cystic teratoma (dermoid tumor), removed with a margin and without atypias. (Histological analysis - Figs. 4–7).

The patient evolved with resolution of abdominal pain in the postoperative period, stabilization of the red series and normalization of clinical parameters. She was discharged from our service with a prescription for vaccination against encapsulated germs and ambulatory platelet control. The patient had ambulatory follow-up for twelve months, without postoperative complications.

## 3. Discussion

Teratomas can be asymptomatic or symptomatic, usually found incidentally during clinical investigations, radiological studies or in unrelated abdominal surgeries [4,6]. When symptomatic,

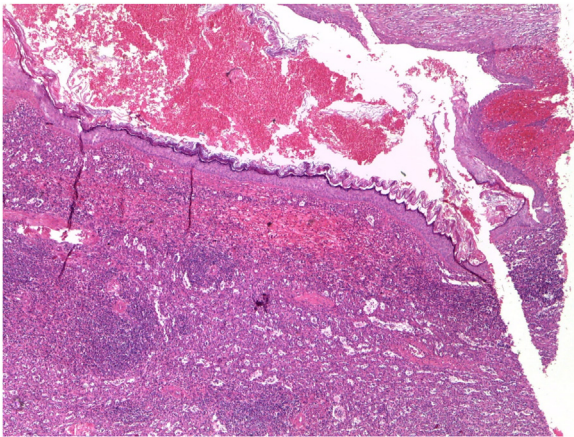


Fig. 5. Histological analysis with hematoxylin-eosin.

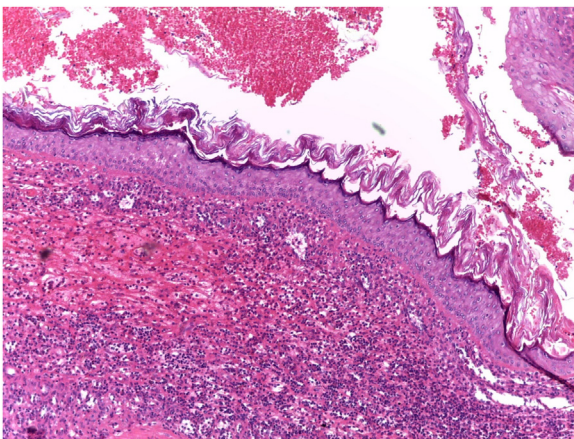


Fig. 6. Histological analysis with hematoxylin-eosin.

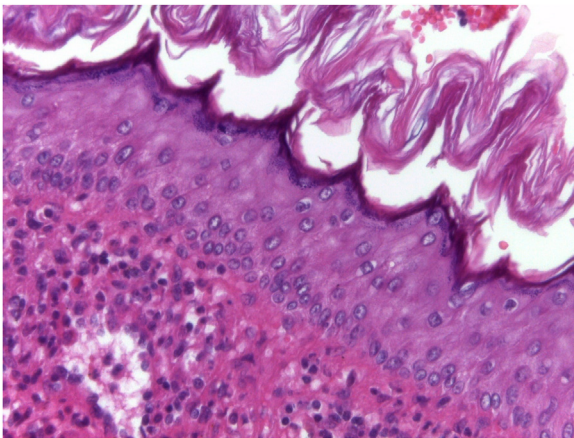


Fig. 7. Histological analysis with hematoxylin-eosin.

they usually present as back pain (muscle and spine compression), nausea, vomiting, constipation, colic abdominal pain, urinary retention, hypertension, mesenteric ischemia, intermittent claudication, renal failure, tingling, numbness and weakness of the lower members. They are usually large, not mobile and deeply adhered, in appearance, solid and cystic areas can be distinguished [4].

Splenic dermoid tumors are rare, and imaging studies show the classic appearance of those seen elsewhere, with complex cysts, fat and gross calcifications; components like hair and other skin attachments and ectoderm can also be seen. Some other solid-

looking masses should be considered in your differential ultrasound diagnosis. This includes benign lesions, such as hamartomas, hemangiomas, inflammatory pseudotumors, as well as malignant lesions, such as lymphoma, hemangiosarcoma and metastases. Predominantly, cystic lesions, such as epidermoid cysts, echinococcal cysts, abscesses, hematomas, lymphangiomas and pseudocysts, can also have the appearance of a solid component, depending on the presence of internal debris [5,10,11]. The rate of malignant transformation of teratomas has been reported to range from 2% to 3%, most commonly found in children, and although it usually involves squamous cell carcinoma (80%), others like adenocarcinoma (6.8%), sarcomas and carcinoid tumors as well may occur [5,11].

Considering the pure benign nature of mature cystic teratomas, resection can be avoided if accurate diagnoses are made. The preoperative diagnostic image, however, is challenging and the malignant potential cannot be ruled out [12]. From a surgical point of view, the definitive treatment should be complete resection [3].

#### 4. Conclusion

Mature splenic cystic teratomas are rare, requiring investigation to rule out differential diagnoses of solid-cystic neoplasms. Imaging exams are not always elucidative, in addition, such tumors may develop with symptoms due to extrinsic compression of other organs and rupture of the splenic capsule. Thus, treatment should be evaluated according to the presence or absence of symptoms and diagnostic certainty. Reports like this contribute to clinical suspicion, early diagnosis and effective treatment, avoiding complications such as bleeding, rupture or malignancy.

#### Declaration of Competing interest

The authors report no declarations of interest.

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#### Ethical approval

This study was exempt from ethical approval at our institution.

#### Consent

The publication and dissemination of the case was authorized by the patient.

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Author contribution

Mayume Silva Kavagutti: auxiliary surgeon, article writing, review and corresponding author.

Eduardo Brenner Cavalcante Marques: Article writing and review.

Felipe de Seixas da Silva: Review.

Maria Fernanda Martinelli Trabulsi: Chief surgeon, review and supervision.

Bruno Roberto Gianini Marini: Auxiliary surgeon, review and supervision.

### Registration of research studies

This case report is not an applicable clinical trial according to “Checklist for Evaluating Whether a Clinical Trial or Study is an Applicable Clinical Trial” found in [Clinicaltrials.gov](https://www.clinicaltrials.gov).

### Guarantor

Mayume Silva Kavagutti.

### Provenance and peer review

Not commissioned, externally peer-reviewed.

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