Perianal Tumor With Overlap Features of Fibroadenoma and Phyllodes Tumor Arising From Anogenital Mammary-like Glands

To the Editor:

Mammary-like glands (MLGs) are a normal tissue constituent of the anogenital region with histologic similarity to the lobules and acini of breast tissue. Numerous reports in the literature describe adnexal neoplasms arising from MLGs which are homologous to both benign and malignant lesions of the breast. As some of these lesions exhibit malignant behavior, the pathologist must have an adequate understanding of the histology and immunophenotypic characteristics of breast lesions. Here, we present an unusual case of an MLG-derived tumor containing overlap features of fibroadenoma and phyllodes tumor. We also review the differential diagnosis of tumors arising from MLGs and keys to their histologic differentiation.

A 36-year-old female with a history of polycystic ovarian syndrome presented with a painful lesion near the anus. Physical examination revealed a tender 1.5 cm cystic structure 1 cm posterior and lateral to the anus. One month later, the lesion had increased in size to 2.1 cm and an operative excision was performed.

Histologic examination revealed a nodular, well-circumscribed, partially cystic fibroepithelial proliferation with surface ulceration (Fig. 1). The lesion had a papillary configuration, fibrovascular cores and was lined by epithelial cells with apocrine differentiation. In areas stromal hypercellularity around ductal structures with a “leaf-like” appearance were present (Fig. 2). There were areas of squamous metaplasia with no definitive connection to the overlying surface mucosa (Figs. 3–6). The epithelial structures retained a basal cell layer and lacked an infiltrative character. Rare mitotic figures were present in the epithelial cells (Fig. 7). In some areas, there was a stromal predominance with fibrous cells that lacked significant

FIGURE 1. Fibroepithelial neoplasm with well-circumscribed borders and areas of stromal hypercellularity (hematoxylin and eosin, x10).

FIGURE 2. Pericanalicular pattern of stromal elements and ductal structures with formation of leaf-like structures. The background stroma shows a vague myxoid appearance. The lesion lacks an infiltrative character (hematoxylin and eosin, x100).

FIGURE 3. Rare stromal mitoses were present in the hypercellular areas, but less than 5 per high-power field (x400).

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cytologic atypia. Stromal mitoses were not conspicuous. There were also zones of edema and mixed inflammatory cells. Many of the epithelial cells were positive for ER and CK 5/6. The morphologic pattern and immunohistochemistry were compatible with a fibroepithelial neoplasm with overlap features between a phyllodes tumor and fibroadenoma. The patient has been followed clinically and has been free of recurrence.

Fibroadenoma, the most common benign tumor of the breast, and its close counterpart, the phyllodes tumor, have homologs arising from MLGs in the anogenital region. Fibroadenoma is distinguished histologically from phyllodes tumor by its homogenous stroma and lesser stromal cellularity. Fibroadenomas also lack the characteristic leaf-like projections into glandular lumens seen in phyllodes tumor. In both tumors, the epithelial components typically stain positive for AE1/AE3, ER, PR, and CK7, and the stromal elements stain positive for CD34 and vimentin. As breast phyllodes tumors have the potential to metastasize hematogenously and tend to recur locally after surgical excision, it is clinically important to be able to differentiate these similar entities as a surgically excised MLG-derived phyllodes tumor would require closer clinical follow-up. However, high-grade malignant phyllodes tumor of MLG origin has yet to be reported.

Several other benign MLG-derived neoplasms have been reported. The most common of these, hidradenoma papilliferum, is homologous to intraductal papilloma of the breast. Clinically, it is typically a slow-growing vulvar nodule that can be mistaken for a Bartholin’s cyst. It is believed to be hormonally responsive and may be associated with human papillomavirus. Histologically, it is defined by branching tubules separated by papillae composed of fibrous tissue bands.

Syringocystadenoma papilliferum presents as an exophytic papillomatous lesion with a fibrovascular core. Histologically, there are cystic epidermal invaginations containing villous luminal papillary projections lined by a double-layered epithelium in a background of plasma cells. The lesion usually connects to the surface mucosa or epidermis. These tumors also often contain lymphocytic infiltrates and stain positive for carcinoembryonic antigen.

FIGURE 4. The ductular structures show the presence of myoepithelial cells. On the left corner, areas of apocrine changes are seen (×200).

FIGURE 5. The prominent apocrine changes are represented by tall columnar cells, with abundant eosinophilic cytoplasm and snoutng on the surface (×400).

FIGURE 6. Stromal edema and acute inflammatory cells are noted, in addition to some thickened wall vessels (×200).
Other benign MLG-derived lesions include lactating adenoma and neurofibromatosis-associated pseudoangiomatous stromal hyperplasia with multinucleated giant cells.1,12 Vulvar lactating adenomas, homologous to the pregnancy-associated well-circumscribed lactating adenomas of the breast, have characteristic intracytoplasmic vacuoles containing intraluminal secretion.1 Anogenital pseudoangiomatous stromal hyperplasia with multinucleated giant cells seems histologically as empty anastomosing capillary channels with intervening collagen bundles.1

There have also been rare reports of MLG-derived lesions with malignant behavior including extramammary Paget disease,1,14 invasive ductal carcinoma,1,15 lobular carcinoma,1,16 tubulolobular carcinoma,1,17 and mucinous carcinoma.1,18 As with benign MLG-derived lesions, they share a striking homology with their counterparts in the breast.1,12

In summary, MLGs are a normal tissue constituent of the anogenital region capable of giving rise to lesions of both benign and malignant character with homologous counterparts in breast tissue. Although rare, these lesions should be in the differential for any vulvar or perianal lesion because of their potential for malignant behavior. Our case illustrates, for the first time, that overlap features of fibroadenoma and phyllodes tumor can occur in MLG-derived tumors just as they can in the breast.

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REFERENCES

FIGURE 7. A rare mitotic figure is seen in the epithelium (×400).