
| RESEARCH ARTICLE

Autoamputation of an Ovarian Mature Cystic Teratoma: A Case Report with Review of Literature

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| ABSTRACT

We are discussing auto-amputation of an ovary with mature cystic teratoma (MCT), which is the first case to be reported in Bahrain. A 31-year-old woman was referred to the clinic due to a left ovarian tumor. Pelvic examination and ultrasonography were done assessing the ovary, and a cyst was noted after investigations; the results revealed a 4.3 x 3.4 x 4.5 cm MCT. It was therefore agreed to proceed with laparoscopic removal of the tumour after counseling the patient about her case and possible treatment options. The mass was identified as floating in the peritoneum without any ligamentous or direct connection with the pelvic organs. The right ovary was normal. However, the left ovary and its tube could not be identified in the proper anatomical location. The mass was successfully removed through laparoscopy. The presentation of such mass is rare in terms of its autoamputation and its attachment to the peritoneum, further away from its origin within the left ovary. It is the first reported presentation of such mass in Bahrain.

| KEYWORDS

MCT Ovarian Teratoma, Autoamputation Cyst

| ARTICLE INFORMATION

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1. Introduction

Although most mature cystic teratoma (MCT) commonly occurs within the ovary, in some rare occasions, it occurs in some abnormal locations. This is the first reported case in the Kingdom of Bahrain. Such tumors are usually found in neonates, and the ovary is most often implanted within the omentum (Kakuda et al. 2015; PETERSON 1957; Printz et al. 1973). An ectopic ovary, a term used synonymously with "Accessory Ovary", "Supernumerary Ovary", or "Ovarian Implant Syndrome", is a rare gynecologic anomaly. The etiologic and prevalence of such syndrome is currently unknown. Ovarian autoamputation, especially occurring in ovaries with dermoid cysts, is a complication of ovarian torsion that may lead to the formation of an ectopic ovary. Therefore, autoamputation may be regarded as an etiological factor of ectopic ovary. The case report describes a 31-year-old woman with an autoamputated ovary with MCT, the first known case in the Kingdom of Bahrain.

2. Case Report

A 31-year-old woman (Para 2) was referred to the clinic for a left ovarian tumor. Her past medical history was not significant; Her family history was positive for breast cancer in her mother and grandmother. The patient had a history of chronic abdominal pain for the last two years, especially during gestation. On pelvic examination done at the clinic, the uterus was normal in size. There was no tenderness in either the adnexal region or palpable masses.

An ultrasonography was ordered and concluded that there was a left ovarian complex cyst, suggesting a dermoid cyst, which measured 4.3 x 3.4 x 4.5 cm. Magnetic Resonance Imaging (MRI) was carried out describing an MCT. Laparoscopic removal of the tumor was carried out after counseling the patient. The left ovary and tube were not found. Upon further exploration, a smooth, white-yellowish mass was noted floating in the peritoneum. There was no ligamentous or direct connection to the uterus, yet it was connected to the omentum. The uterus and the right adnexa appeared normal and in their respective anatomical position. The mass was removed intact through the endo-bag through the 10mm incision. Histological examination revealed a typical mature teratoma. The cyst wall consisted of collagen fibers with marked infiltration of lymphocytes and histiocytes with calcification, indicating ischemic and inflammatory changes. The histology and radiological findings confirmed the diagnosis of MCT.

3. Discussion

MCT is regarded as one of the most common ovarian tumors; mature cystic teratoma has an incidence rate that ranges from 5-25% of all ovarian neoplasia. It is one of the germ cell neoplasms and is composed of various tissues not normally found within the ovaries. This is due to the presence of germ cell tissue, which will give rise to any specialized cells within the body, such as hair, teeth, and adipose tissue. It is important to note that it can be misdiagnosed as other masses, which include lipo leiomyoma of the uterus, hemorrhagic ovarian cyst, endometrioma, immature teratoma, and, more rarely, serious or mucinous ovarian cystadenoma (Sasaki et al. 2014). Although the presentation of a dermoid cyst is rare in post-menopausal women, it should still be within the differential diagnosis of any female complaining of abrupt abdominal or pelvic pain (Sasaki et al. 2014).

Embryologically, the ovaries arise from primordial germ cells that migrate from the wall of the yolk sac, along the dorsal mesentery, to the gonadal ridges (PETERSON 1957). By the fifth week of pregnancy, the ovaries have about 500 to 1300 primordial germ cells. They will undergo mitosis and reach up to 60 to 70 million cells by the twelfth week of pregnancy. They get arrested in meiosis, during meiotic prophase 1, forming what is known as a follicle. At birth, these follicles regress to the primordial follicle. Many are lost during this process, and 1 to 2 million follicles remain, which will further regress to 400,000 follicles. After puberty and the start of menarche, 1000 follicles are lost during the monthly cycle (Printz et al. 1973).

Dermoid cysts occur mostly within the ovary. Other sites include but are not limited to the mediastinum, sacral region, and retroperitoneum. The incidence of parasitic dermoid cysts is 0.4% of all dermoid cyst's incidence. There are multiple theories on the cause of extragonadal site growth in this case. It goes with autoamputation of the ovarian teratoma and reimplantation onto the greater omentum (Kakuda et al. 2015, Printz et al. 1973). Autoamputation could be the result of the torsion of the pedicle, known to be the most frequent complication of ovarian teratomas, occurring in about 16.1% of cases. Torsion interferes with the blood supply of the ovary, leading to venous congestion, inflammation, and eventually necrosis of the ovary. The tumor will also undergo necrosis and subsequent atrophy because of ischemia. In subacute or chronic torsion, the tumor becomes adherent to adjacent structures, with new collateral circulation formed to survive. Less commonly, the tumor completely detaches from its pedicle and results in what is known as a "parasitic dermoid cyst". It may reimplant in adjacent structures and form a new blood supply, such as in our case (Khoo et al. 2008). The omentum is the main location for reimplantation (Sasaki et al. 2014). Extragonadal teratoma, within the peritoneum, is known as "wandering teratoma" due to the inconsistency of sites it can attach to the peritoneum and have no blood supply, unlike our case (Punacker et al. 1984).

Most ovarian dermoid cysts are treated by laparoscopy with preservation of the ovary to maintain fertility in childbearing-aged females; there is still a risk of 0.7% for a mature cystic teratoma to undergo malignant transformation, which is diagnosed histopathological post-excision. In our case, the ovarian tissue was dissorted, leading to the complete removal of the ovary and cannot preserve ovarian tissue. Within the review of literature, laparoscopy is usually recommended over laparotomy (open and more invasive) procedure for complete resection of the mass. The mass was completely removed in the case due to the abnormal anatomy, and the ovarian tissue was engulfed within the mass.

In terms of pregnancy after resection, it will depend on the procedure chosen and the outcome of the surgery. The usage of laparoscopy will aid in a faster recovery rate, wound healing, and minimal adhesions postoperatively. Hence, the rate of spontaneous pregnancy will increase (Shetty et al. 2011). Therefore, laparoscopy is recommended in childbearing females. In post-menopausal females, it is preferred to resect the ovary due to the inability to exclude malignancy and the loss of physiological function of the ovary, therefore not requiring any ovarian reserve.

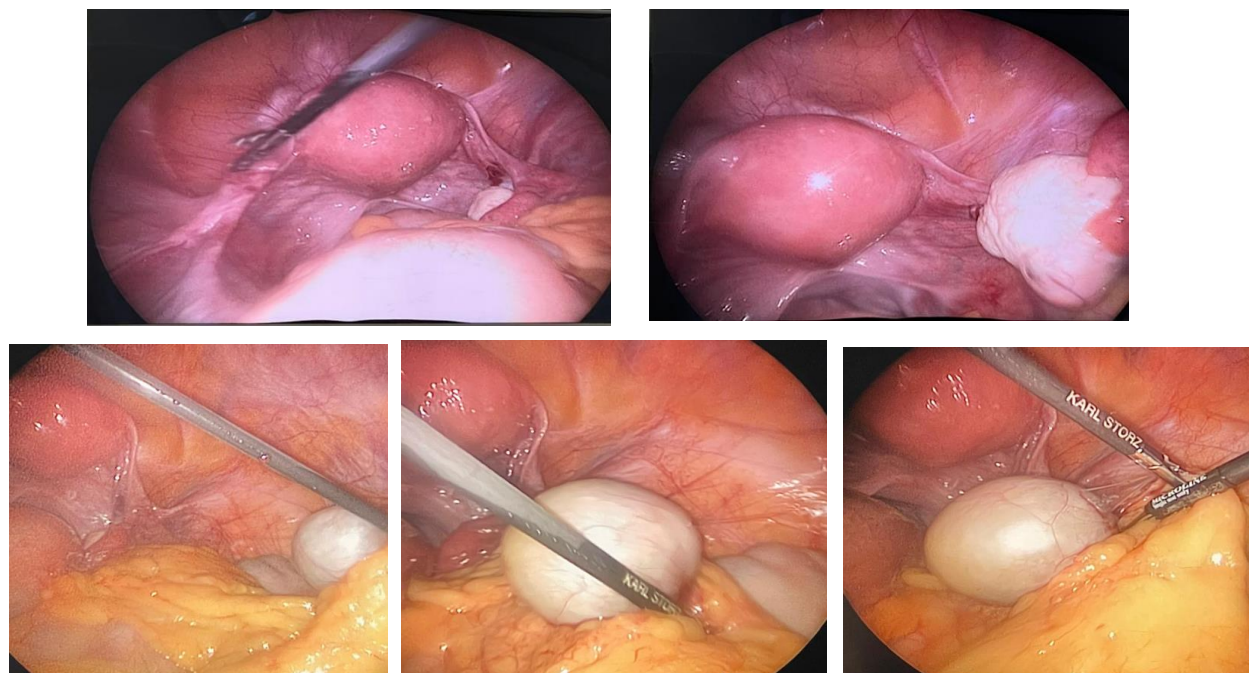
4. Conclusion

Autoamputated ovary with mature cystic teratoma (MCT) is a rarely reported gynecologic entity with an unknown prevalence worldwide. Autoamputation may lead to either parasitic (connected to the omentum), such as the case discussed, or wandering (within the peritoneum cavity). The objective of this report is to indicate proper management of such rare cases and the importance of proper approach in aiding a good outcome. Autoamputation itself is rare, and this is the first reported case in the Kingdom of Bahrain showing the Kingdom's ingestion in its healthcare system to aid in diagnosing and treating all pathologies. Furthermore,

this study will contribute to the Kingdom's gynecology field in terms of approach, diagnosis, and laparoscopic treatment. Further studies should be made on the incidence and prevalence of ovarian cysts and tumors to better aid the prognosis in these cases.

Appendix

Figure 1 to 6: Intraoperative View through Laparoscopy of the Tumor.



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References:

- [1] Kakuda, M, et al. (2015) A Case of Extragonadal Teratoma in the Pouch of Douglas and Literature Review. *Journal of Minimally Invasive Gynecology*, no. 7, Elsevier BV, Nov. 2015, pp. 1311–17. Crossref, doi:10.1016/j.jmig.2015.07.008.
- [2] Khoo, C K, et al. (2008) Parasitic Dermoid Cyst of the Pouch of Douglas: A Case Report. *Journal of Minimally Invasive Gynecology*, 6, Elsevier BV, Nov. 2008, pp. 761–63. Crossref, doi:10.1016/j.jmig.2008.07.014.
- [3] Li, C. et al. (2019) Squamous Cell Carcinoma Transformation in Mature Cystic Teratoma of the Ovary: A Systematic Review. *BMC Cancer*, no. 1, Springer Science and Business Media LLC, Mar. 2019. Crossref, doi:10.1186/s12885-019-5393-y.
- [4] Nico et al. (1992) Laparoscopic Removal of Benign Mature Teratoma | Human Reproduction | Oxford Academic. OUP Academic, Oxford University Press, 1 Nov. 1992, <https://doi.org/10.1093/oxfordjournals.humrep.a137588>.
- [5] Oh, S R et al. (2015) Uterine Lipoleiomyoma in Peri or Postmenopausal Women. *Journal of Menopausal Medicine*, 3, The Korean Society of Menopause, 2015, p. 165. Crossref, doi:10.6118/jmm.2015.21.3.165.
- [6] PETERSON, W F. (1957) MALIGNANT DEGENERATION OF BENIGN CYSTIC TERATOMAS OF THE OVARY. A COLLECTIVE REVIEW OF THE LITERATURE. *Obstetrical & Gynecological Survey*, no. 6, Ovid Technologies (Wolters Kluwer Health), Dec. 1957, pp. 793–830. Crossref, doi:10.1097/00006254-195712000-00001.
- [7] Printz JL, Choate JW, Townes PL, Harper RC. (1973) The embryology of supernumerary ovaries. *Obstet Gynecol* 1973;41:246–252.
- [8] Punacker, L P., and Jan G. (1984) Development of Ovarian Follicle Cells of the Stick Insect, *Carausius Morosus* Br. (Phasmatodea), about Their Function. *International Journal of Insect Morphology and Embryology*, 1, Elsevier BV, Jan. 1984, pp. 21–28. Crossref, doi:10.1016/0020-7322(84)90029-1.
- [9] Ronchi, A. et al. (2019) Extragonadal Germ Cell Tumors: Not Just a Matter of Location. A Review about Clinical, Molecular and Pathological Features. *Cancer Medicine*, no. 16, Wiley, Sept. 2019, pp. 6832–40. Crossref, doi:10.1002/cam4.2195.
- [10] Sasaki, K J., and Charles E. M. (2014) Adnexal Torsion: Review of the Literature. *Journal of Minimally Invasive Gynecology*, 2, Elsevier BV, Mar. 2014, pp. 196–202. Crossref, doi:10.1016/j.jmig.2013.09.010.
- [11] Shetty, N. S., et al. (2011) Unreported Location and Presentation for a Parasitic Ovarian Dermoid Cyst in an Indirect Inguinal Hernia. *Hernia*, no. 2, Springer Science and Business Media LLC, Sept. 2011, pp. 263–65. Crossref, doi:10.1007/s10029-011-0876-z.
- [12] Sinha, A., and Ayman A. A. E (2016) Ovarian Mature Cystic Teratoma: Challenges of Surgical Management. *Obstetrics and Gynecology International*, Hindawi Limited, 2016, pp. 1–7. Crossref, doi:10.1155/2016/2390178.