Journal of Comprehensive Clinical Practice
An official Journal of **Vivekananda Polyclinic and Institute of Medical Sciences,** Lucknow, UP, India

CASE REPORT

Osseous Metaplasia Endometrium: A Rare Case Report

Surabhi Gupta, Padam K. Agarwal

Department of Pathology, Vivekananda Polyclinic & Institute of Medical Sciences, Lucknow, UP, India

Abstract

Osseous metaplasia of endometrial tissue is a rare entity. We came across an interesting case of 25 years old lady with primary infertility. Her hysteroscopy showed a bone-like foreign body in the endometrial cavity. On gross examination, multiple soft to hard bits of tissue were received. Microscopy showed endometrial tissue in the proliferative phase and bony trabeculae. At places, bits of stromal tissue revealed osseous metaplastic changes consistent with bone formation.

ARTICLE INFO

***Correspondence:**
Padam K. Agarwal
madamagarwal@gmail.com

Department of Pathology, Vivekananda Polyclinic & Institute of Medical Sciences, Lucknow, UP, India

Dates:
Published: 30-05-2024

Keywords:
Endometrial tissue, Hysteroscopy, Osseous Metaplasia

Conflict of Interest:
The authors have no conflict of interest

Financial support: *Nil*

Conflicts of interest: *Nil*

How to Cite:
Gupta S, Agarwal PK. Osseous Metaplasia Endometrium: A Rare Case Report. Journal of Comprehensive Clinical Practice. 2024;18(1):31-34

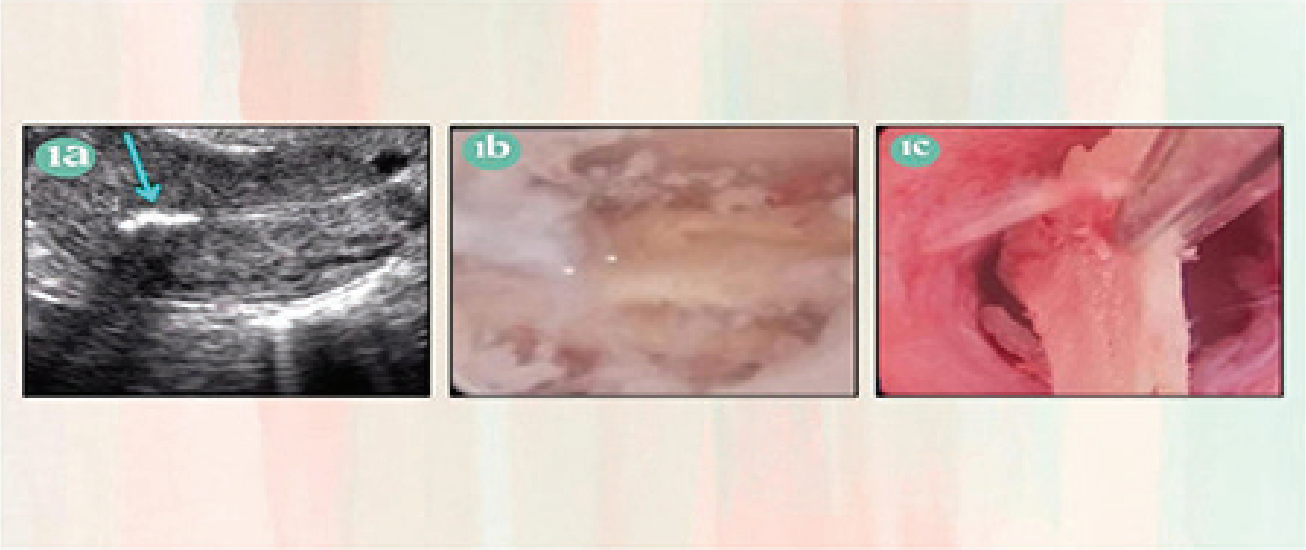
Introduction

Osseous metaplasia of endometrial tissue is a rare disorder especially with the presence of mature or immature bone in the endometrial cavity.[1] Most of the cases reported in the literature are associated with infertility. Among various theories, the most popular and accepted theory is metaplasia of the stromal cells into osteoblastic cells leading to bone formation. Removal of these bony bits leads to spontaneous conception. The gold standard for its diagnosis and treatment is Hysteroscopy.[2] But in the present case no history of conception was reported even after 2 years of the procedure.

Case Report

A 25-year-old housewife attended the outpatient department of the institute with complaints of inability to conceive following 4 years of happy married life. The patient attained menarche at the age of 14 years and used to have 28 days of regular menstrual cycles with 5 to 6 days average flow with a history of mild pain in the abdomen during menses. She did not give any history of amenorrhea after attaining menarche. There was no significant past medical history e.g. history of tuberculosis or intake of regular medication except folic acid.

She consulted a local practitioner for the treatment of infertility, who advised a semen examination of her husband. Her husband's semen analysis turned out to be normal. Then she was advised to get her hormone profile done which was also within normal range. Her routine blood investigations such as complete blood



Figure[1a-c]: Transvaginal sonography with hyperechogenic endometrial lesion suggesting calcification
[a] Hysteroscopy showed adhesions over fundus and in endometrial cavity **[b]**. A bone like foreign body structure along with multiple chips, were seen in the endometrial cavity **[c].**

profile, liver and renal function tests and thyroid profile were also within normal range.

Transvaginal sonography was performed, which showed an intrauterine hyperechogenic image suggestive of calcification (Figure 1a). Hysteroscopy showed adhesions over the fundus of the uterus and in the endometrial cavity. A bone-like foreign body along with multiple chips was seen in the endometrial cavity (Figures 1b and c). Hysteroscopic removal of the foreign body was done and submitted for histopathological examination.

Pathological Examination

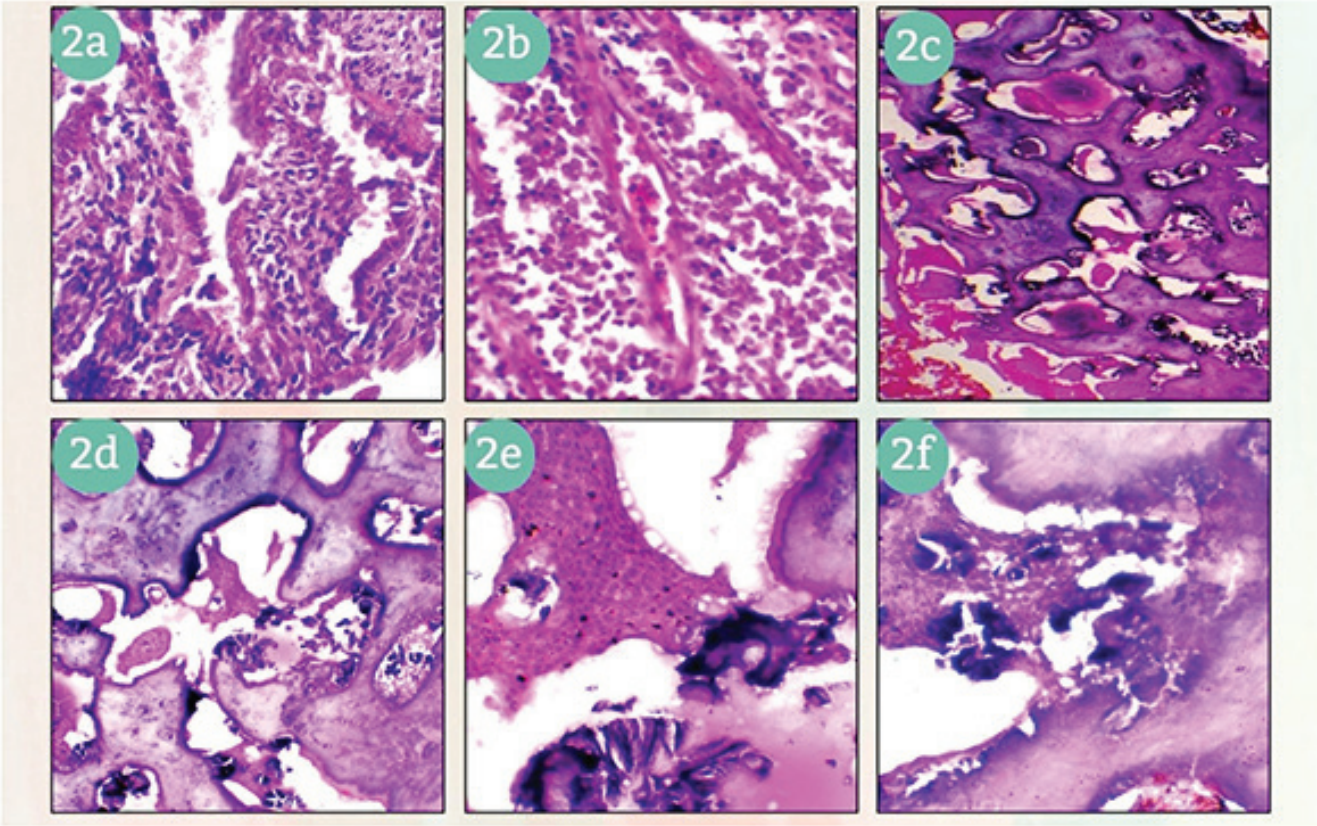
On gross examination, multiple irregular tiny hemorrhagic soft to hard tissue bits, altogether measuring 1.5x1.2cm in size were received. Whole tissue was processed. The bony part was processed after decalcification.

Microscopic examination revealed that endometrial glands were in the proliferative phase along with compact cellular stroma (Figure 2a) which was infiltrated by acute inflammatory cells mainly neutrophils and a few lymphocytes (Figure 2b). There were well-formed bony trabeculae enclosing a cellular marrow (Figures 2c and d). At places continuity of stromal tissue with bony trabeculae (Figure 2e) was seen, suggestive of osseous metaplasia of the stromal cells. Patchy areas of calcification were also noted at places (Figure 2f).

Discussion

Pathogenesis of heterotopic bone formation in the endometrium is controversial. Many theories have been proposed to describe the osseous metaplasia in the endometrial cavity, such as genesis from multipotential stromal cells, usually fibroblasts, which become osteoblasts[3]. The other theories are due to continuous endometrial estrogenic stimulation and retention of fetal bones that secondarily promote osteogenesis in the surrounding endometrium[4]. Implantation of embryonic parts after abortions at an early stage may lead to dystrophic calcification and bone formation. Even retained and necrotic tissues, usually after an abortion and chronic endometrial inflammation such as chronic endometritis or pyometra[5] may lead to ossification. Sometimes metabolic disorders such as hypercalcemia, hyper-vitaminosis D or hyperphosphatemia also may be associated with osseous metaplasia in the endometrial cavity. The actual contribution of these pathogenic mechanisms is unknown.[6]

Bhatia and Hoshiko reported a case of osseous



Figure[2a-f]: The endometrial glands in proliferative phase with compact cellular stroma [H:E,X10]**[a]**. Stroma densely infiltrated by acute inflammatory cells [H:E,X10]**[b]**. Well formed bony trabeculae enclosing bone marrow [H:E,X40]**[c,d]**. Continuity of stromal tissue with bony trabeculae [H:E,X40]**[e]**. Patchy areas of calcification within the stromal tissue [H:E,X40]**[f]**.

metaplasia involving both the endometrium and the endocervix.[7] They believed that this could be associated with prolonged chronic inflammation and tissue destruction following repeated spontaneous or therapeutic abortions. Fetal bones might have served as a source of calcium for ossification, but this may be valid only for abortions occurring in the second trimester, when ossification of the fetal skeleton has reached a certain level. Otherwise, ectopic bone formation and calcification result from the insult of chronic inflammation or tissue destruction with repeated abortions.[8] In the present case, the osseous metaplasia was associated with acute inflammation in the endometrium[5]. There was no previous history of amenorrhea or abortion.

Conclusion

It is interesting to note that in the present case, the patient had a normal menstrual cycle, even then she didn't conceive after 4 years of a happy married life. There was no significant past history of any co-morbidity like hypothyroidism, tuberculosis, or intake of medications. She had a normal hormone profile and her husband's semen analysis was also normal. On radiological examination for the cause of primary infertility, she was found to have bony foreign body in the endometrium. The histopathological examination of the whole tissue confirmed the diagnosis of Osseus metaplasia of the endometrium with bone formation associated with acute endometritis. On follow up she informed that she couldn't conceive after two years of procedure.

Patient Consent

We authors certify that we have obtained the appropriate patient consent form. The patient has given her consent for her images and clinical information to be reported in the journal. The

patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

This case has been presented at the Clinico-pathological Conference of the institute.

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