Laparoscopic management of a mature cystic teratoma in the fallopian tube

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Abstract

Our objective is to present the laparoscopic management of a mature cystic teratoma originating from the fallopian tube and to discuss different surgical approaches. A 28-year-old nulliparous woman presented with right groin pain, and after the diagnostic evaluation, laparoscopic exploration was performed for diagnosis and treatment. Intraoperative findings revealed a 4-5 cm cyst protruding from the right tubal fimbrial ostium was identified, originating from the tubal cavity without ovarian connection. The cyst was successfully extracted through milking technique, preserving the fallopian tube. Mature cystic teratomas of the fallopian tube are extremely rare, with approximately 75 cases reported in the literature. When located near the fimbrial end, direct extraction with tubal preservation is feasible, particularly important for patients desiring future fertility. This case demonstrates successful conservative laparoscopic management preserving tubal function. [J Turk Ger Gynecol Assoc. 2025; 26(4): 316-8]

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Mature cystic teratomas, or dermoid cysts, are cystic structures formed in the embryonic period that may originate from all three germ layers and contain different tissues (1).

Mature cystic teratomas are the most common benign ovarian tumors in young women. They are found in approximately 10-20% of women with ovarian cysts, and 10-15% are bilateral (2). Dermoid cysts with a tubal location are very rare in the literature and approximately 75 cases have been reported (3).

The patient, a 28-year-old nulligravida, presented with right groin pain. There was no known disease in her history. Ultrasonography (USG) showed a cystic formation compatible with a dermoid cyst measuring approximately 4-5 cm in the right adnexal area. Pre-operative magnetic resonance imaging (MRI) showed a tubular structure, approximately 35 mm in diameter, with high T2 signal intensity and no contrast enhancement in the vicinity of the right posterior ovary (Figure 1). Laparoscopic cyst extirpation was planned. As can be seen in Video 1, intra-operatively the uterus and both ovaries appeared normal. The left tuba fimbriae was normal but the left ovary was firmly adherent to the surrounding tissue. A 4-5 cm cyst was seen in the right tuba, which protruded from the fimbria ostium. The cyst was not connected to the right ovary and originated from the tubal cavity. The cyst was then removed by extraction from the tubal cavity and milking was performed to remove any possible residual cystic parts. Figures 2a and 2b shows that multiple mature tissues types, including cartilage, adipose tissue, nerve, and salivary gland were present [Hematoxylin and Eosin (H&E), low power 40x]. Methylene blue testing was performed during the surgical procedure to assess the functionality and patency of both fallopian tubes,

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and both were found to be patent. Another advantage of this test is that it can help to expel teratoma tissue remaining in the fallopian tube. Informed consent was obtained from all patients.

The diagnosis is usually made by USG, computed tomography, or MRI. USG is the first-choice imaging modality and dermoid cysts appear as heterogeneous cystic structures with variable echogenicity (2,3).

The differential diagnosis should include hemorrhagic cysts, endometrioma, myoma, immature teratoma, and malignant ovarian cysts (3).

Dermoid cysts may often be asymptomatic but can exhibit symptoms, such as abdominal pain, pelvic pain, and a sensation of pressure. Rarely, symptoms related to hormone secretion may occur (4). The most common complication is torsion, which occurs in (3-16%), followed by cystic rupture (1-4%), malignant transformation (1-2%), and superimposed infection (1%) (5).

Dermoid cysts are most commonly found in the ovary among pelvic organs. However, they may rarely originate in the fallopian tubes. The preoperative diagnosis of this rare occurrence is challenging and so the physician is mostly faced with tubal dermoid cysts intra-operatively. However, this clinical rarity should be remembered to correctly manage the surgical procedure. Besides, patients should be informed related to this uncommon pathology.

Tubal dermoid cyst treatment is very similar to dermoid cysts of other origins, which is surgical removal. The most difficult clinical question is whether to preserve the tube or not. In the presented patient, the cyst was located in the tubal ampulla and protruded from the fimbrial ostium. Fortunately, we were able to preserve the fallopian tube, as direct removal of the cyst was possible because it was close to the fimbrial end.

Surgical treatment options for these patients include salpingectomy, salpingostomy or direct removal of the cyst if it is located appropriately. The most critical criteria for choosing between these surgical options are the patient's desire for fertility and the location of the cyst. If the patient desires fertility, direct extraction may be preferred to increase their chances of conceiving naturally.

During the preparation of this work, the authors used sider artificial intelligence (AI) for the voice-over of the video. The authors take full responsibility for the content of the publication after carefully reviewing the content and editing where necessary. The use of the AI tool primarily ensured that the video was dubbed by what sounds like a native English speaker.

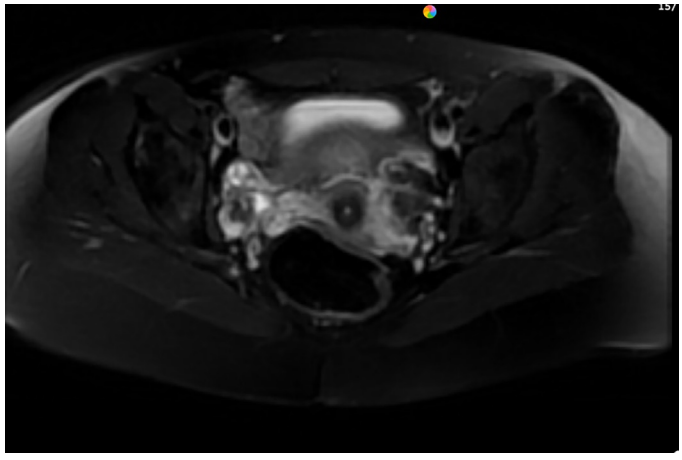

Figure 1. T2-weighted FS MRI showing a tubular structure in the right adnexal area
FS MRI: Fat-suppressed magnetic resonance imaging

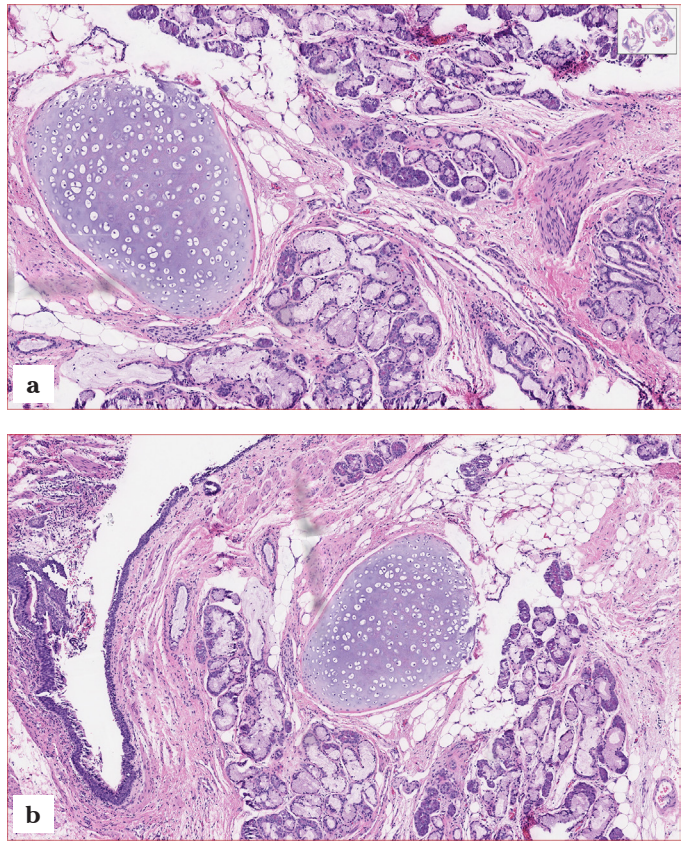

Figure 2. (a, b) Multiple mature tissue types, including cartilage, adipose tissue, nerve, and salivary gland (H&E, low power 40x). The arrow indicates the tubal epithelium
H&E: Hematoxylin and Eosin

Video 1.

http://dx.doi.org/10.4274/jtgga.galenos.2025.2024-12-1.video1

Informed Consent: *Informed consent was obtained from all patients.*

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References

1. Comerci JT Jr, Licciardi F, Bergh PA, Gregori C, Breen JL. Mature cystic teratoma: a clinicopathologic evaluation of 517 cases and review of the literature. Obstet Gynecol. 1994; 84: 22-8.
2. Rha SE, Byun JY, Jung SE, Kim HL, Oh SN, Kim H, et al. Atypical CT and MRI manifestations of mature ovarian cystic teratomas. AJR Am J Roentgenol. 2004; 183: 743-50.
3. Sari ME, Ozdemir O, Kadirogullari P, Ertugrul FA, Atalay CR. Mature cystic teratoma of the fallopian tube in a postmenopausal woman: a case report and review of the literature. Case Rep Obstet Gynecol. 2015; 2015: 583021.
4. Mazzarella P, Okagaki T, Richart RM. Teratoma of the uterine tube. A case report and review of the literature. Obstet Gynecol. 1972; 39: 381-8.
5. Baek J. Synchronous occurrence of mature cystic teratoma of the fallopian tube and ovary: a case report. Oncol Lett. 2016; 12: 911-4.