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Mixed Tumor of the Vagina (MTV): A Rare Case Report

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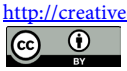

Abstract

Primary tumors of the vagina are extremely rare, accounting for less than 2% of gynecological neoplasms. Among these, mixed tumors with both epithelial and mesenchymal components are exceptional and rarely described in the literature. We report the case of a 50-year-old female patient with a mixed tumor of the vagina, which required multidisciplinary management. Through this observation, we discuss the clinical, radiological, and histopathological features of this rare entity, as well as the available treatment options.

Subject Areas

Anatomy & Physiology

Keywords

Mixed Tumor, Vagina, Epithelial and Mesenchymal Components

1. Introduction

Mixed tumors of the vagina (MTV), although rare, encompass a spectrum of lesions ranging from benign to malignant forms. These tumors are characterized by the simultaneous coexistence of epithelial and mesenchymal components [1]. Among them, benign tumors, such as adenomyomas or benign Müllerian mixed tumors, are rarely reported in the vagina, unlike their more frequent location in the uterus [2].

The rarity of these lesions in the vagina makes their diagnosis difficult, often based on specific histopathological criteria, supported by immunohistochemical techniques [1]. These benign tumors pose a clinical challenge in terms of their management, which must be adapted to the non-aggressive nature of the lesion while ensuring adequate monitoring [2].

In this context, we present a case of a benign mixed tumor of the vagina in a 50-year-old patient.

2. Clinical Observation

This is a 50-year-old female patient, single, nulliparous, with no significant medical or surgical history.

The patient consulted for postmenopausal metrorrhagia, and clinical examination revealed minimal bleeding. The speculum examination revealed a pedunculated vaginal mass measuring 5 cm × 4 cm, 1 cm from the vulvar fourchette, which bled on contact.

Pelvic ultrasound revealed endometrial thickening. Pelvic MRI showed circumferential and regular cervico-isthmic thickening with a 4 cm × 4 cm vaginal mass, with a vascular pedicle but no signs of local infiltration.

Under spinal anesthesia, the patient underwent diagnostic and operative hysteroscopy, which revealed a polyploid vaginal mass located on the posterior wall of the vagina, 1 cm from the vaginal fornix. This measured approximately 5 cm, was sessile with a smooth surface, firm in consistency, and covered with a squamous-like coating; exploration of the uterine cavity revealed a thin endometrium with normal-appearing vascularization and no abnormalities in the tubal ostia (Figure 1).

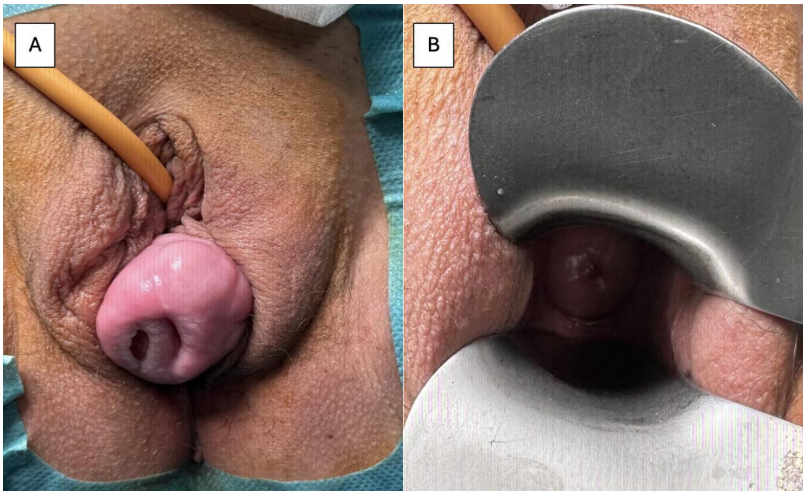

Figure 1. (A) Macroscopic appearance of the tumor; (B) Normal appearance of the cervix.

A wide resection of the mass was performed with endometrial biopsy curettage. The surgical specimen was sent for pathological examination.

Histological examination revealed a morphological and immunohistochemical appearance consistent with a biphasic tumor proliferation suggestive of a mixed tumor of the vagina. The excision margins were clear; the closest one was 1 cm away. At the same time, the endometrial biopsy curettage showed no abnormalities.

The postoperative course was uneventful, with no notable recurrence. Postoperative follow-up at 6 months revealed no complications.

Microscopic examination revealed a squamous mucosa. This is the site of a biphasic tumor proliferation with two components in its chorion (Figure 2). The first component consists of spindle cells arranged in short bundles with a tendency to swirl in places. The second component is arranged in clusters scattered among the spindle-shaped cells and consists of plump, tightly packed cells.

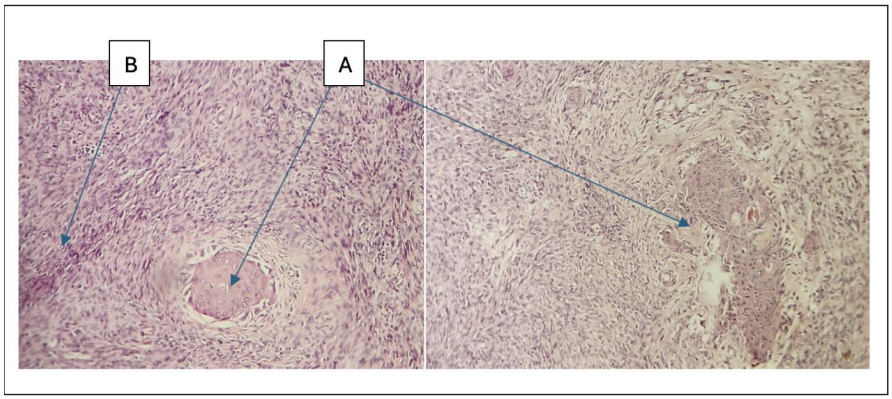

Figure 2. Biphasic tumor proliferation (A: contiguous cell contingent; B: spindle cell contingent).

The differential diagnosis of biphasic vaginal tumors relies primarily on the precise morphological identification of the two tumor components, as well as on the critical contribution of immunohistochemistry. Several rare lesions can mimic MTV, making histopathological analysis essential.

Among the main differential diagnoses are:

- Carcinosarcoma (mixed Müllerian tumor)
- Müllerian adenocarcinoma
- Fibroepithelial polyp (stromal pseudotumor)
- Botryoid rhabdomyosarcoma (in young patients)
- Specialized stromal tumors of the lower genital tract

In our case, the diagnosis of MTV was made based on several consistent morphological and immunohistochemical findings:

Intense cytoplasmic expression in both the clusters of adjacent cells and the spindle cells with the anti-cytokeratin antibody (Figure 3) and moderate nuclear expression with both the anti-estrogen antibody and anti-progesterone antibody.

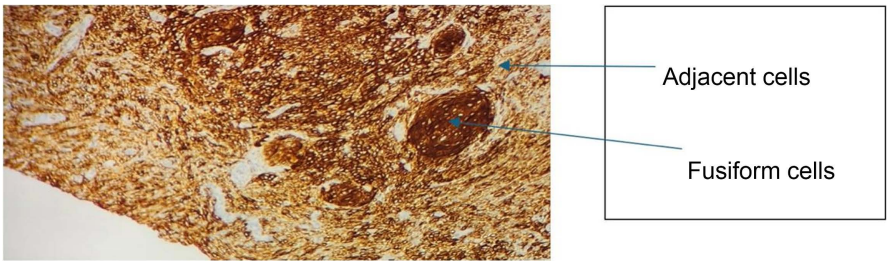

Figure 3. Simultaneous intense cytoplasmic expression of anti-cytokeratin antibody in adjacent cell clusters and spindle cells.

Intense cytoplasmic expression of spindle cells with the anti-vimentin antibody (Figure 4) and the anti-CD10 antibody (Figure 5).

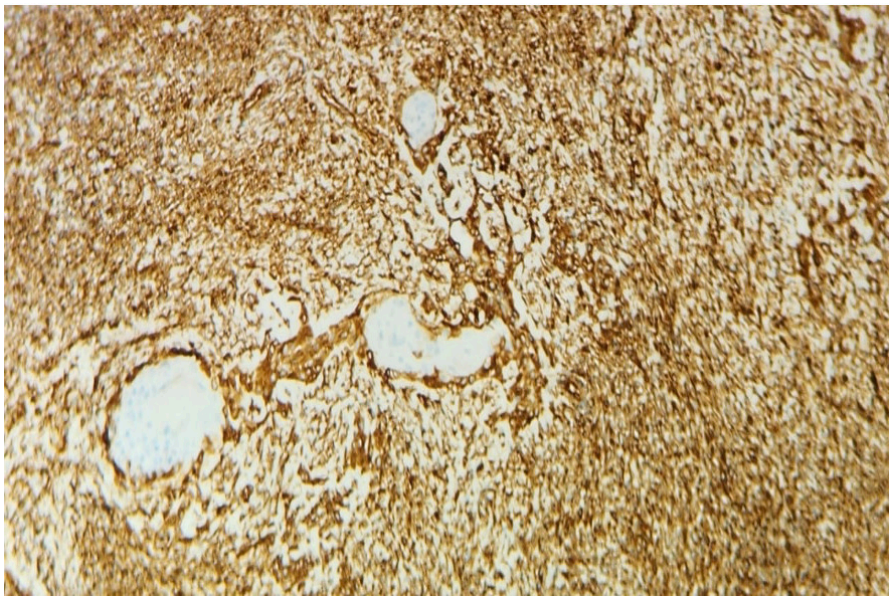

Figure 4. Cytoplasmic expression of anti-vimentin antibody in spindle cells.

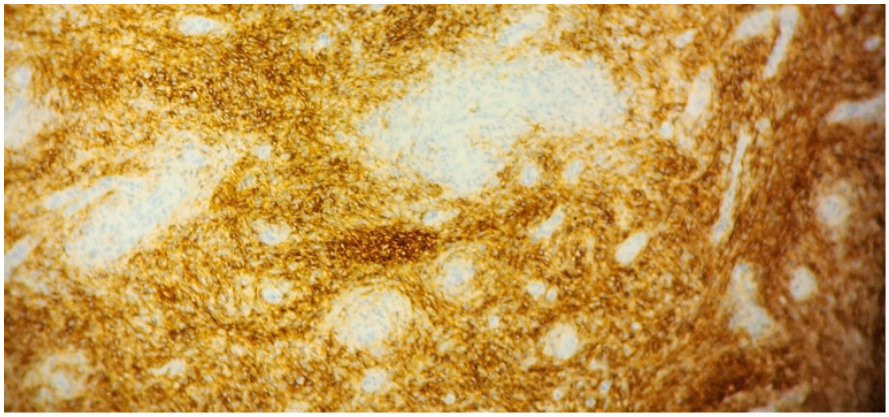

Figure 5. Membrane expression of anti-CD10 antibody on spindle cells.

Weak and focal nuclear expression of adjoining cells with the anti-P40 antibody.

Nuclear expression of the anti-Ki 67 antibody is low and estimated at 5%.

Informed Consent:

This study is a case report involving a single patient. Written informed consent was obtained from the patient prior to the preparation of the manuscript. This consent explicitly included authorization to publish clinical, radiological, and histopathological data, as well as associated images, for scientific and educational purposes, while ensuring the anonymity and confidentiality of personal information.

All procedures described were performed in accordance with the ethical prin-

ciples of the Declaration of Helsinki. No information allowing for the identification of the patient is reported in this manuscript.

3. Discussion

MTV is a rare entity, first described in 1953 by Sirota *et al.* [3].

The histogenesis of MTV remains controversial [4]. While mixed tumors in other locations (salivary, skin, breast) clearly derive from myoepithelial cells, this origin cannot be accepted for the vagina, where such cells are not histologically present [1].

Some studies suggest an epithelial origin from the epithelium derived from the urogenital sinus [1], while others propose the hypothesis of a pluripotent cell capable of epithelial and mesenchymal differentiation [4].

Morphologically, MTV are characterized by a biphasic architecture, consisting of both spindle-shaped and epithelial elements, the proportions and arrangement of which vary from case to case [5]. The spindle-shaped component is generally predominant; it appears in the form of fasciculated, cord-like, or nests and/or reticular proliferations [6]. The epithelial component may be glandular (often mucinous) and/or derived from mature squamous epithelium [2].

The cells generally show discrete nuclear atypia and low mitotic activity, which is typical of benign mixed tumors described in the literature [2] [5].

Immunohistochemical analysis is a key tool for identifying both epithelial and mesenchymal components, ruling out differential diagnoses, and thus confirming the diagnosis of MTV. These tumors frequently co-express epithelial and mesenchymal markers, including AE1/AE3, CK7, EMA, CD10, SMA, desmin, h-caldesmon, WT1, and CD34. The spindle-shaped component usually co-expresses epithelial and mesenchymal markers in a marked manner, highlighting the hybrid nature of these proliferations and thus providing a distinctive feature in favor of MTV diagnosis [7].

4. Clinical and Radiological Features

Clinically, MTV occurs mainly in adult women, with an average age of diagnosis between the fourth and sixth decades of life [2] [4]. They are most often located in the anterior or lateral vaginal wall [2]. The clinical presentation is generally non-specific, and the majority of cases are discovered incidentally during a routine gynecological examination [2] [8]. When symptomatic, MTV manifests as a painless vaginal mass, local discomfort, or dyspareunia, and more rarely as metrorrhagia or leukorrhea [2]. The clinical course is usually slow, with no signs of local aggressiveness, and gynecological examination typically reveals a well-circumscribed lesion covered with a normal-looking mucosa, suggesting that it is benign [2] [8].

Radiological data remain limited due to the exceptional rarity of mixed MTV [8] [9]. Imaging is mainly used to determine the size of the tumor, its boundaries, and its relationship to adjacent structures, with a view to complete surgical excision. Pelvic or endovaginal ultrasound can reveal a well-defined vaginal mass, which

is generally solid or moderately heterogeneous [8]. MRI is the gold standard examination; it most often shows a well-circumscribed, non-invasive lesion with iso- to hypointense signal on T1-weighted images and heterogeneous hyperintense signal on T2-weighted images, with moderate and progressive enhancement after gadolinium injection [8] [9]. The absence of signs of locoregional invasion or necrosis is an additional argument in favor of the benign nature of the lesion, although no radiological signs are specific to the diagnosis of MTV [8] [9].MTV is a benign tumor with no metastatic potential. However, rare cases of local recurrence after incomplete excision have been reported. The recommended treatment is therefore complete surgical excision with healthy margins [2] [6]. Clinical follow-up is recommended, although the risk of progression remains low [2].

Given the currently limited clinical follow-up in this case, it remains premature to draw definitive conclusions regarding the long-term prognosis. Although the initial course has been favorable, with no signs of clinical or radiological recurrence during the available follow-up, this observation should be interpreted with caution due to the rarity of this condition and the lack of robust prognostic data in the literature.

Thus, the prognosis cannot be considered definitively established, and prolonged monitoring appears necessary to detect any local recurrence or adverse progression at an early stage.

The chosen follow-up strategy is based on:

Regular gynecological clinical examinations, initially every 3 to 6 months during the first two years;

A pelvic ultrasound or magnetic resonance imaging in cases of clinical suspicion;

A gradual increase in the interval between follow-up visits in the absence of abnormalities after two years of follow-up.

Long-term follow-up is recommended, given the still poorly defined potential for progression of vaginal Müllerian tumors and the small number of reported cases.

5. Conclusion

Mixed tumors of the vagina are rare histological entities, diagnosed primarily through anatomical pathology. Their morphological and immunohistochemical polymorphism raises questions about their histogenesis. The prognosis is favorable, but complete surgical excision remains essential to prevent the risk of local recurrence, although this is rare. The accumulation of additional cases and expanded immunohistochemical studies will provide a clearer picture of the biological characteristics of this tumor and refine its nosological classification among vaginal tumors.

Authors' Contributions

Patient care and manuscript writing: Aziz EL Mahfoudi. Data collection and man-

uscript review: Aziz El Mahfoudi, Soukaina ELMaazouzi, Halima Elkhadraoui. All authors have read and approved the final version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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