

## Osseous Metaplasia of the endometrium A case report and review of the literature

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### Abstract

Osseous metaplasia of the endometrium is an uncommon clinical and pathological disorder. It is a very rare cause of infertility and induced by abortion. Hysteroscopic examination revealed multiple bony specules and a resectoscopic excision of the bony specules was performed. Histopathological examination reveals bony trabeculae adjacent to the endometrial glands & stroma.

**Case presentation:** 34-year-old woman with osseous metaplasia of the endometrium is described, in which the diagnosis was suspected clinically and confirmed histopathologically. The clinical, pathogenesis and pathological features are briefly reviewed.

**Keywords:** Endometrium, infertility, hysteroscopy, osseous metaplasia

### Introduction

Osseous metaplasia of the endometrium is a very rare clinical and pathological entity<sup>1</sup>, and most patients are between 20 and 40 years of age.<sup>2</sup> The patients may present with secondary infertility<sup>3</sup>, menstrual irregularities, pain or dysmenorrhea and recurrent abortions.<sup>4,5</sup> The pathogenesis is controversial and many theories have been proposed: Osseous metaplasia from multipotential stromal cells, usually fibroblasts, which become osteoblasts; continuous and strong endometrial estrogenic stimulation; retention of fetal bones that secondarily promote osteogenesis in the surrounding endometrium<sup>6</sup> and metabolic disorder as hypercalcemia, hypervitaminosis D or hyperphosphatemia.<sup>1</sup> The actual contribution of these pathogenic mechanisms is unknown<sup>7</sup>. However, osseous metaplasia seems to be related to the transformation of mesenchymal tissue to bone in response to inflammation and the reparative process induced by abortion.<sup>3</sup> We report this case of osseous metaplasia of the endometrium associated with secondary infertility after abortion, because it is very rare, and to the best of our knowledge it is the first case to be reported in Erbil, Kurdistan, Iraq.

### Case presentation

34-year-old lady was admitted to Zheen private hospital with a history of abdominal pain & dys-

menorrhoea since the last uterine evacuation 13 months prior to her presentation. Evacuation of the uterus had been done for a missed abortion at almost 13 weeks of gestation. Since then she had regular but prolonged menstruation for 10 days every 30 days with passage of some tissue between menstruations. On physical examination she looked healthy. On bimanual vaginal examination there was slight tenderness on uterus otherwise there was no significant findings. On vaginal ultrasound there was a highly echogenic intrauterine shadow and had almost T-shaped suggesting calcification. The patient was admitted to the hospital with tuberculosis in mind. Hysteroscopic examination was performed under general anesthesia. Inside the uterus there were many small chips of whitish bony structure removed by hysteroscope & the biopsy was sent to Medya diagnostic centre in Erbil

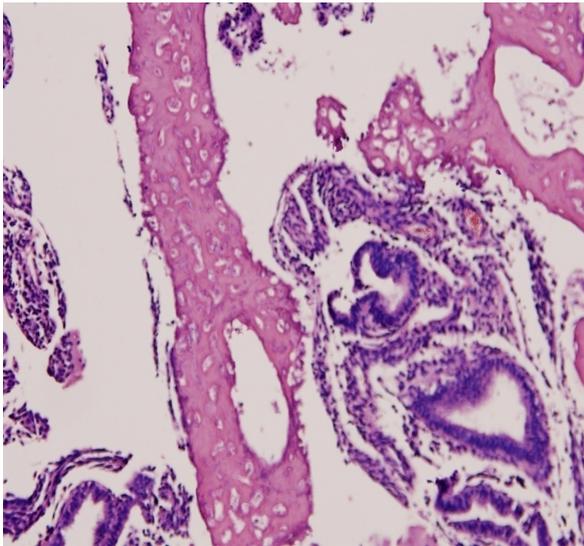
### Pathological examination:

**Gross examination:** The specimen consists of multiple small pieces of soft and bony tissue.

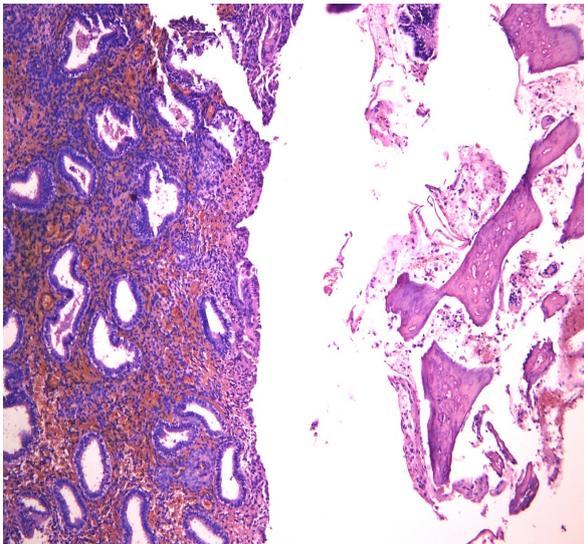
**Microscopic examination:** Revealed heterotopic bone formation with secretory endometrium which indicates sign of ovulation. Figures (1&2). A diagnosis of osseous metaplasia of the endometrium was made.

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**Figure 1:** Showing bony trabeculae adjacent to the endometrial glands and stroma.



**Figure 2:** Showing secretory endometrium with heterotopic bone formation.

## Discussion

Osseous metaplasia is an uncommon event in the gynecologic organs. It has been reported mostly in the endometrium and rarely in the cervix.<sup>8</sup> As early as 1956, De Brux et al provided the first description of osseous metaplasia within the genital tract.<sup>9</sup> Robinson believed the heterotopic bone formation to be the result of dystrophic calcification caused by the presence of retained necrotic tissue.<sup>10</sup> Bahatia and Hoshiko reported a case of osseous metaplasia involving both the endometrium and the endocervix. They believe this change to be in association with prolonged chronic inflammation and tissue destruction following repeated abortion.<sup>5</sup> The most common underlying factor is a history of an abortion<sup>11</sup> and our patient had abortion. Another underlying cause is endometritis, as ossification may develop in the old healing inflammatory tissue.<sup>12</sup> Although the pathogenesis of osseous metaplasia remains unclear. Endometrial ossification can be distinguished from retained fetal tissue by the absence of tissue reaction and endochondral ossification.<sup>15</sup> Among the few reported cases in the literature, the time lag between the antecedent abortion and discovery of the endometrial ossification varies between 8 weeks<sup>12</sup> and 14 years<sup>11</sup>, and the time lag in our patient was 13 months. Clinician should consider the possibility of endometrial ossification in the differential diagnosis of intrauterine foreign body on ultrasound; In addition, pathologists should be aware of this rare entity to avoid a misdiagnosis of malignant mixed müllerian tumor, which contains bone, in the endometrial curettage specimen, which may result in unnecessary hysterectomy.<sup>13,14</sup>

## Conclusion

Sonography and hysteroscopy are effective in the diagnosis and management of osseous metaplasia of the endometrium associated with infertility. Clinician should keep this rare entity in mind, especially in patients with a history of an abortion, and the pathologist should be aware of this disorder to avoid a misdiagnosis of malignant müllerian tumor

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