

Unusual Presentation of Endometriosis

Ajit Mahale^{1*}, Nina Mahale², Santosh Kondapalli¹

¹Radiology Department, Kasturba Medical College and Hospital, Manipal University, Mangalore, KA, India.

²OBG Department, Kasturba Medical College and Hospital, Manipal University, Mangalore, KA, India.

Abstract

We report a case of 36 year old female with complaints of low backache and pain radiating to left lower limb since 2 months and correlate the MRI findings with the operative and histopathological findings. The lesions appeared as lobulated and multicystic in the pelvis midline extending upto the lower abdomen with few solid components in the right adnexa and septated mass in the left adnexa. The masses were found to show hyperintensity on T1 weighted images, FAT SAT images and hypo to isointense on T2 weighted images. But the lesion in the left adnexa was suppressed on the FAT SAT images suggesting the strong possibility of dermoid. All these structures were confirmed by histopathology to correspond with presumptive endometriosis of left ovary and simple serous cysts of right ovary.

Key Words: Unusual, Endometriosis, MRI.

INTRODUCTION

Endometriosis is a condition of unknown cause in which endometrial glands and stroma (functioning endometrium) are found outside the uterine cavity and musculature. This ectopic endometrium, being influenced by circulating hormones, undergoes repeated haemorrhage and develops into blood-filled cysts (termed *endometriomas*). These hemorrhagic cysts are associated with adhesions and scarring. They can occur on any retroperitoneal surface, and have been found at distant sites (for e.g. lymph nodes, lung and bone). Patient may present with symptoms like dysmenorrhoea, dyspareunia, infertility and pelvic pain, although minority of patients present with all these symptoms. The prevalence of endometriosis is difficult to determine accurately; however it has been estimated to affect 5-10% of both symptomatic and asymptomatic women.^[1] The frequency is higher in women with infertility and pelvic pain. Frequent site of involvement in descending order, includes the ovaries, uterine ligaments, serosal surfaces, cul-de-sac, fallopian tubes, rectosigmoid, and urinary bladder.^[2]

The cause of endometriosis remains controversial. Proposed theories include metastatic implantation from retrograde menstruation as well as metaplastic differentiation of serosal surfaces or müllarian remnant tissue. An alternative hypothesis, the introduction theory, proposes that the shed endometrium releases substances that induce undifferentiated mesenchyme to form endometriotic tissue.^[1]

CASE REPORT

A 36 year old female presented with complaints of low backache and pain radiating to the left lower limb since 2 months.

Address for correspondence*

Dr. Ajit Mahale
Professor & HOD,
Radiology Department,
Kasturba Medical College and Hospital,
Attavar,
Mangalore 575001, India.

There was no history of dysmenorrhoea, dyspareunia, pelvic pain and per vaginal discharge. She had undergone myomectomy for uterine fibroid 3 years back. Per abdominal examination revealed normal findings. On per vaginal examination, mass of mixed consistency in the right fornix, 14 weeks in size was detected. Investigation showed Hemoglobin level of 9.5gm/dl, ESR- 26mm in 1st hour, Ca 125-398U/l. Ultrasound revealed multiseptated cystic lesions in the pelvis with few solid component in the right adnexa and hyperechoic lesion in the left adnexa. MRI detected multicystic lobulated lesions in the pelvic midline extending upto the lower abdomen and septated mass in the left adnexa, appearing hypo to isointense in T2 weighted images with focal high signal intensity areas, hyperintense in T1 weighted and FAT SAT images with suppression of a lesion in the left adnexa in the FAT SAT images showing the possibility of dermoid and right hydrosalpinx. So with the provisional diagnosis of multicystic lobulated right ovarian cyst with left ovarian dermoid the patient was taken up for surgery. Laparotomy was done through midline vertical sub umbilical incision, total abdominal hysterectomy and bilateral salpingo-oophorectomy was done. The intra operative findings revealed multiloculated endometriotic cyst in the bilateral ovaries, right hydrosalpinx and bowel adhesions with bilateral tuboovarian complex. The histopathological examination of sample obtained after surgery corresponds with fibro-adipose tissues with a foci showing endometrial gland in the left adnexa confirming the diagnosis of presumptive endometriosis of left ovary and simple serous cyst of right ovary.

DISCUSSION

Laparoscopic examination is the best method for diagnosing the pelvic endometriosis, but gynecologists hesitate to perform laparoscopy in young patient because of the invasiveness.^[3] Typical lesions consist of brown or black nodules on peritoneal surfaces and are pathognomonic. The revised classification of endometriosis published by the American fertility society in 1985 is widely used staging system for endometriosis,^[4] which uses three components for evaluation of the endometrial implants (location, size and depth of penetration), degree of cul-de-sac obliteration and evaluation of adhesions. On the basis of their score, patients are classified into four stages as

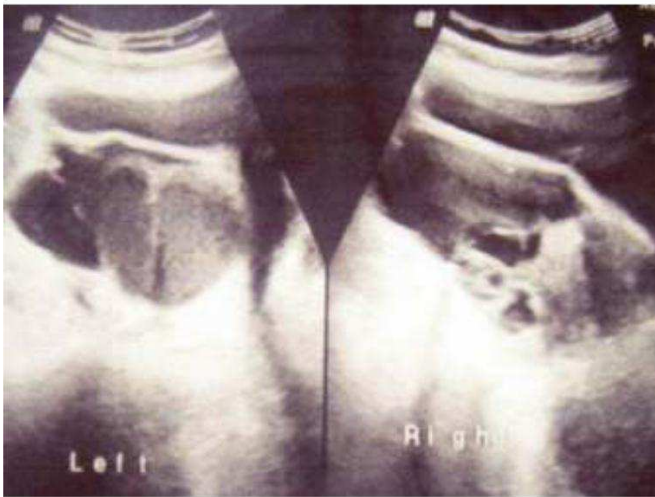


Figure 1 - Ultrasound pelvis showing multiseptated cystic lesions in the pelvis with few solid component in the right adnexa and hyperechoic lesion in the left adnexa.



Figure 2 - Histological slide of the patient showing fibro adipose tissue with endometrial gland within.



Figure 3 - Endometriosis: a) CorT1WI , b) Sag T2WI showing multiseptated lesion in the left adnexa appearing hyperintense on T1 and hypo to isointense of T2W images

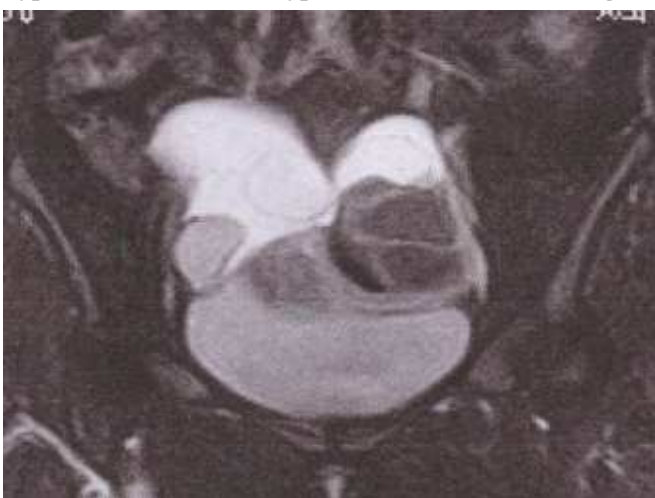


Figure 4 – T2 FAT-suppressed image showing the lesion is suppressed

having minimal, mild, moderate or severe disease. The staging system offers some standardization in stratifying disease severity and assessing the response of therapy [5]. But the usefulness of the findings can also be affected by many variables, such as the

experience of the laproscopists, the quality of the equipment, and the presence of the dense adhesions. Thus MRI can be an important complementary or screening method in some patients.^[3]

Radiologic diagnosis of pelvic endometriosis has focused on the detection of peritoneal implants, endometrial cysts, and adhesions. Despite advances in imaging technology, the ability to detect peritoneal implants with MR imaging or sonography has been poor in contrast to the high detection rates of these methods for endometrial cysts.^[6-10] This is attributable mainly to the size of the implants (i.e less than 5mm) and their plaque like nature. Furthermore because of the hemorrhage, peritoneal implants have the same signal intensity as surrounding normal fat on conventional T1-weighted MR images. By suppressing the signal from fat, FAT suppressed MR imaging would be useful in enhancing the contrast between hemorrhagic implants and normal tissue.^[3]

Pelvic ultrasound is the primary imaging modality to identify and differentiate locations to the ovary (endometriomas) and the bladder wall. Characteristic sonographic features of endometriomas are diffuse low-level internal echoes, multilocularity and hyperchoic foci in the wall. Differential

diagnoses include corpus luteum, teratoma, cystadenoma, fibroma, tubo-ovarian abscess and carcinoma. Repeated ultrasound is highly recommended for unilocular cysts with low-level internal echoes to differentiate functional corpus luteum from endometriomas. Sonographic and MRI features are discussed for each location. Although ultrasound is able to diagnose most locations, its limited sensitivity for posterior lesions does not allow management decision in all patients. MRI has shown high accuracies for both anterior and posterior endometriosis and enables complete lesion mapping before surgery.^[11] The limitation of the ultrasound lies in its reduced sensitivity for endometriotic plaques.^[2]

MRI -the multiplanar capability, high sensitivity for detection of blood products, and ability to identify sites of disease hidden by dense adhesions has made pelvic MRI is the non invasive imaging technique of choice for more accurate disease detection and staging. In study by Togashi et al,^[8] MRI yielded the overall sensitivity, specificity and accuracy of 90%, 98% and 96% respectively, for diagnosing endometriomas and in differentiating them from other gynecological mass.^[2]

The reported MRI features are exclusively based on the detection of chronic or recurrent bleeding in the endometrioma. The larger endometrioma (>1cms) appears as homogeneously high signal intensity mass on T1-weighted images and low signal intensity mass with focal high signal intensity areas on T2weighted images.^[12] In the presence of recent bleeding, the cyst content has high signal intensity in both types sequences. A T1weighted fat suppressed sequence increases the detection of the small implants by allowing better definition of conspicuity as well as differentiation between hemorrhagic and fat component,^[2,13] contrast enhanced sequences are useful for detection of microscopic endometrial implants associated with inflammatory reaction, as well as assessing the malignant change.

The classic endometrioma shows shading, defined as a range of low signal intensities in T2-weighted images. The shading reflects the chronic nature of the endometrioma resulting from repeated episodes of hemorrhage accumulating over months and years with extremely high concentrations of iron, protein and intracellular methemoglobin. Thirty percent of women also show concomitant tubal abnormalities such as hematosalpinx. Involvement of the uterine ligaments, especially the uterosacral ligaments, with endometriotic nodules leads to thickening and in later stages to fibrosis and adhesions causing cul-de-sac obliteration. At MRI, adhesions are usually of low signal intensity and obscure organ interfaces. Posterior displacement of the bowel loops, elevation of the posterior vaginal fornix, and loculated fluid collections suggest the presence of adhesion.^[10]

CONCLUSION

Endometriosis shows a large distribution of lesion locations and imaging features. MRI is proved to be the best non

invasive diagnostic modality of choice for the diagnosis of endometriosis. Although the typical endometrioma appears as homogeneously high signal intensity mass on T1-weighted and FAT SAT images and low signal intensity mass with focal high signal intensity areas on T2weighted images. In the presence of recent bleeding, the cyst content has high signal intensity in both types sequences. Thus with the duration and variation in the contents within the lesion endometriosis can present in the atypical manner.

REFERENCES

- Olive DL, Schwartz LB. Endometriosis. *N Engl J Med* 1993; 328:1759-1769.
- Ascher SM, Agrawal R, Bis KG, et al. Endometriosis: appearance and detection with conventional and contrast-enhanced fat suppressed spin-echo techniques. *J Magn Reson Imaging* 1995; 5:251-257.
- Hyun Kwon Ha, Yong Taik Lim, Hyun Sook Kim, Tae Suk Suh, Hae Hiang Song, Seung Jo Kim. Diagnosis of pelvic endometriosis: Fat-Suppressed T1-Weighted vs Conventional MR Images. *AJR* 1994;163:127-131.
- (No authors listed). Revised American Fertility Society classification of endometriosis: 1985; *Fertil Steril* 1985;43:351-352.
- Shaile Choudhary, Najla Fasih, Demetri Papadatos Venkateswar R. Surabhi. Unusual Imaging Appearances of Endometriosis. *AJR* 2009;192:1632-1644.
- Friedman H, Vogelzang RL, Mendelson EB, Neiman HL, Cohen. Endometriosis detection by US with laporoscopic correlation. *Radiology* 1985;157:217-220.
- Arrive L, Hricak H, Martin MC. Pelvic endometriosis: MR imaging. *Radiology* 1989;171:687-692.
- Togashi K, Nishimura K, Kimura I et al. Endometrial cysts: diagnosis with MR imaging. *Radiology* 1991;171:180:73-78.
- Nishimura K, Togashi K, Itoh K, et al. Endometrial cysts of the ovary. MR imaging. *Radiology* 1987;162:315-318.
- Zawin M, McCarthy S, Scoutt L, Comite F. Endometriosis: appearance and detection at MR imaging. *Radiology* 1989;171:693-696.
- Kinkel K, Frei KA, Balleyguier C, Chapron C. Diagnosis of endometriosis with imaging: a review. *Eur Radiol*. 2006 Feb;16(2):285-98.
- Jan Brosens, Dirk Timmerman, Anna Starzinski-Powitz, Ivo Brosens. Noninvasive diagnosis of endometriosis: the role of imaging and markers *Obstet Gynecol Clin N Am* 2003;30: 95-114.
- Sugimura K, Okizuka H, Imaoka I, et al. Pelvic endometriosis: detection and diagnosis with chemical shift MR imaging. *Radiology* 1993;188:435-438.