International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Thomas DT et al. Int J Reprod Contracept Obstet Gynecol. 2024 Dec;13(12):3724-3726
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20243435

Case Report

Acute upsurge of tumour markers in ruptured ovarian endometrioma- a false alarm for malignancy: a case report

Deepika Theresa Thomas*, G. Usha Rani

Department of Obstetrics and Gynaecology, SRIHER, Chennai, Tamil Nadu, India

Received: 16 October 2024
Revised: 31 October 2024
Accepted: 04 October 2024

***Correspondence:**
Dr. Deepika Theresa Thomas
E-mail: deepikathomas4@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

CA 125, in gynaecological practice, is seen to be elevated in both benign and malignant conditions. Higher values, usually raise the suspicion of malignancy. Here we report a case of a 21-year-old nulliparous female, with extremely high evels of CA 125, suspected malignancy, but laparoscopy revealed a ruptured ovarian endometrioma, which was confirmed by histopathology. We discuss the pathogenesis of the same, evaluation and approach to management of ruptured endometriotic cysts.

Keywords: CA125, Endometriosis, Malignancy

INTRODUCTION

Cancer Antigen 125, also known as Carbohydrate Antigen 125 (CA-125), is a high molecular weight mucinous glycoprotein, which originates from the coelomic epithelium, generally secreted from pericardium, peritoneum, endometrium and epithelial ovarian carcinoma.[1] CA 125, has been a promising biomarker for screening, diagnosis and follow up of ovarian carcinoma for decades now. Nevertheless, CA 125 levels are found to be elevated in benign gynaecological conditions like endometriosis, fibroids, early pregnancy, menstruation, etc.

Higher levels of the biomarker indicate a possible ovarian malignancy. Here, we present a case of spontaneously ruptured ovarian endometrioma with an extreme upsurge in Tumour marker levels, diagnostic dilemmas and management.

CASE REPORT

A 21-year-old female, nulliparous, presented to the gynaecology OPD with complaints of severe lower abdominal pain and altered bowel habits for 3 days. She was currently at day 32 of her cycle. Menstrual history suggestive of severe dysmenorrhea with regular cycles-4/30-day cycle. No history of febrile illness. She had no other medical co morbid and no surgeries done in the past. On clinical examination, vitals stable, BMI-28 kg/m2. Tenderness elicited in the right iliac fossa. The patient was admitted and thoroughly investigated. General condition stabilized, Haemoglobin was 9.4 g%, proceeded with further imaging.

Screening USG abdomen and pelvis done, raised a possibility of huge hydrosalpinx, proceeded with MRI pelvis reported as follows-Uterus anteverted 7×4 cm. Endometrial cavity distended with fluid of thickness 11 mm. Junctional zone normal. Right ovary measured 2.3×1.2 cm. A multiloculated cystic lesion measuring 3.4c3×3 cm showing T1 hyperintensity and dependent low signal intensity on T2 in right adnexa with close proximity to right ovary in its medial aspect, features suggestive of right ovarian endometriotic cyst. An irregular shaped cystic lesion noted in the left adnexa, hyper intense on T1 and T2, SW1 blooming on wall of cyst measuring 7×4.7×5 cm, volume 90cc internal debris /clots noted in the

dependent portion of the cyst wall. The cyst wall was irregular and thinned out in a few areas. The left ovary noted antero-superior to the above-mentioned cystic lesion, elongated and stretched out, maximum ovarian thickness measuring 10.5cc. Free fluid noted-of approximately 1 litre suggestive of hemoperitoneum noted (Figure 1).

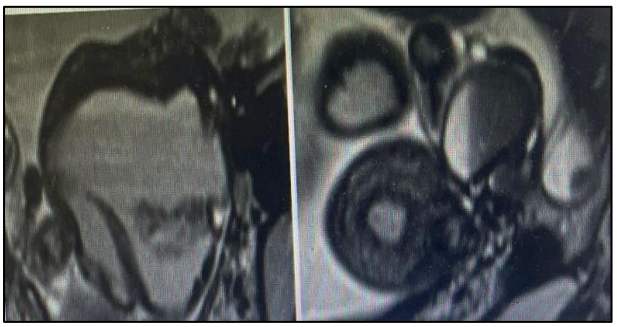

Figure 1: MRI pelvis picture.

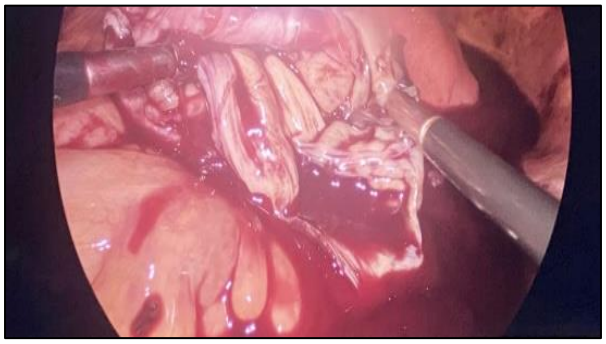

Figure 2: Intraoperative rupture endometriosis cyst with hemoperitoneum.

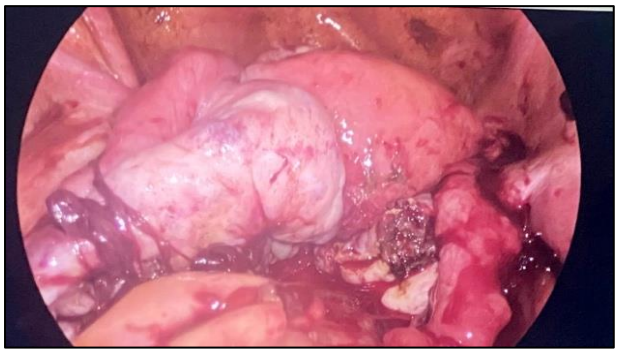

Figure 3: Left ovarian endometriosis cyst rupture.

Urine pregnancy test done and negative. B HCG was <0.10. Decided to perform emergency diagnostic laparoscopy and proceed. Tumour markers were done. CA 125- 5704 IU/ml, CA 19-9-1401 U/ml, CEA -0.76, AFP -0.9. In view of elevated tumour markers, mimicking a malignancy, a multidisciplinary approach sought, surgical oncology team involved, decision to proceed with a diagnostic laparoscopy was taken. Intraoperative findings include massive hemoperitoneum was observed, around 750 ml blood and clots suctioned out. Left leaking ovarian endometrioma 7×8 cm noted. (Figure 2 and 3) Proceeded with cystectomy , cyst wall removed and sent for HPE. Right ovary 2×3 cm endometriotic cyst noted-same punctured, chocolate coloured fluid drained, cyst wall enucleated and sent for HPE. Endometriotic deposits of 1-2 mm were noted on the surface of the uterus, sigmoid colon and POD. Irrigation suction done, intra peritoneal drain left in situ.

Postoperatively, repeat haemoglobin on day 1 was 7.4 g%, one-unit packed cells transfused. Drain removed on POD6, injection leuprolide 3.75 mg IM given, and patient was discharged on POD7. Histopathology reported as benign endometriotic cyst. Leuprolide given monthly up to 3 doses, and then following that, started on Oral Contraceptive pills, Patient was followed up with USG pelvis and CA 125 levels. Normal levels reached after 6 months.

DISCUSSION

Endometriosis is classically defined as the presence of endometrial glands and stroma in ectopic locations. The incidence of endometriosis is difficult to quantify as women with the disease are often asymptomatic. Moreover, imaging modalities have low sensitivity for small implants. The primary method of diagnosis is laparoscopy, with or without biopsy for histologic diagnosis.[2] Using this standard, the annual incidence of surgically diagnosed endometriosis was 1.6 cases per 1000 women, aged between 15 and 49 years.

In asymptomatic women, the prevalence of endometriosis ranges from 6 to 11 percent. In patients with subfertility, the incidence of endometriosis is 33 %. The definitive pathophysiology of endometriosis remains unknown. More favoured one is the Sampsons' theory which describes endometriosis as a result of retrograde menstruation through the fallopian tubes. Most common ectopic locations are the pelvic peritoneum, ovaries, slightly more common in the left ovary, due to the peritoneal currents.[3]

Endometriosis is an oestrogen dependent chronic inflammatory disease with aberrant growth of ectopic endometrial tissue. An environment of oestrogen dominance, oestrogen dependence, and progesterone resistance within implants, inflammation, escape from immune clearance, local invasion and neuro vascularity development and genetic predisposition is observed. Endometriotic implants express aromatase and 17 B-hydroxy steroid dehydrogenase type 1, thereby creating an oestrogen microenvironment.

CA-125 is a 220 kDa cell surface glycoprotein which has been investigated as a specific tumour marker of ovarian malignancy, especially for non-mucinous epithelial ovarian carcinomas. It is secreted from the coelomic epithelium, occurs in serum of healthy women, with a cut

off of <35 IU/ml. Values more than 65 IU/ml in postmenopausal women is significant for further evaluation of epithelial ovarian malignancies. However, in premenopausal women, increase in levels of CA125 and CA 19-9 is seen in benign conditions like endometriosis, adenomyosis, early pregnancy, menstruation, inflammation, etc. Hence, CA125 lacks sensitivity and specificity for diagnosis of malignancy in premenopausal women.

CA125 has been vastly studied in endometriosis, and increased levels are observed in stage 3 and stage 4 deep endometriosis. Yet, concentrations of CA125 of more than 100 IU/ml are rarely observed in endometriosis. However, in the last two decades, there is an increase in the number of reports associating unusually high CA125 levels over 1000 IU/ml in patients with endometriosis. Another tumour marker CA19-9, elevated in gastrointestinal malignancies, is also found to be elevated in endometriosis, however levels more than 1000U/ml are rarely reported.

There are very few cases reported in literature where CA125 levels were more than 5000 IU/ml, in ruptured endometriomas. Johansson et. al reported a CA125 level of 9300 IU/ml in a 45-year-old female with ruptured endometrioma, which is the highest recorded in literature.[4] Another immunohistochemical study demonstrated that the glandular epithelial cells in the ovarian chocolate cyst were stained intensely with anti CA19-9 antibodies in almost three quarters of the specimens.

In our case, the patient presented with extremely high levels of CA125, and CA19-9 mimicking ovarian cancer, but with a hemoperitoneum of 1 litre in MRI pelvis with? bilateral endometriotic cyst, raising the suspicion of a ruptured endometrioma. The mechanism behind extreme elevation of tumour markers in ruptured endometrioma might be due to the diffusion of the endometriotic fluid into the peritoneum, which inherently is rich in CA125 molecules, but contained within a thick cyst wall originally.

This might also cause ascites due to serum exchange. This can be confirmed by testing CA125 levels in the peritoneal fluid. Another theory is evidenced that peritoneal mesothelial cells can be a potential source of extreme rise in CA125, after rupture of an endometrioma, probably due to irritation of the peritoneal cells by the fluid.[5] It is important to emphasize that the half-life of CA125 is only 4-5 days. Hence, serial follow up of CA125, can also be done before proceeding with surgery in suspicious cases.[6] Hence, patients presenting with an adnexal mass, with ascites, with acutely elevated CA125 levels in reproductive age group women, benign conditions like endometrioma rupture should also be thought upon, and a diagnostic laparoscopy can be performed. If confirmed to be endometriosis, complete clearance of the cyst, endometriotic deposits can be attempted.

If suspicious of malignancy intra operatively, multiple biopsies can be done, and further management can be planned based on histopathological diagnosis. A multidisciplinary approach involving surgical oncology, surgical oncologists should always be considered in such cases.

Postoperatively after a clearance of endometriosis has been done, medical suppression should be considered with GnRh agonists, aromatase inhibitors or progestogens for a period of a minimum 6 months.

CONCLUSION

Endometriomas can present with extraordinary levels of CA125 and CA19-9. Rupture of endometriomas has been demonstrated in most of these cases. In conclusion the present case emphasizes that benign conditions like endometriosis should be thought upon in cases with a pelvic mass with hemoperitoneum or ascites with an acute upsurge in CA125 levels.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Handa V, Van Le L. Te Linde's Operative Gynecology. Lippincott Williams & Wilkins; 2019.
2. Kurata H, Sasaki M, Kase H, Yamamoto Y, Yoichi Aoki Y, Tanaka K. Elevated serum CA125 and CA19-9 due to the spontaneous rupture of ovarian endometrioma. Eur J Obst Gynecol Reprod Bio. 2002;105(1):75-6.
3. Halvorson LM. First Trimester Abortion In: Hoffman BL, Schorge JO, Bradshaw KD, Halvorson LM, Schaffer JI, Corton MM, editors. Williams Gynecology. 2016.
4. J Johansson, M Santala, A Kauppila, Explosive rise of serum CA 125 following the rupture of ovarian endometrioma. Human Rep. 1998;13(12):3503–4.
5. Nezhat C, Nezhat F, Nezhat C. Nezhat's Operative Gynecologic Laparoscopy and Hysteroscopy. 3rd ed. Cambridge University Press; 2008.
6. Rao S, Kapurubandara, S, Anpalagan A. Elevated CA 125 in a case of leaking endometrioma. Case Reports in Obstetrics and Gynecology. 2018;23:850.

Cite this article as: Thomas DT, Rani GU. Acute upsurge of tumour markers in ruptured ovarian endometrioma- a false alarm for malignancy-a case report. Int J Reprod Contracept Obstet Gynecol 2024;13:3724-6.