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Case Report

**Osseous metaplasia of endometrium: A rare cause of Menorrhagia**Singh Ankita<sup>1\*</sup>, Basu S N<sup>2</sup> and Jain Seema<sup>3</sup><sup>1</sup>Associate Consultant, Department of Obstetrics and Gynaecology, Max Super speciality Hospital, New Delhi<sup>2</sup>Head of the Department and Senior Director, Department of Obstetrics and Gynaecology, Max Super speciality Hospital, New Delhi<sup>3</sup>Associate Director, Department of Obstetrics and Gynaecology, Max Super speciality Hospital, New Delhi

## QR Code

**\*Correspondence Info:**Dr. Ankita Singh  
Flat No 150, Kadambari Apartments,  
Sector 9, Rohini, New Delhi-85**\*Article History:****Received:** 21/10/2017**Revised:** 16/11/2017**Accepted:** 20/11/2017**DOI:** <https://doi.org/10.7439/ijbr.v8i11.4436>**Abstract**

Osseous metaplasia of endometrium is a rare clinical entity characterised by presence of mature or immature bone in endometrium. Reported cases of endometrial ossification are associated with previous history of pregnancy or abortion in more than 80% cases. A 38 year old woman presented to our OPD with complaint of menorrhagia and pelvic pain for 6 years. On Ultrasound, two echogenic shadows were seen around 10mm and 12mm in endometrial cavity. Her diagnostic hysteroscopy was done which showed coral like bony spicules which were removed hysteroscopically under ultrasound guidance. She made an uneventful recovery. After more than 2 years follow up, the patient enjoys good health and has resumed regular menses.

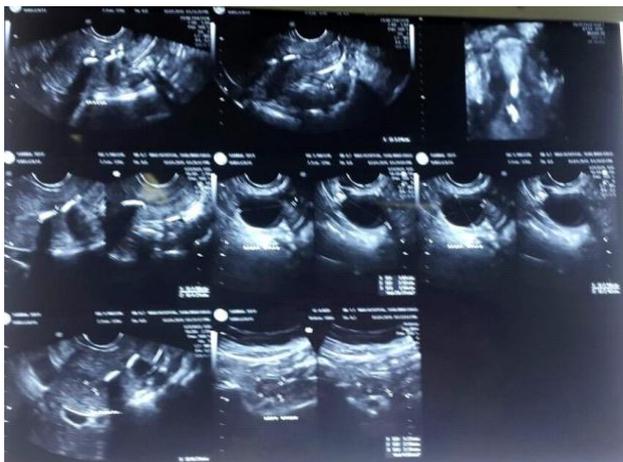
**Keywords:** Abortion, menorrhagia, osseous metaplasia.**1. Introduction**

Endometrial ossification is an uncommon entity and its aetiology and pathogenesis are controversial. It is a rare condition with an estimated incidence of 3/10000[1]. Reported cases of endometrial ossification are associated with previous history of pregnancy or abortion in more than 80% cases, but most of the studies do not make any distinction between intrauterine retention of foetal bones and heterotopic bone formation.[2] It is mostly seen in women of reproductive age though it has been reported in menopausal women as well. Among the reported cases in literature, time gap between antecedent abortion and detection of endometrial calcification ranges from 8 weeks to 14 years.[3]

**2. Case report**

A 38 year old woman presented to our OPD with complaints of menorrhagia and pelvic pain for 6 years and continuous bleeding per vaginum for 1 month. She had 2 vaginal deliveries followed by history of

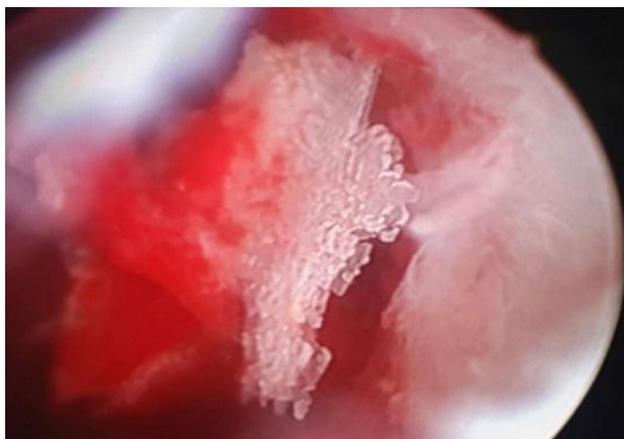
spontaneous abortion at around 12-14 weeks period of gestation 7 years back for which she had undergone uterine curettage. A year later she developed complaints of menorrhagia and pelvic pain off and on. Her USG was done 3 years back which revealed two curvilinear echogenic shadows around 1.5 cm in length. She had taken symptomatic treatment many times which used to relieve her temporarily. Her general and systemic examination was normal. On bimanual examination uterus was bulky, firm, and mobile with no adnexal mass. On USG uterus was bulky, endometrial thickness 7.3 mm and 2 echogenic shadows were seen 10mm and 12mm in endometrial cavity (Fig 1) Her hemogram, blood sugar, liver and kidney function tests were normal. Markers of Calcium metabolism - S Calcium, S phosphorus, S Parathyroid levels were normal. She was planned for Diagnostic Hysteroscopy and curettage under Ultrasound guidance.



**Fig 1: Ultrasonographic film showing 2 echogenic shadows 10mm and 12mm in endometrial cavity**

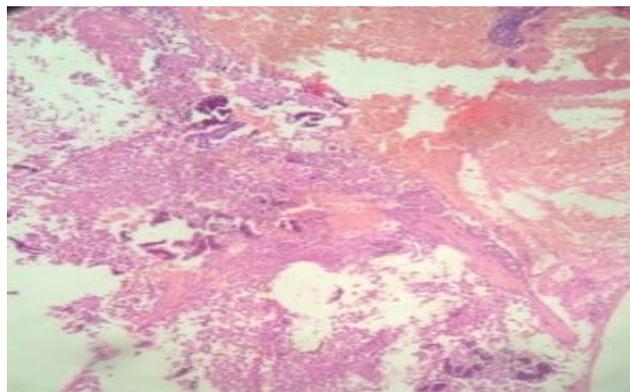
### 3. Treatment and Follow Up

Her diagnostic hysteroscopy was done which showed coral like bony spicules within the uterine cavity around 1 cm in size which were removed hysteroscopically and completeness of the procedure confirmed by ultrasound simultaneously (Fig 2). She made an uneventful recovery.



**Fig 2: Coral like bony spicule seen in endometrial cavity during hysteroscopy**

Histopathological examination revealed polypoidal secretory endometrium with entrapped bony spicule in endometrium. Spicule of bony trabeculae with osteocytes and marrow space were seen. No granulomas were seen (Fig 3). After more than 2 years follow up; the patient enjoys good health and has resumed regular menses.



**Fig 3: Histopathology slide showing polypoidal secretory endometrium with entrapped bony spicule in endometrium. Spicule of bony trabeculae with osteocytes and marrow space were seen**

### 4. Discussion

Sorinola attributed the formation of bone in the endometrium to spontaneous differentiation of fibroblasts into osteoblasts.[4] Thaler *et al* linked the presence of this bony tissue to a previous abortion.[5] The most widely accepted hypothesis is that ossification represents retained foetal bones following abortion suggesting endochondral ossification. It can also be related to transformation of mesenchymal tissue to osseous tissue in response to inflammation and the repair induced by abortion.[6-8] True heterotopia with metaplasia of mature endometrial stromal cells is suggested in few cases of endometrial ossification occurring without any history of pregnancy. Osseous metaplasia is rare and can be misdiagnosed. Hysteroscopy is the gold standard for its diagnosis and treatment [5].

Most cases of endometrial ossification present with secondary infertility after second trimester abortions but menometrorrhagia, dysmenorrhoea, vaginal discharge, pelvic pain, and even spontaneous expulsion of bony fragments during menses can also be seen in some.[9] In this case, the patient had a history of second trimester termination of pregnancy.

Endometrial ossification acts like an intrauterine contraceptive device so it could cause infertility as well as menometrorrhagia. Osseous metaplasia can cause infertility, menstrual irregularities and pelvic pain by changing the milieu of uterine cavity through the increased production of prostaglandins. Lewis *et al* measured menstrual blood volume and prostaglandin E2 concentrations before and after removal of bones retained in uterine cavity.

They found that the menstrual volume and total prostaglandin concentration reduced by 50% after the retained bones were removed. [10] It is also possible that reactive endometritis interferes with blastocyst implantation and thus cause sub fertility.[9]

The characteristic hyperechogenic pattern on ultrasound strongly suggests osseous tissue within the uterus and should be confirmed by hysteroscopy. The removal of residual fetal bones under hysteroscopy and ultrasound monitoring is safer, reduces the occurrence of complications and ensures removal of bones embedded in the uterine wall.[9] In patients with extensive osseous metaplasia and bony sheets embedded in the myometrium, laparoscopic monitoring during the procedure results in greater accuracy and prevention of complications such as uterine perforation.

Despite the history of pregnancy termination, we suggest that osseous material in our case is not foetal tissue because of the presence of bone marrow on histopathology in the fragments removed from the cavity. Bone is populated with haematopoietic cells in the third trimester of pregnancy; thus, the presence of bone marrow in the fragments obtained from the cavity as in this case can be considered as evidence against foetal origin.

Complete removal of the bony spicules from the endometrial cavity by hysteroscopy under ultrasonic guidance usually cures the patient. The final diagnosis is confirmed by histopathological examination of the osseous tissue obtained .

## 5. Conclusion

Second trimester abortions should always be followed by USG to ensure complete evacuation or performed under USG guidance.

Strong possibility needs to be kept especially when ultrasound scanning identifies a highly echogenic structure in the uterine cavity. Radiologists and gynaecologists should be aware of this entity to avoid erroneous diagnosis.

The detected osseous tissue should be removed surgically under ultrasound monitored hysteroscopy. This:-

Ensures safety and reduces the occurrence of complications such as perforation.

Ensures complete removal of residual bones embedded in the uterine wall.

## References

- [1]. Adamson NE, Sommers SC. Endometrial ossification: report of two cases. *Am J Obstet Gynecol* 1954; 67:187-90.
- [2]. Melius F, Julian T, Nagel T. Prolonged retention of intrauterine bones. *Obstet Gynaecol* 1991; 78:919-21.
- [3]. Behcei M, Demirel LC .Osseous metaplasia of the endometrium: a rare cause of infertility and its hysteroscopic management. *Hum Reprod* 1996;11:2537-9
- [4]. Sorinola O, Kamal NG, Condie RG, Wats JF. Subfertility due to osseous metaplasia of the endometrium treated by hysteroscopic resection. *Curr Obstet Gynaecol* 2000; 10:42-3.
- [5]. Lainas T, Zorzovilis I, Petsas G, Alexopoulou E, Lainas G, Ioakimidis T: Osseous metaplasia: case report and review. *Fertil Steril* 2004, 82:1433-1435.
- [6]. Ceccacci L, Clancy G: Endometrial ossification: report of an additional case. *Am J Obstet Gynecol* 1981; 141:103-104
- [7]. Acharya U, Pinion SB, Parkin DE, Hamilton MPR: Osseous metaplasia of the endometrium treated by hysteroscopic resection. *Br J Obstet Gynaecol* 1993; 100:391-392.
- [8]. Rodriguez BD, Adamson GD: Hysteroscopic treatment of ectopic intrauterine bone. A case report. *J Reprod Med.* 1993 Jul; 38(7): 515-20.
- [9]. Chervenak F. A., Amin H. K., and Neuwirth R. S., "Symptomatic intrauterine retention of fetal bones," *Obstetrics and Gynecology.* 1982; 59 (6) Supplement: 58S-61S.
- [10]. Lewis V, Khan-Dawood F, King M, Beckham C, Dawood MY. Retention of foetal bone increases menstrual prostaglandins. *Obstet Gynaecol* 1990; 75:561-3.