

Recently Described Polyphenotypic Tumor: Uterine Tumor Resembling Ovarian Sex Cord Tumor (Utrosct), A Case Report

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ABSTRACT

Uterine tumors resembling ovarian sex cord-like tumors (UTROST) are rarely encountered mesenchymal type of uterine tumors with unknown etiology. They usually exhibit nodular and polypoidal growth pattern and are commonly observed in the 4th to 6th decade. UTROSCTs behave benignly however limited data is available to date. Recently these tumors show a novel recurrent gene fusion involving the NCOA2/3 gene. Hysterectomy with bilateral salpingo-oophorectomy or tumor resection is a treatment option. We report a case of a 35 years old female who presented with dysfunctional uterine bleeding. The diagnosis was initially rendered on endometrial curetting's and further confirmed on the hysterectomy specimen after application of immunohistochemistry.

Keywords: UTROSCT, immunohistochemistry, polyphenotypic tumor.

INTRODUCTION

Uterine tumors resembling ovarian sex cord-like tumors (UTROST) are rare uterine neoplasms. They were first described by Clement and Scully in 1976 [1] and divided into two groups: Endometrial stromal tumors with sex cord-like elements (ESTSCLEs) with a predominant stromal component. The second group included tumors showing exclusively ovarian sex cord tumor-like morphology and hence named uterine tumors resembling ovarian sex cord tumors (UTROSCTs). Tumors in both groups behaved differently when followed for a certain period. ESTSCLEs showed aggressiveness in terms of recurrences as well as metastasis on follow up. However, most of the UTROSCT showed benign behavior and lack the characteristic translocation (JAZF1-JJAZ1) seen in ESTSCLE [1, 2].

World Health Organization (WHO) categorizes UTROSCT as a rare uterine mesenchymal neoplasm with unclear histogenesis and distinct histological features very similar to ovarian sex cord tumors [3]. These include sheets, cords, nests, tubules, and trabeculae. Pluripotential uterine mesenchymal cells are thought to be the cell of origin of these tumors [2, 3]. On immunohistochemistry, these tumors show positive staining for sex cord markers, keratin and variable staining for muscle markers. FISH testing on four cases by Dickson *et al.* showed distinct genetic changes from ESTSCLE and most of these tumors showed NCOA2/3 gene rearrangements [4].

CASE REPORT

We report a case of a 35year old female patient who presented with dysfunctional uterine bleeding for the last two and a half months in November 2019. Biopsy showed a fragmented tumor with variable morphological

patterns including cords, nests, sheets and hollow tubules. Immunohistochemical (IHC) stains were applied which included ER (+), CK AE1/AE3 (+), CD10 (-), Desmin (focal +) and Inhibin (+). Based on combined morphological features and immunohistochemical interpretation, diagnosis of uterine tumor resembling ovarian sex cord (UTROSCT) tumor was made. Subsequently, total abdominal hysterectomy with bilateral salpingo-oophorectomy was received. The endometrial cavity showed a small polypoidal growth measuring 2.0 x 1.0 x 0.7 cm. (**Fig. 1**). Microscopic evaluation of the polyp showed a similar tumor to that previously seen in D&C specimen (**Fig. 2**). Additional immunostains were performed *i.e.* calretinin (focal+), WT1(-), Melan A(-) (**Fig. 3**). The final diagnosis was consistent with the initial impression made on the curetted specimen *i.e.* UTROSCT. The tumor was confined to the polyp and no myometrial invasion was seen. Extensive adenomyosis and one intramucosal leiomyoma were present.

DISCUSSION

UTROSCT is a rare histopathological entity. To date, a limited number of cases (80 cases by Zhang *et al.*) have been reported with variable clinical outcomes⁶. Characteristic morphology supported by immunohistochemical stains helps in differentiating this tumor from other histologic mimics. UTROSCT is seen in reproductive as well as postmenopausal women with average age recently reported is 53 years [4]. The usual presentation of patients is with abnormal vaginal bleeding and occasionally lower abdominal pain [2, 4]. On hysterectomy, polypoidal or nodular mass in the uterine cavity is seen having a tan yellow, or white cut surface. (**Fig. 1**). Microscopically more than 50% of tumors show sex cord-like elements with various morphological patterns [2, 4]. These include a retiform pattern of epithelioid cells, anastomosing trabeculae and branching tubules or solid nests of epithelioid cells (**Fig. 2**). Tumor cells are usually small with a round

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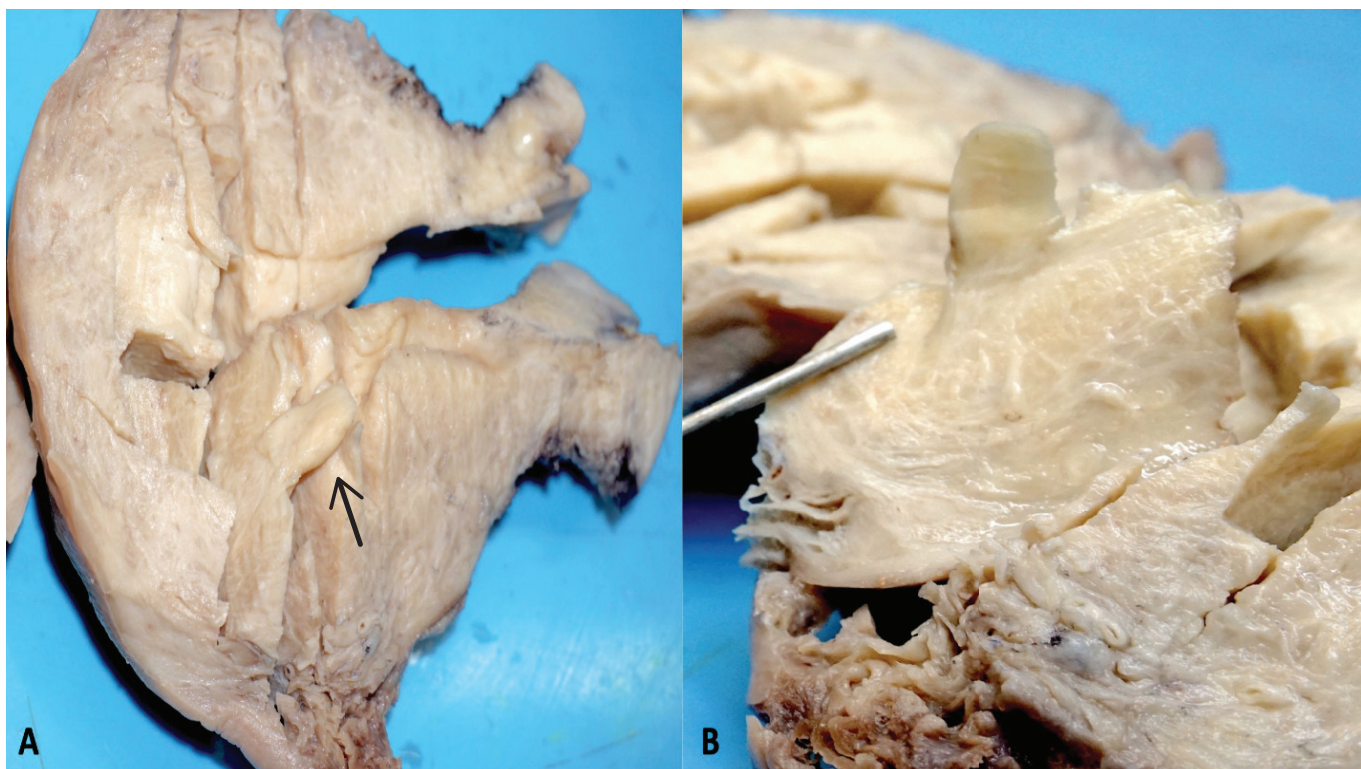


Fig. (1): Hysterectomy specimen showing grey white polypoidal tumor (A&B).

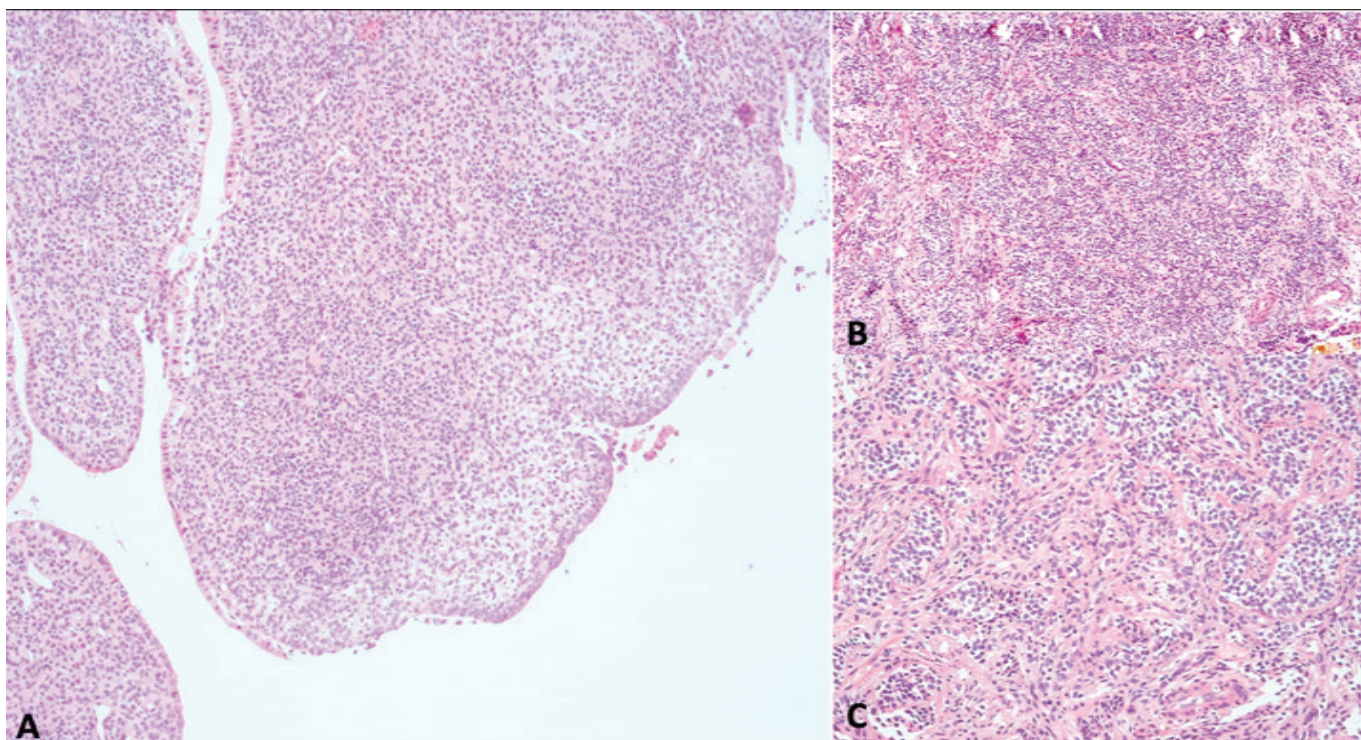


Fig. (2): Morphological patterns of UTROSCT: A) Sheets of small round polygonal cells. B, C) Epithelioid cells with nested growth pattern.

to ovoid nuclei, mild nuclear hyperchromasia and inconspicuous nucleoli. Mitotic figures are scant. Necrosis is mostly absent [3, 4]. Scattered foam cells and occasional nodules of smooth muscles have also been described [2]. The average reported tumor size is 2.4 cm with a range of 0.7 to 3.3 cm [4].

A literature review showed that UTROSCT is positive for at least two sex cord markers (calretinin, inhibin, CD99, melanA) along with others including ER, cytokeratin, desmin, CD10 and vimentin [2, 5-9] (**Fig. 3**). Therefore a panel of IHC stains is necessary for a definite diagnosis. Tumor circumscription, absence of vascular invasion,

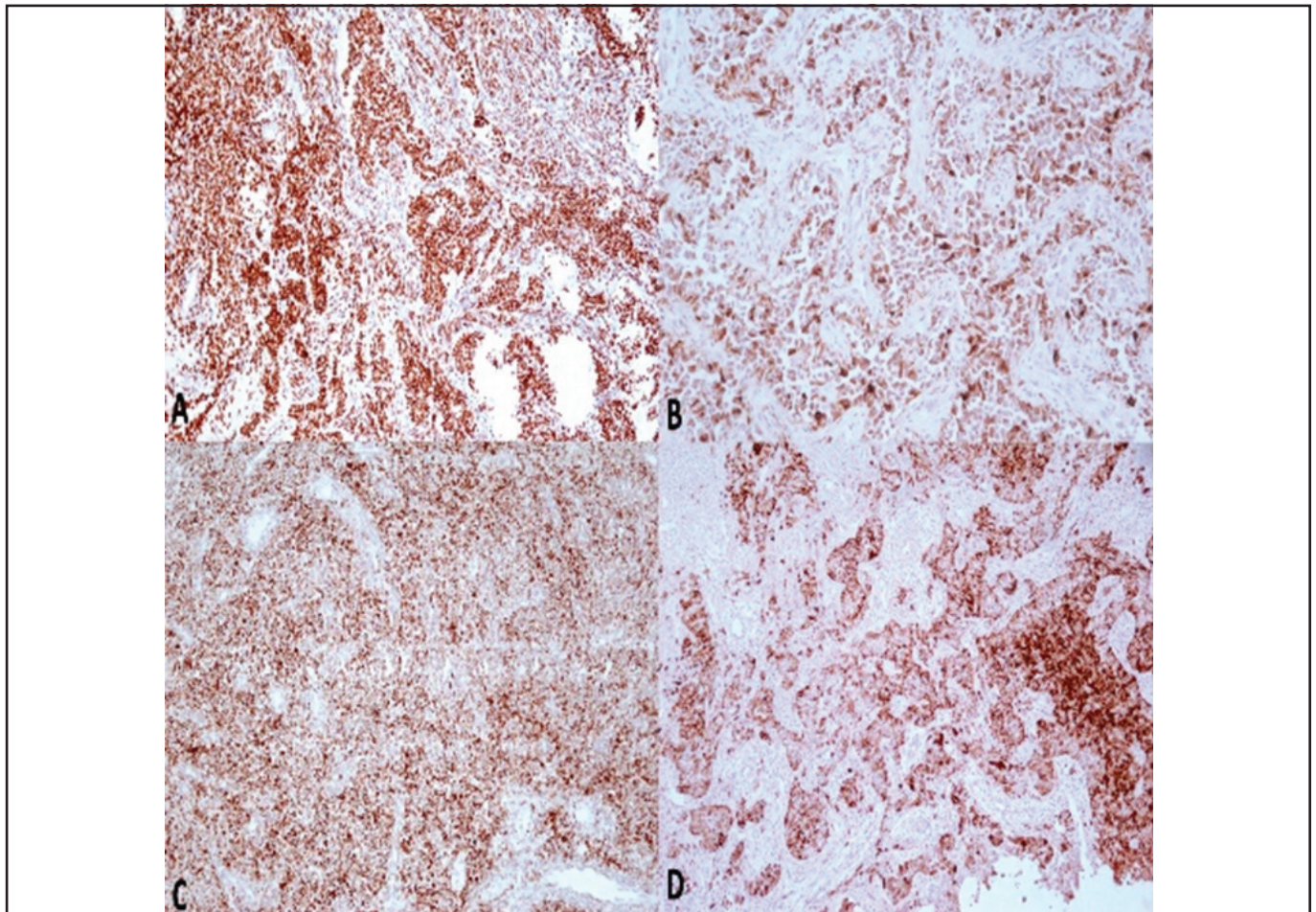


Fig. (3): Polyphenotypic immunohistochemistry in UTROSCT A) Estrogen receptor (ER+) B) Calretinin(+) C) Desmin (+) D) CD99 (+).

necrosis and low mitotic count are a few histological features predictive of favorable outcome [2, 3]. Different studies have reported malignant behavior in 23.5% of cases which showed metastasis and 8.8% of the patients died of their tumors [4, 7, 8]. Surgical resection is usually most of the time curative however there is a need to individualize the treatment based on the disease burden. Recurrent NCOA2/3 gene fusions have been seen in a total of 4 cases by RNA – sequencing studies with diagnostic implications. In 03 of the cases, it was partnered with ESR1 gene and in 01 cases with GREB1 gene.

CONCLUSION

UTROSCTs must be diagnosed with combined use of morphology and a panel of immunohistochemical stains. Though most of the tumors are benign, follow-up is mandatory due to their tendency to recur and rare metastasis *i.e.* uncertain malignant potential.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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