**Summary:** Computed tomography obtained as part of a urinary tract assessment in a 68-year-old woman incidentally detected a solid adnexal mass. Bilateral salpingo-oophorectomy revealed a unilateral, 4-cm, white to tan-yellow colored, focally calcified, left ovarian mass. Microscopically, the tumor was composed of bland fibroblasts, abundant collagen, and areas of calcification with a minor component composed of nests of epithelial cells with nuclear clefts focally evident, some of which contained central lumens with eosinophilic secretions. The major considerations were fibromatous overgrowth in a Brenner tumor or ovarian fibroma with minor sex cord elements. Immunostains for cytokeratin 7 showed diffuse positivity in the epithelial nests, whereas cytokeratin 20 and inhibin were negative, further supporting the diagnosis of a Brenner tumor.

**Background**
Most ovarian neoplasms are surface epithelial tumors, 2% to 3% of which represent Brenner tumors.1 Incidental Brenner tumors are not uncommon in oophorectomy specimens, and the true incidence of these lesions may be higher than estimated. The clinical significance, if any, of incidental Brenner tumor is unknown. Because of the common presence of mucinous epithelium lining the central space in Brenner nests, a variety of mucinous tumors may arise within a Brenner tumor. Brenner tumors also commonly occur in association with other ovarian tumors, including serous adenofibroma and mature cystic teratomas.2 Sex cord–stromal tumors represent approximately 6% to 8% of ovarian neoplasms, with fibromas accounting for the majority.3 A small portion of fibromas have minor sex cord elements.

**Case Report**
A 68-year-old white, gravida 4, para 4, postmenopausal woman was referred for computed tomography as part of a urinary tract assessment. The imaging study incidentally revealed an adnexal mass with calcifications. Ultrasonography was obtained and showed a 3.3 × 2.4 cm left adnexal mass with no blood flow, which was suspicious for a possible dermoid cyst. Subsequently, magnetic resonance imaging demonstrated a 3 × 2.6 × 2.2 cm mass in the left ovary with a homogeneous, low T2 signal and very minimal enhancement following the administration of gadolinium, a finding suspicious for ovarian fibroma (Fig 1A). Her level of cancer antigen 125 was normal (3.1; normal < 35 U/mL). Given the suspected benign nature of the ovarian mass, surgery limited to bilateral salpingo-oophorectomy was performed.

Grossly, the left ovary was firm with a smooth and glistening external surface. The ovary was sectioned to reveal a 4-cm solid mass with a tan-yellow to white-colored, focally calcified, cut surface (Fig 1B). The lesion replaced nearly the entire left ovary measuring 4.5 × 2.8 × 2.2 cm. Microscopically, the lesion had well-circumscribed borders. It was predominantly composed of fibrous stroma with bland spindle cells and collagen with large areas of calcification distributed in the abundant stromal collagen (Fig 2A and B). Admixed with the fibrous stroma and calcifications were multiple small epithelial nests comprising 10% to 15% of the entire lesion, some of which had central lumens filled with eosinophilic secretions (Fig 2C). Although the epithelial nests made up a minor component of the lesion, they were scattered throughout multiple sections and were found in close proximity of the calcifications under high-power examination. The epithelial cells were relatively uniform in size with scant cytoplasm and nuclei with occasional longitudinal grooves. No related mucinous epithelium was identified.

The epithelial nests showed strong and diffuse immunoreactivity with cytokeratin (CK) 7 (Fig 2D) but were negative for CK20 and inhibin. The contralateral ovary measuring 2.8 × 2.4 × 1.8 cm revealed cortical inclusion cysts. The fallopian tubes demonstrated para- tubal cysts with no additional pathological findings.

**Discussion**
The pathological findings in this case supported the
cystic lesions. The cytological features of borderline or low-malignant potential Brenner tumors can be similar to that of benign Brenner tumors; however, their architectural features are more complex, forming papillae or polypoid structures.

Approximately 50% of Brenner tumors are associated with calcifications and fibromas may show dense calcifications as well. The distinction between a Brenner tumor with fibrous stroma and ovarian fibroma may seem to be an academic exercise, particularly because both entities are benign; however, despite the benignity of both lesions, the characterization can be important because multiple reports of tumors metastasizing to ovarian lesions such as Brenner tumor — and, to a lesser extent, fibroma — have been described. These examples include renal cell carcinoma metastasizing to mixed Brenner tumor with mucinous cystadenoma, squamous cell carcinoma of the cervix metastasizing to Brenner tumor, breast cystosarcoma phyllodes to Brenner tumor, and breast adenocarcinoma metastasizing to benign ovarian fibroma.

Conclusions

Imaging, microscopic, and immunohistochemical features of a Brenner tumor with abundant fibrous stromal overgrowth were presented. The rare entity of fibroma with minor sex cord elements was excluded by morphological and immunophenotypical features. Ovarian fibroma with an incidental Brenner tumor component may also be considered in the differential diagnosis. By contrast to the localized nature of the epithelial component in a Brenner tumor with fibrous stroma, the presence of relatively scattered epithelial elements is an atypical finding in this case. Brenner tumors can occur with other ovarian neoplasms; however, a description of Brenner tumor coexisting with ovarian fibroma has, to our knowledge, never been de-
tailed. Although this may be the scenario in the case presented, the diagnosis of Brenner tumor is favored in the presence of a single gross nodular lesion. Despite the benign nature of both lesions, an awareness of the potential for tumors to metastasize to these lesions should be noted.

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References