

Osseous Metaplasia in Leiomyoma: Case Report with Literature Review

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ABSTRACT

Introduction: Leiomyoma is being one of the commonest tumors of the female genital tract during the reproductive years. It is a benign neoplasm of smooth muscle.

Case report: We present one such case in a 60 year old postmenopausal female patient presented with uterovaginal prolapse.

Conclusion: The leiomyoma demonstrate a wide spectrum of histological variation, but osseous metaplasia is a rare clinical entity.

Keyword: Leiomyoma, Neoplasm, Metaplasia, Osseous, Postmenopausal

INTRODUCTION

Leiomyoma are the most common tumors of the uterus seen during the reproductive years in the women.¹ The overall incidence is 4-11% but it rises to nearly 40% in women over the age of 50 years.² Osseous metaplasia of leiomyoma is a uncommon clinical entity with a presence of mature and immature bone in the leiomyoma.³ Infection, necrosis, hyaline degeneration, calcification, myxoid degeneration is the most common secondary degenerative changes seen in cases of leiomyoma. Calcified and ossified leiomyoma are uncommon and is rarely reported in literature.⁴ We present a case of mature osseous metaplasia of leiomyoma in a postmenopausal female with uterovaginal prolapse.

CASE REPORT

A 60 yr old postmenopausal female was evaluated for pain abdomen and difficulty in passing urine. Patient also had complains of uterovaginal prolapse since many years. Obstetric history was notable for two spontaneous deliveries at term, last delivery was 20 years back and patient denied of any instrumentation of uterus in the past. Routine hematological and biochemical investigations were within normal limits. Ultrasound examination revealed a submucosal hyperechoic lesion ms- 6x4x4 cm in the uterine cavity suggestive of submucosal leiomyoma.

She underwent a total abdominal hysterectomy with bilateral salpingoopherectomy. Grossly we received a uterus measured 5x3x1 cm with presence of submucous stony hard fibroid ms 2.5x 2.5 cm nodule which was very hard and cut with extreme difficulty. The cut section of the mass showed yellowish stony hard areason the wall opposite to endometrial cavity (Figure 1). On H and E stained sections from the uterine tumor shows a tumor composed of interlacing bundles of smooth muscle fibre with dense hyalinization, calcification and foci of

ossification (Figure 2,3). Attached endomyometrium also revealed calcification. However there was no significant pleomorphism, nuclear atypia and mitosis. Patient had no calcium disorder, her serum calcium and phosphate were in the normal range, So histopathological diagnosis of uterine leiomyoma with osseous metaplasia made.

DISCUSSION

Being one of the commonest tumor of female genital tract, the leiomyoma expectedly demonstrates a wide spectrum of histological variations. However, heterologous tissue differentiation is a rare finding and frank bone formation is even rarer. Leiomyoma are known to display a variety of histopathological variants, the usual type, cellular, mitotically active, atypical or plexiform, epitheloid and the myxoid leiomyoma.¹ Calcification is rare and is seen only in 8% of the cases.¹ Metaplasia occur as a result of reprogramming of stem cells or of undifferentiated mesenchymal cells, which differentiate along a new pathway. This differentiation is brought about by signals generated by cytokines, growth factors and extracellular matrix components in the cell's environment.^{5,6}

In most of the reported cases, the osseous changes in the leiomyoma was followed by a previous history of abortion.⁷ Majority of the patients are in the reproductive age group. The time interval between the antecedent abortion and discovery of ossification varies from 8 weeks to 14 years in reproductive age group.⁷ Shimazu and Nakayama described endometrial ossification in a 62 year old post menopausal women who also had a history of abortion 37 years earlier to the diagnosis of endometrial ossification.⁸

The pathogenesis of ossification has been discussed by many hypothesis such as hypercalcemia, hypervitaminosis D, hyperphosphotemia, chronic endometritis, pyometra, persistent stimulation of endometrium by estrogen or osteogenesis in the surrounding endometrium which is promoted by retained fetal bones or dystrophic calcification

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How to cite this article: Pushpinder Kaur, Monika Garg, Veerpal Kaur, Monika, Ira Moudgil. Osseous metaplasia in leiomyoma: case report with literature review. International Journal of Contemporary Medical Research 2020;7(3):C4-C6.

DOI: <http://dx.doi.org/10.21276/ijcmr.2020.7.3.33>





Figure-1: Grossly uterus was atrophic with presence of submucosal hard fibroid ms 2.5x 2.5 cm.

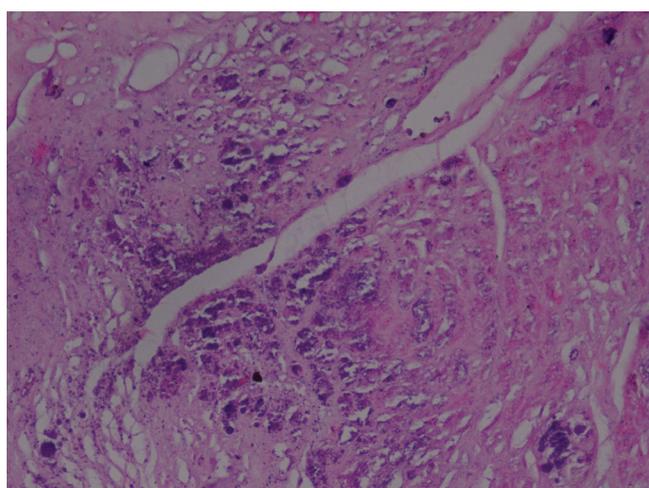


Figure-2: Photomicrograph showing tumour with dense calcification (H&E 20X)

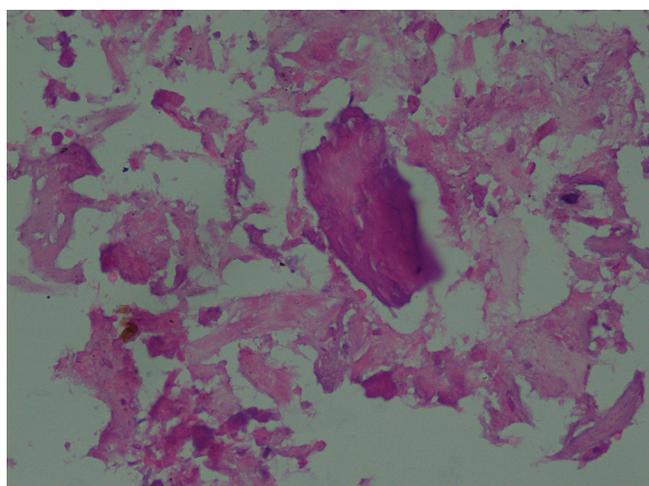


Figure-3: Photomicrograph showing ossification (H&E 20X)

of retained and necrotic tissues.⁹

Chronic endometritis also stimulate the proliferation of mesenchymal cells that have inherent property of metaplasia and can differentiate into chondroblasts or osteoblasts.⁷ Roth and Taylor demonstrated the presence of acid mucopolysaccharides, thereby supporting the capability of mature endometrial stromal cells to undergo cartilaginous metaplasia in response to chronic inflammation or trauma. The cartilage in the biopsy specimens of these patients is a

part of the osteoblastic process.¹⁰ The indexed case is also rare as patient had no such complaints.

As we have already discussed this condition is commonly seen in reproductive age group and most often patients present with infertility, hysteroscopic removal of bony chips have resulted in successful restoration of fertility. And further more role of estrogen has been found to have osteogenesis promoting effect.⁹ Our patient was of postmenopausal age group, had only a history of prolapsed and difficulty in urination and her family was completed she opted for hysterectomy.

Adomsons&Somners reported a case of ossification in leiomyoma in a patient who was taking high dose of calcium and vitamin D for long time. No such history was found in our patient and our case had normal serum calcium and phosphate levels that rule out any such type of metabolic cause for ossification.¹¹

However the phenomenon, for unknown reasons is very rare indeed and apparently ever rarer in uterine leiomyoma.¹²

It is important for the pathologist to recognize the non – neoplastic nature of this condition to avoid making a wrong diagnosis of malignant mixed mullerian tumor of the uterus.¹²

CONCLUSION

The case highlight that leiomyoma with osseous metaplasia is quite uncommon in postmenopausal patient presenting with uterovaginal prolapse.

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Source of Support: Nil; **Conflict of Interest:** None

Submitted: 05-02-2020; **Accepted:** 15-02-2020; **Published:** 20-03-2020