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"Mixed Tumor of the Vagina: A Rare Case Report and Diagnostic Insights"

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Abstract
Mixed tumor of the vagina, previously known as spindle cell epithelioma, is a rare benign neoplasm originating from the subepithelial tissues of the vaginal wall. This tumor is characterized by a biphasic composition of epithelial and mesenchymal elements, mimicking features of mixed tumors found in salivary glands. Due to its rarity, accurate diagnosis and appropriate management are essential to differentiate it from other vaginal lesions, including malignant counterparts. We present a case of a 45-year-old woman with a painless vaginal mass, which was diagnosed as a mixed tumor of the vagina following histopathological and immunohistochemical evaluation. The lesion was successfully excised, with no recurrence during a one-year follow-up period. This report highlights the diagnostic challenges and clinical management of this uncommon entity.
Keywords: Mixed tumor, spindle cell epithelioma, biphasic composition

Introduction
Mixed tumor of the vagina, also previously referred to as spindle cell epithelioma, is an uncommon benign neoplasm first described by Fluhmann in 1945 (Fluhmann, 1945). It shares histological similarities with pleomorphic adenomas of the salivary glands, containing both epithelial and stromal components (Young & Clement, 1996). Although initially thought to originate from mesonephric remnants, recent studies suggest a derivation from pluripotent cells in the subepithelial tissue of the vagina (Toki et al., 2007).
Clinically, these tumors present as slow-growing, painless masses in the vaginal wall, typically in premenopausal or perimenopausal women (McCluggage, 2018). Despite their benign nature, mixed tumors of the vagina require careful histopathological examination to distinguish them from more aggressive lesions such as sarcomas and adenocarcinomas (Miettinen et al., 2003). Immunohistochemical markers, including cytokeratins and vimentin, play a crucial role in confirming the diagnosis (Nucci et al., 2009).
Given the rarity of this tumor, we present a detailed case report to contribute to the existing literature and emphasize the importance of accurate diagnosis and management.

Case Details
A 45-year-old woman presented with a complaint of a painless mass in the vaginal wall, which she had noticed six months prior. The mass had gradually increased in size but was not associated with bleeding, discharge, or dyspareunia. The patient's medical history was unremarkable, and she had no prior gynaecological surgeries or malignancies.

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Clinical Examination:

On speculum examination, a well-defined, firm, non-tender mass measuring approximately 2.5 cm in diameter was palpated on the left lateral vaginal wall. The overlying mucosa was intact, and there were no signs of ulceration or inflammation. Bimanual examination confirmed the mass's mobility, with no involvement of adjacent pelvic structures. No lymphadenopathy was detected.

Diagnostic Workup:

Given the clinical findings, a provisional diagnosis of a benign vaginal tumor was made. Transvaginal ultrasonography revealed a hypoechoic, well-circumscribed lesion confined to the subepithelial tissue of the vaginal wall, without invasion of the surrounding structures. An excisional biopsy was performed under regional anaesthesia.

Histopathological Findings:

Microscopic examination revealed a biphasic tumor composed of epithelial and spindle-shaped mesenchymal cells embedded in a myxoid stroma. The epithelial component formed gland-like structures and cords, while the mesenchymal component consisted of bland spindle cells. No significant cellular atypia or mitotic activity was observed. (Figure a, b, c)

Immunohistochemical Analysis:

The tumor cells showed strong positivity for cytokeratin AE1/AE3 and vimentin, confirming the biphasic nature of the lesion. Smooth muscle actin (SMA) was also positive in some stromal cells. These findings were consistent with a diagnosis of mixed tumor of the vagina. (Figure d)

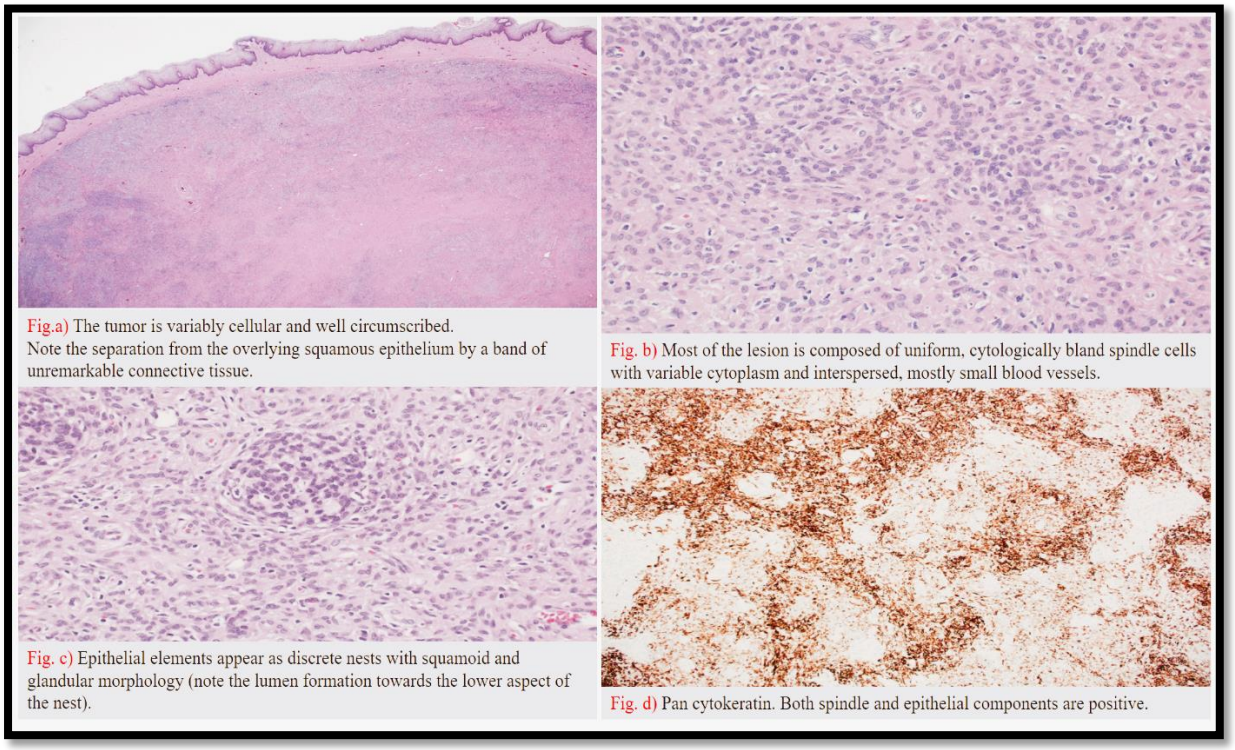

Fig.a) The tumor is variably cellular and well circumscribed. Note the separation from the overlying squamous epithelium by a band of unremarkable connective tissue.

Fig. b) Most of the lesion is composed of uniform, cytologically bland spindle cells with variable cytoplasm and interspersed, mostly small blood vessels.

Fig. c) Epithelial elements appear as discrete nests with squamoid and glandular morphology (note the lumen formation towards the lower aspect of the nest).

Fig. d) Pan cytokeratin. Both spindle and epithelial components are positive.

Management:

Complete surgical excision of the tumor with clear margins was achieved. The surgical site healed without complications. The patient was advised regular follow-up visits to monitor for recurrence.

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Follow-Up:

The patient was followed up at three-month intervals for one year. Clinical examination and imaging studies showed no evidence of recurrence.

Discussion

Mixed tumors of the vagina are rare, accounting for a small fraction of vaginal neoplasms (McCluggage, 2018). Their histological resemblance to pleomorphic adenomas of the salivary glands has led to the hypothesis that they arise from pluripotent subepithelial cells capable of differentiating into both epithelial and mesenchymal components (Young & Clement, 1996).

The clinical presentation of these tumors is usually nonspecific, with most patients reporting a painless vaginal mass (Toki et al., 2007). Differential diagnoses include leiomyomas, Bartholin gland cysts, and malignant neoplasms such as sarcomas and adenocarcinomas (Miettinen et al., 2003). Therefore, accurate histopathological evaluation is essential.

Histologically, mixed tumors of the vagina display a biphasic pattern with epithelial and mesenchymal elements. The epithelial component often forms gland-like structures, while the mesenchymal component consists of spindle-shaped cells in a myxoid or fibrous stroma (Nucci et al., 2009). The absence of significant cellular atypia and low mitotic activity are indicative of their benign nature.

Immunohistochemistry is a valuable tool in confirming the diagnosis. The co-expression of cytokeratins and vimentin supports the biphasic nature of the tumor, while SMA positivity in stromal cells suggests myoepithelial differentiation (McCluggage, 2018). These markers help differentiate mixed tumors from other vaginal neoplasms.

The mainstay of treatment for mixed tumors of the vagina is complete surgical excision with clear margins (Toki et al., 2007). Incomplete excision may lead to recurrence. Sentinel lymph node biopsy is generally not indicated due to the benign nature of the tumor. Long-term follow-up is recommended to monitor for recurrence.

Our case highlights the importance of considering mixed tumors in the differential diagnosis of vaginal masses. The successful surgical management and absence of recurrence in our patient underscore the efficacy of complete excision.

Conclusion

Mixed tumor of the vagina, formerly known as spindle cell epithelioma, is a rare benign neoplasm with a biphasic histological pattern. Accurate diagnosis through histopathological and immunohistochemical evaluation is essential to differentiate it from malignant lesions. Complete surgical excision remains the treatment of choice, with vigilant follow-up to ensure favourable outcomes. This case report contributes to the existing literature and emphasizes the need for awareness of this uncommon entity among clinicians and pathologists.

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