

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Endometrial Osseous Metaplasia.

Archana Shivamurthy^{1*}, Padmapriya Jaiprakash², Nilay Nishith³, Praveena Joglekar Pai⁴, and Pratap Kumar⁵.

¹Assistant Professor, Department of pathology, Melaka Manipal Medical College, Manipal University, Manipal, Karnataka, India.

²Associate Professor, Department of Pathology, Kasturba Medical College, Manipal University, Manipal, Karnataka, India.

³Junior Resident, Department of Pathology, Kasturba Medical College, Manipal University, Manipal, Karnataka, India.

⁴ Professor, Manipal Assisted Reproductive Centre, Department of Obstetrics and Gynaecology, Kasturba Medical College, Manipal University, Manipal, Karnataka, India.

⁵Professor, Manipal Assisted Reproductive Centre, Department of Obstetrics and Gynaecology, Kasturba Medical College, Manipal University, Manipal, Karnataka, India.

ABSTRACT

Endometrial osseous metaplasia is a rare entity, characterized by the presence of osseous tissue in the endometrial cavity. It is one of the treatable causes of secondary infertility. Sonography plays an important role in the diagnosis of this condition. Hysteroscopic removal of bony fragments can also restore fertility in a few cases. Endometrial osseous metaplasia in a 25 year old woman is presented here.

Keywords: endometrium, osseous, fertility

**Corresponding author*

INTRODUCTION

Endometrial osseous metaplasia is an uncommon clinical entity with an estimated incidence of 0.3 per 1000 women [1]. It is characterized by the presence of mature or immature bone in the endometrium. Approximately 80 cases have been reported in the world literature as well as a few cases from India [2,3]. The clinical presentation in these cases may be asymptomatic or menstrual irregularities, leucorrhoea, pelvic pain and vaginal bleeding [1-6]. Osseous metaplasia is easily diagnosed by ultrasonography and subsequently can be confirmed by hysteroscopy [7,8]. However it can be challenging at times. We present endometrial osseous metaplasia in a 25-year old nulliparous patient.

CASE REPORT

A 25-year-old nulliparous woman presented with a history of conception failure for 2 years. She had regular menstrual cycles with no history of white discharge per vagina or dysmenorrhea/dyspareunia. The pelvic examination revealed anteverted and mobile uterus with free fornices. Laboratory investigations included complete blood count, urine microscopy, liver function test, renal function test and serum electrolytes, all of which were within normal limits. Transvaginal ultrasound examination revealed anteverted uterus measuring 5.5 x 3.6cm with hyperechoic lesion of 4.4mm extending from fundus to internal os and normal bilateral ovaries. An impression of “intrauterine foreign body / adhesions” was given. Subsequently diagnostic hysteroscopy with chromotubation was performed. Hard masses of 1cm in the uterine cavity (3-4pieces) were removed and sent for histopathological examination.

On gross examination, there were multiple grey brown bony tissue bits. On histopathological examination bony trabeculae were identified along with endometrial glands lined by tall columnar epithelium. [Fig 1,2,3] Considering these findings a diagnosis of endometrial osseous metaplasia was rendered.

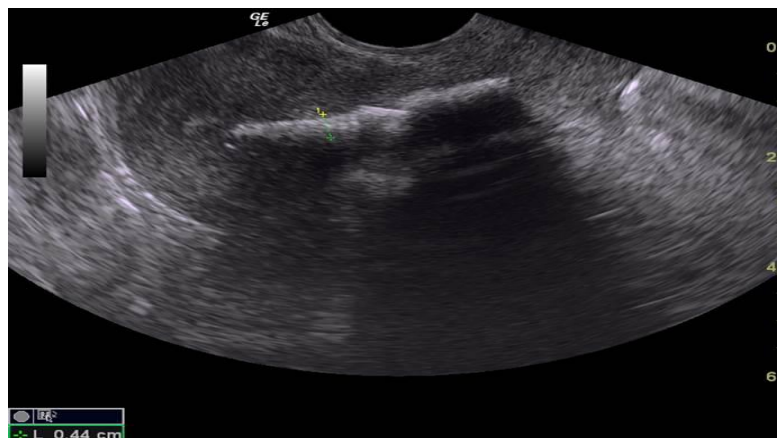


Figure:1

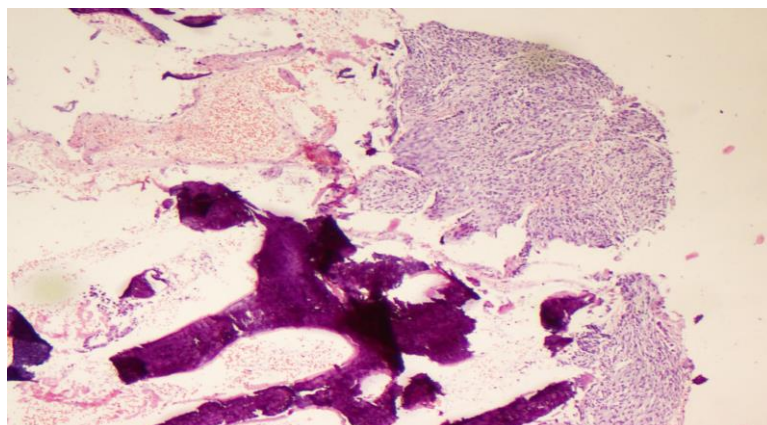


Figure:2

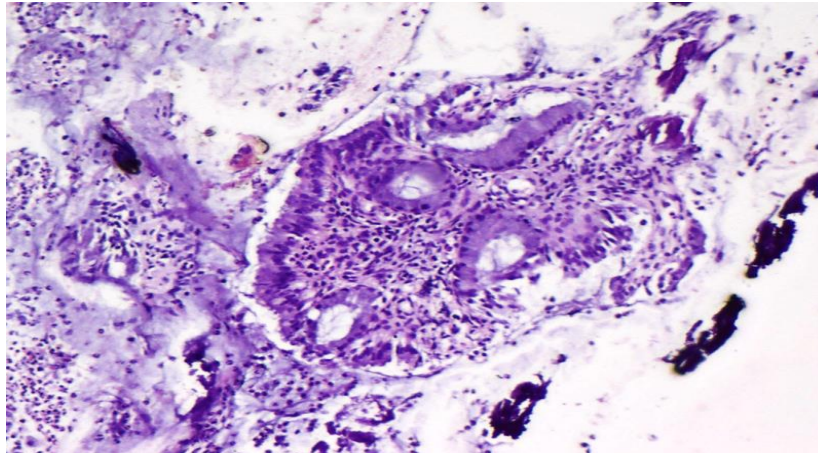


Figure:3

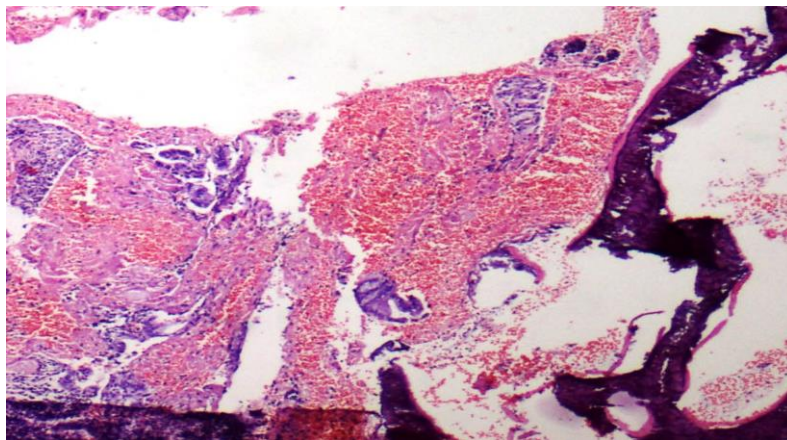


Figure:4

DISCUSSION

Osseous metaplasia is an endometrial lesion which is related to secondary infertility. It is rare and can be misdiagnosed [7,8]. In 1884, Virchow first recognised the formation of bone in the endometrium and associated it to spontaneous differentiation of fibroblasts into osteoblasts.[9,10,11] In 1923, Thaler et al. attributed the presence of this bony tissue to a previous abortion[12]. In 1956, De Brux et al. were the first to describe of osteogenesis within the genital tract [8].

Clinical signs and symptoms due to endometrial osseous metaplasia are varied and include menometrorrhagia, dysmenorrhea, vaginal discharge, pelvic pain and presence of bony particles in menstrual or vaginal discharge [4,6,7].

Pathogenic mechanisms related to the genesis of heterotopic bone into the endometrium are controversial. Although many theories have been proposed which include: osseous metaplasia from multipotential stromal cells, usually fibroblasts which become osteoblasts[7,8]; continuous and strong endometrial estrogenic stimulation; retention of fetal bones that secondarily promote osteogenesis in the surrounding endometrium[9]; implantation of embryonic parts without pre-existing bone after abortions at an early stage; dystrophic calcification of retained and necrotic tissues, usually after a midtrimester or late first-trimester abortion; chronic endometrial inflammation such as endometritis or pyometra and metabolic disorders such as hypercalcemia, hypervitaminosis D or hyperphosphatemia. The actual role of these pathogenic mechanisms is still unknown [9, 11].

Endometrial ossification may cause secondary infertility [1,9,10]. This can be explained by the bony tissue causing mechanical effect by prevention of implantation as a result of obliteration of the uterine cavity.

It can also have effects like an intrauterine device, interfering with blastocyst implantation due to chronic inflammation or reactive endometritis caused by bony fragments [8,12]. Infertility can also be attributed to direct toxicity of osseous particles on the developing embryo. However the effects of osseous metaplasia depend also on the extent of uterine involvement. Some case reports also mention that the bony fragments change the internal milieu of the uterine cavity through the increase of production of prostaglandins which can also interfere with fertility [5-7]. Our case was unusual in that there was no previous history of pregnancy. Moreover, she was asymptomatic. It was only when a transvaginal scan was done that this condition was found. To begin with, we suspected it to be an intrauterine foreign body or possibly intrauterine adhesions. However, her history did not support this assumption. Hysteroscopic removal of the calcified areas was done. Post procedure ultrasound looked normal. Histopathology report revealed endometrial osseous metaplasia. Tuberculosis was ruled out (RT-PCR on endometrial sample for mycobacterium tuberculosis complex was negative). At present her menstrual cycles continue regularly. Given that most of these women are able to conceive on their own we have advised our patient to try spontaneous conception over the next few months.

Sonography plays an important role in the diagnosis of patients with osseous metaplasia. A characteristic hyperechogenic pattern is often seen that is highly suggestive of osseous tissue within the uterus.[2,10] This should however be confirmed by hysteroscopic examination. It is very much essential for clinicians and radiologists to be aware of this entity as complete removal of the bony spicules from the endometrial cavity by hysteroscopy results in regaining of fertility [11,12].

Dilatation and curettage (D&C) and hysteroscopic treatment are the primary treatment options. Fertility can be restored after simple curettage of the heterotopic bone in the endometrium [5,7]. Few authors also suggest a series of D&Cs would be the preferred method in order to avoid intrauterine synechiae, instead of a primary vigorous curettage to remove the bony tissue. However, hysteroscopy is the mainstay in the initial diagnosis and removes the heterotopic tissue effectively by mechanical means or by light electrocautery [10,12].

CONCLUSION

Osseous metaplasia is a rare disorder. However, its frequency is thought to underestimate its actual incidence owing to both the lack of adequate clinician experience and a long asymptomatic phase of the pathology. The important lies in the fact that this condition is a treatable cause of infertility.

REFERENCES

- [1] Coccia ME, Becattini C, Bracco GL, Scarselli G. Ultrasound-guided hysteroscopic management of endometrial osseous metaplasia. *Ultrasound Obstet Gynecol* 1996;8:134–6.
- [2] Hsu C. Endometrial ossification. *Br J Obstet Gynaecol.* 1975;82:836–9.
- [3] Dutt S. Endometrial ossification associated with secondary infertility. *Br J Obstet Gynaecol.*1978;85:787–9.
- [4] Bhatia NN, Hoshiko MG. Uterine osseous metaplasia. *Obstet Gynecol.* 1982;60:256–9.
- [5] Shroff CP, Kudterkar NG, Badhwar VR. Endometrial ossification-report of three cases with literature review. *Indian J Pathol Microbiol.* 1985;28:71–4.
- [6] Acharya U, Pinion SB, Parkin DE, Hamilton MP. Osseous metaplasia of the endometrium treated by hysteroscopic resection. *Br J Obstet Gynaecol.* 1993;100:391–2.
- [7] Virchow R: Ueber metaplasia. *Vichows Arch Abt Pathol Anat.* 1884,97:410.
- [8] De Brux J, Palmer R, Ayoub-Despois H: Les ossification del'endometre. *Gynecol Obstet* 1956;55:494-504.
- [9] Newton CW III, Abel MR: Iatrogenic fetal implants. *Obstet Gynecol* 1972; 40:686-691.
- [10] Marcus SF, Bhattacharya J, Williams G, Brinsden P, Hamou J: Endometrial ossification: a case of secondary infertility. Report of two cases. *Am J Obstet Gynecol* 1994;170:1381-1383.
- [11] Torné A, Jou P, Pagano R, Sanchez I, Ordi J, Vanrell JÁ: Endometrial ossification successfully treated by hysteroscopic resection. *Eur J Obstet Gynecol Reprod Biol* 1996;66:75-77.
- [12] Thaler H: Uberlebendes foteles knorpelgewebe in der uterushohel nach abortus. *Zentralbl Gynakol* 1923;46:1784 1787.