

Rupture of an ovarian teratoma

Published on 02.08.2015

DOI: 10.1594/EURORAD/CASE.12917

ISSN: 1563-4086

Section: Uroradiology & genital male imaging

Area of Interest: Abdomen

Procedure: Contrast agent-intravenous

Procedure: Diagnostic procedure

Imaging Technique: CT

Imaging Technique: Experimental

Special Focus: Cysts Case Type: Clinical Cases

Authors: De Beule Julie, Petré Carine MD1, Verheyen

Luc MD2, Berteloot Patrick MD3, Vanhoenacker Filip MD

PhD1

Patient: 68 years, female

Clinical History:

A 68-year-old female psychiatric patient was admitted to the emergency department because of vomiting and diarrhoea for about two days. Clinical examination revealed marked abdominal distention, bubbling sounds at auscultation and diffuse tenderness of the abdomen. For further work-up an abdominal CT was performed.

Imaging Findings:

Contrast-enhanced (CE) CT showed a large mass in the pelvis containing fluid, fat and a tooth (Fig. 1). A rim of fat was seen at the outer upper border of the mass, surrounded by intra-abdominal fluid (Fig 1a, c). Perisplenic and perihepatic intra-abdominal fluid as well as subdiaphragmatic areas of low density mimicking intraperitoneal air were seen in the upper abdomen (Fig 2a, 1c). Changing the window setting from parenchymal to pulmonary window revealed that the density of these subdiaphragmatic foci was different from pulmonary air and similar to fat on the Hounsfield scale (Fig. 2b).

Discussion:

Ovarian teratomas account for about 20% of ovarian neoplasms in adults [1, 2]. Mature cystic teratoma is the most common subtype containing sebaceous secretions, hair and teeth [1, 2]. Histologically this subtype consists of a cyst with an epidermal-like epithelial lining with intralesional components of endoderm, ectoderm and mesoderm [2]. The immature subtype contains also these three components but additional embryogenic tissue is always found in this subtype with malignant biological behaviour [1]. Mature cystic teratomas grow slowly at a rate of 1.8 mm each year and remain usually asymptomatic. Therefore they often present as an incidental finding on imaging performed for other reasons [1, 3, 4]. On ultrasound, a Rokitansky nodule containing hair, teeth and fat can cause an acoustic shadowing which is pathognomonic for mature teratomas [1]. The “tip of the ice berg sign” can provoke acoustic shadowing caused by a collection of hair floating on top of the sebum [1]. On CT one should look for the typical three components: fat, fluid and teeth [1]. Complications such as infection, torsion or rupture are relatively rare [2, 5]. The most common complication is torsion (5-15%) of the ovarian pedicle, sometimes associated with small bowel obstruction in case of adherence of the bowel to the cyst wall [1, 3, 4]. Obstruction due to mass effect of large lesions has also been reported [4]. Infection (1.2 %) is a far less frequent complication [2]. Rupture (0.7-3.8%) of a mature teratoma is also unusual because the capsule of the lesion is often thick whereas in the immature variant this complication is more common [1, 3, 4]. Although torsion, infection, trauma, prolonged pressure caused by pregnancy or malignant transformation are considered potential aetiologies, often the precise cause of the rupture is

not obvious like in our case [3]. An intraperitoneal fat-fluid level on CT can be diagnostic for a ruptured teratoma [3]. Leakage of sebaceous liquid can cause chemical peritonitis with possible secondary bowel obstruction [1, 2, 3]. In our case, the intra-operative view revealed indeed chemical peritonitis due to a ruptured ovarian teratoma (Fig. 3). On imaging, it is important to differentiate between free intraperitoneal air caused by gastrointestinal perforation and teratoma rupture with spilling of intra-abdominal fat, which may cause chemical peritonitis. Therefore, meticulous and adjusted window setting is mandatory to avoid misinterpretation of fat-fluid levels as free subdiaphragmatic air.

Differential Diagnosis List: Rupture of a teratoma with signs of chemical peritonitis, Free intraperitoneal air due to a gastro-intestinal perforation, Rupture of a teratoma with chemical peritonitis, Peritonitis carcinomatosa, Infectious peritonitis

Final Diagnosis: Rupture of a teratoma with signs of chemical peritonitis

References:

Choudhary S, Fasih N, Mc Innes M, Merginean C (2009) Imaging of ovarian teratomas: appearances and complications. *J Med Imaging Radiat Oncol* 53:480-8 (PMID: [19788483](#))

Nader R, Thubert T, Deffieux X, de Laveaucoupet J, Ssi YK, et al (2014) Delivery induced intraperitoneal rupture of a cystic ovarian teratoma and associated chronic chemical peritonitis. *Case Rep Radiol* 2014:189409 (PMID: [24744942](#))

Tejima K, Enomoto R, Arano T, Miwa J, Matsubara Y, et al. (2013) A case of chemical peritonitis and pleuritis caused by spontaneous rupture of a benign cystic ovarian teratoma that improved without surgical intervention. *Clin J Gastroenterol* 6:274-80 (PMID: [26181730](#))

Al-Harfoushi R, Abdulaziz el-H, Andrabi SI, Patterson B, Whiteside M (2011) Ovarian teratoma presenting as small bowel obstruction in an elderly lady-A case report. *Int J Surg Case Rep* 2:6-8 (PMID: [22096674](#))

Khanna S, Srivastava V, Saroj S, Mishra Sp, Gupta SK (2012) An unusual presentation of ovarian teratoma: a case report. *Case Rep Emerg Med* 2012:845198 (PMID: [23326728](#))

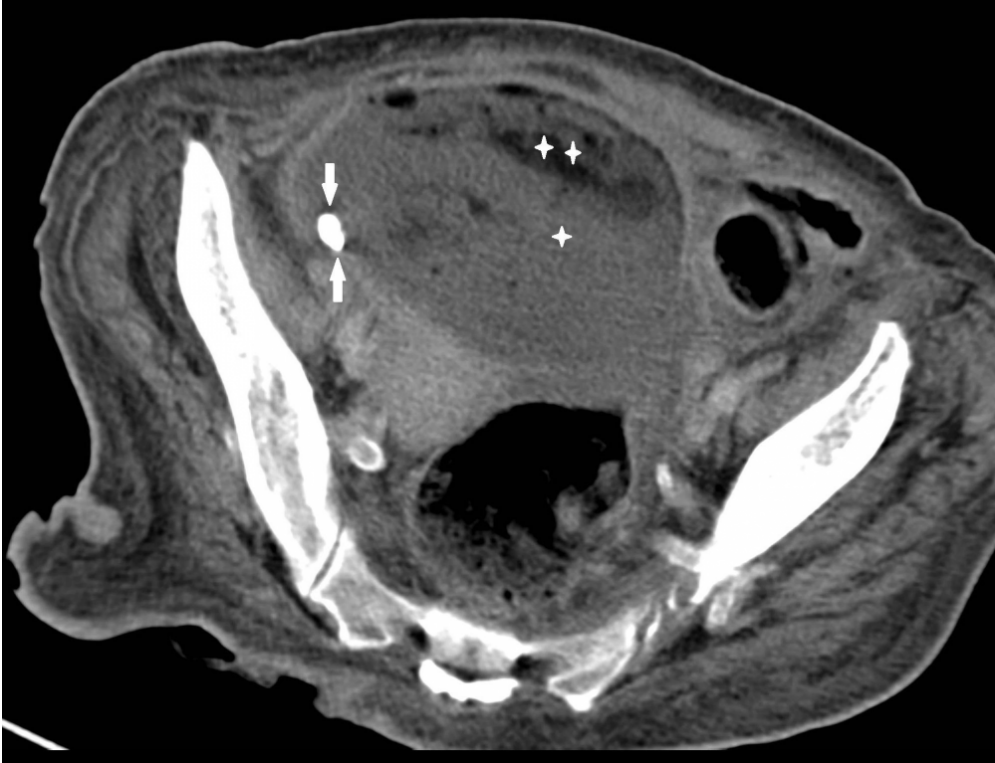
Figure 1

a



Description: Contrast-enhanced CT of the pelvis showed a large mass lesion within the pelvis. There was intra-lesional fat (double white asterisks) and fluid (single white asterisk). The white arrows mark a peripheral fatty rim. **Origin:** F. Vanhoenacker Phd, MD, Department of Radiology, AZ Sint Maarten Hospital Duffel, Belgium 2015.

b



Description: A slightly higher axial level: Besides intralesional fat (double white asterisks) and fluid (single white asterisk), a radio-opaque structure in this heterogeneous mass corresponding to a tooth (white arrows) was seen. **Origin:** F. Vanhoenacker Phd, MD, Department of Radiology, AZ Sint Maarten Hospital Duffel, Belgium 2015.

C



Description: The peripheral fatty rim, also partially located outside of the intrapelvic mass (red arrows) was better shown. Perihepatic free fluid and low density areas mimicking free abdominal air (white arrows) were seen (parenchymal window). **Origin:** F. Vanhoenacker Phd, MD, Department of Radiology, AZ Sint Maarten Hospital Duffel, Belgium 2015.

Figure 2

a



Description: Parenchymal window:

There was free abdominal fluid around liver and spleen as well as areas of low density simulating free air (white arrows). **Origin:** F. Vanhoenacker Phd, MD, Department of Radiology, AZ Sint Maarten Hospital Duffel, Belgium 2015.

b



Description: The areas of low density (black arrows) have a different density than that of the stomach and the air within the lung. The density of these areas are similar to the density of retroperitoneal fat.

Origin: F. Vanhoenacker Phd, MD, Department of Radiology, AZ Sint Maarten Hospital Duffel, Belgium 2015.

Figure 3

a



Description: The exploratory laparotomy revealed a ruptured teratoma with intra-lesional hair and diffuse white-green sebaceous fluid throughout the abdomen. **Origin:** T. Spiessens MD, Department of abdominal surgery, AZ Sint Maarten Hospital Duffel, Belgium 2015.