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Annals of Diagnostic Pathology 15 (2011) 376–381

Annals of DIAGNOSTIC PATHOLOGY

Endometrioid carcinoma with a low-grade spindle cell component: a tumor resembling an adnexal tumor of probable Wolffian origin☆,☆☆

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Abstract Endometrioid carcinoma is known to have many histopathologic variants, which may cause diagnostic difficulty. One rare variant resembles Wolffian adnexal tumor (female adnexal tumor of probable Wolffian origin). This pattern can produce a significant solid component within the tumor. Once the true endometrioid nature of the tumor is recognized, the tumor can appear deceptively high grade by International Federation of Gynecology and Obstetrics grading criteria, which take into account the percentage of the tumor showing solid growth. The English-language literature on this variant is scant, and its behavior is not well documented. We present a case of ovarian endometrioid carcinoma with a Wolffian adnexal tumor pattern that recurred 19 years after the original surgery; and the patient continues to remain well without evidence of disease 1 year following her second surgery, that is, 20 years of indolent behavior. This long clinical course shows evidence for low-grade behavior for this tumor.

Keywords: Endometrioid carcinoma; Wolffian; FATWO; Ovary

1. Introduction

Endometrioid carcinoma is known to have many histopathologic variants, which may cause diagnostic difficulty. One rare variant resembles Wolffian adnexal tumor (female adnexal tumor of probable Wolffian origin [FATWO]). This pattern can produce a significant solid component within the tumor. Once the true endometrioid nature of the tumor is recognized, the tumor can appear deceptively high grade by International Federation of Gynecology and Obstetrics grading criteria, which take into account the percentage of the tumor showing solid growth.

Why is it important to recognize this particular variant and distinguish it from high-grade endometrioid carcinoma? The English-language literature on this variant is scant, and the natural history of this variant compared with other types of endometrial carcinoma is not well documented. The very limited short- and long-term information in 23 reported cases of this tumor in the fallopian tube and ovary suggests a prognostically favorable tumor [1-4], but the literature lacks truly long-term follow-up. We present a case of endometrioid carcinoma with a Wolffian adnexal tumor pattern, which recurred 19 years after the original surgery for a primary ovarian endometrioid carcinoma; and the patient continues to remain well without evidence of disease 1 year following her second surgery. This long clinical follow-up shows evidence that this is a very low-grade tumor.

1.1. Clinical case

The patient, an 82-year-old woman, presented in 1990 at age 62 years with an ovarian carcinoma, which directly invaded from the ovary through the vaginal wall at

☆ There are no commercial associations that would pose a conflict of interest.

☆☆ Funding source: Department of Pathology, University of California, San Diego.

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doi:10.1016/j.anndiagpath.2010.06.004

presentation. At the time, the tumor was diagnosed as endometrioid adenocarcinoma (International Federation of Gynecology and Obstetrics grade 2 of 3). She was treated with total abdominal hysterectomy, bilateral salpingo-oophorectomy, omentectomy, and lymph node dissection, followed by polyagent chemotherapy, with apparent "complete response." She was well since the completion of chemotherapy and was last seen by the treating physician in 1992.

In March 2009, at age 81 years, she was found to have an elevated CA125 at 133. Computed tomographic scan showed a left pelvic sidewall mass. Exploratory laparotomy found a mass (about 6 cm) confined to the left perirectal space, with extensive adhesions. The surgery was followed by pulmonary complications, but the patient is well without evidence of recurrent disease 1 year later. Following review of the current and 1990 tumor, which showed identical histopathology, a diagnosis was made of endometrioid carcinoma resembling an adnexal tumor of probable Wolffian origin. The patient elected to be followed with observation rather than receive more chemotherapy.

2. Materials and methods

Ten representative sections of the recurrent tumor were submitted for hematoxylin and eosin light microscopy. In addition, hematoxylin and eosin slides from archived material of the original tumor were available for review.

Immunohistochemical labeling was performed on the Dako (Carpinteria, CA) Autostainer using the EnVision+ HRP 2-step immunohistochemical technique. The following primary antibodies were used: MIB-1 (dilution, 1:80; Dako), p53 (dilution, 1:50; Vector Laboratories, Burlingame, CA), epithelial membrane antigen (EMA) (dilution, prediluted; Dako), vimentin (dilution, 1:800; Zymed Laboratories, South San Francisco, CA), estrogen receptor (ER) (dilution, 1:200; Dako), progesterone receptor (PR) (dilution, 1:300; Dako), cytokeratin 7 (CK7) (dilution, 1:50; Dako) CK5/6 (dilution, 1:50; Biocare Medical, Concord, CA), high–molecular weight keratin (903) (dilution, 1:60; Enzo Life Sciences, Farmingdale, NY), CK20 (dilution, 1:50; Dako), CD10 (dilution, 1:40; Lab Vision Corporation, Fremont, CA), calretinin (dilution, 1:100; Biocare Medical), and inhibin (dilution, 1:40; Biocare Medical). Known positive and negative controls were used for all antibodies. Congo red was also used (Accustain; Sigma-Aldrich, St Louis, MO), with known positive and negative controls.

2.1. Gross morphologic features

The recurrent tumor was an 8.0 × 5.0 × 4.5cm, 71g mass with a gray-white to tan, fleshy cut surface with large areas of hemorrhage occupying 50% to 60% of the tumor area. The tumor was confined by the capsule. Frozen section was interpreted as a high-grade endometrioid adenocarcinoma.

2.2. Microscopic morphologic features

Sections showed a neoplasm composed of many small crowded glands, including focal fused and cribriform glands (Fig. 1A and B), with intervening sheets of spindled cells that merged into the glands (Fig. 1C) and with these intermixed glands showing partially closed or slit-like compressed lumens (Fig. 1D). In some sections, the glands were ectatic and filled with dense pink, colloid-like secretions; and there were areas suggestive of a sieve-like pattern (Fig. 1E). In some areas, the solid tumor predominated; however, the spindled areas were cytologically bland. The nuclei of these glandular and spindled cells were vesicular, enlarged, and crowded, with mildly enlarged nucleoli; however, the nuclear features were not those of high-grade carcinoma and were in keeping with a low nuclear grade (Fig. 1F). Mitotic figures were inconspicuous (<1/10 high-power fields) in both the glandular and spindled cells. There were also extensive areas of hyalinized stroma with prominent blood vessels, associated with fibrin and hemorrhage. Result of a Congo red stain was negative.

2.3. Immunohistochemistry

MIB-1 was largely negative with only rare scattered nuclei staining (<5% of the nuclei) (Fig. 2A), and p53 was not overexpressed (the nuclei showed at most faint staining consistent with wild-type p53, without the intense, dark brown nuclear staining characteristic of p53 overexpression). Both the glandular and spindled cells were strongly and diffusely positive for EMA (Fig. 2B) and vimentin (Fig. 2C), and the majority of the tumor cell nuclei (90%) were positive for ER (Fig. 2D) and PR. Cytokeratin 7 showed patchy staining of glandular and spindled cells (10%-15%) (Fig. 2E). Cytokeratin 5/6 and high–molecular weight keratin (903) stained 5% of tumor cells, mainly glandular with a few spindle cells staining. Cytokeratin 20 was negative; and CD10, calretinin, and inhibin were negative.

The initial tumor from 1990 was compared with the recurrent tumor of 2009, and the 2 tumors showed identical histopathology. Grossly, the 1990 tumor was 6.0 cm in diameter and cystic, involving the left ovary. Clinically, the tumor invaded directly into the vagina; and that component was 3.5 × 2.9 × 2.0 cm, with a solid grey and tan, faintly lobulated cut surface. Outside slides from a biopsy of the vaginal portion of the tumor were reported to be positive for CK, EMA, and vimentin, and negative for carcinoembryonic antigen and Leu-M1.

3. Discussion

This case is a recurrence of the primary ovarian endometrioid adenocarcinoma resembling an adnexal tumor of probable Wolffian origin, nearly 2 decades after the initial surgery and chemotherapy. The histology of the current and previous tumor is identical and that described for