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Case Series

Endometrioid adenocarcinoma associated with endometrial stromal sarcoma: A rare, often unrecognized collision tumor

Grace Kim [a], Huyen Q. Pham [b], Amin Ramzan [b], Esther Elishaev [c], Paulette Mhawech-Fauceglia [b,*]

[a] Department of Surgical Pathology, University of Southern California, Los Angeles, CA, United States
[b] Division of Gynecology Oncology, Department of Obstetrics and Gynecology, United States
[c] Department of Pathology, Magee Women Hospital, UPMC, Pittsburg, PA, United States

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ABSTRACT

We are reporting 3 cases of the uterine corpus with collision of endometrioid adenocarcinoma (EAC) with endometrial stromal sarcoma (ESS). The patients' ages ranged from 36 to 59 years old. The major clinical presentation was abnormal uterine bleeding. Microscopically, all 3 cases presented with 2 separate components, EAC Grade 1 and ESS (one low grade and two high grades). The EAC component ranged from 10% to 70%, and the ESS component ranged from 30% to 70% of total tumor volume. The EAC component was stage 1A in two cases and stage II in one case. The ESS component was stages IA, IIB, and IIIB. Adjuvant hormonal therapy was administrated to one patient while a second patient was treated with chemo/radiation therapy. Two patients were still alive with no evidence of disease at 4 years post-therapy. One patient was lost for follow-up. Collision tumor should be distinguished from carcinosarcoma due to its different treatment modality, outcome and, prognosis.

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1. Introduction

Malignant uterine mixed epithelial–non-epithelial tumors are rare tumors. Based on the WHO system, they characterize a spectrum of neoplasms including adenosarcoma, carcinofibroma and carcinosarcomas or malignant mixed Mullerian tumors (MMMT). These tumors are characterized by proliferation of both mesenchymal and epithelial components and each of these components may be benign or malignant. Carcinosarcoma is the most common tumor of this classification. It is characteristically a bulky uterine tumor that histologically shows an admixture of both malignant epithelial and mesenchymal elements. Molecular studies have previously shown that these two components are monoclonal in about 80–90% (Reichert, 2012), and it is the common belief that carcinosarcomas are in fact metaplastic carcinomas, with the carcinomatous component driving the biphasic tumor (Sreenan and Hart, 1995). The remaining 10–20% of carcinosarcoma cases is believed to be biclonal, with topographically separate carcinoma and sarcoma elements, suggesting that these tumors may in fact be better categorized as "collision tumors". These collision tumors are believed to originate from the same organ site, or from adjacent organs, or metastasis from one organ site to another (Sreenan and Hart, 1995). Collision tumors are infrequent, probably under recognized, and currently described only in rare case reports.

Three interesting cases from our practice highlight the rare findings of a concurrent endometrial endometrioid adenocarcinoma and endometrial stromal sarcoma.

2. Material and methods

Three cases of uterine endometrioid adenocarcinoma and concurrent endometrial stromal sarcomas were seen in our practice. Clinical history including age, race, initial presentation, treatment and follow-up were collected from electronic medical records are illustrated in Table 1.

2.1. Patient #1

A 36-year-old Hispanic woman presented with 6 years of abnormal uterine bleeding. An endometrial pipelle biopsy showed simple endometrial hyperplasia without atypia. Definitive surgical management was recommended and 6 months after her initial abnormal biopsy, she underwent an uncomplicated laparoscopic assisted vaginal hysterectomy. On sectioning of the hysterectomy specimen, the endometrial cavity showed multiple polypoid lesions, the largest measuring 0.8 cm. The myometrium was bulky. The hematoxylin–eosin (HE) sections showed endometrioid adenocarcinoma (EAC) FIGO 1 without invasion of the myometrium. However, other sections showed

* Corresponding author at: Department of Pathology, University of Southern California, 1200 N. State Street, Room 7A116, Los Angeles, California 90033-5000, United States.
E-mail address: pfauceglia@hotmail.com (P. Mhawech-Fauceglia).

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Table 1
Summary of the clinical and pathologic findings in the 3 cases.

Case #	Age	Race	Presenting symptoms	Gross findings	Gross tumor size	Carcinoma component			Sarcoma component				FIGO stage	Treatment	Follow-up	Status at last follow-up
						EAC FIGO grade	% of MI	Sites involved by EAC	Sarcoma type and grade	% of MI	Sites involved by sarcoma	LVI				
1	36	Hispanic	Heavy vaginal bleeding, and heavy menses	Multiple polyps	Ppolypoid masses; greatest 0.8	FIGO 1	None	Uterus	ESS-LG	33%	Uterus	None	IA	TAH + Megace	41 months	ANED since 2011
2	55	Hispanic	Heavy vaginal bleeding for 4 months and, irregular menses	Soft, sessile mass	5.0 × 4.0 × 1.2 cm	FIGO 1	63%	Uterus, endocervix	ESS-HG	100%	Uterus, right parametrium, right fallopian tube, pelvic washing	None	II	TAH + BSO; Carbo/taxol × 6 cycles s/p WPXRT with vaginal brachytherapy	58 months	ANED since 11/2010
3	59	Unknown	Abdominal pain, distention, abnormal vaginal bleeding	Soft, polypoid mass	15 × 7.5 cm	FIGO 1	None	Uterus	ESS-HG	76%	Uterus, anterior abdominal wall, right periovarian soft tissue, pelvic peritoneum, perirectal tissue, omentum, pericecal implant, appendix, small bowel	Frequent	III	TAH + BSO, debulking Planned for chemo but lost to F/U	2 months; lost to F/U	Lost to F/U

EAC = endometrioid adenocarcinoma; MI = myometrial invasion; LVI = lymphovascular invasion; ESS = endometrial stromal sarcoma; LG = low grade; HG = high grade; ANED = alive no evidence of disease; F/U = follow-up.
TAH = total abdominal hysterectomy; BSO = bilateral salpingo–oophorectomy.

proliferation of endometrial stromal cells infiltrating 33% of the myometrium. These cells had similar morphology to those seen on the previous endometrial biopsies. The tumor cells formed irregular nodules infiltrating the myometrial wall. Cytologically, these cells resembled endometrial stromal cells, small in size, with scant cytoplasm and a very low mitotic rate. They were positive for ER (estrogen receptor)/PR (progesterone receptor) and CD10, and negative for pancytokeratin, desmin, and SMA (smooth muscle actin). Ki67 was positive in 5% (Fig. 1A–D). Of importance, the two components of the tumor (EAC and LG ESS) were geographically separate from one another. The EAC component was a stage IA, constituting 70% of the tumor volume, and the ESS component was a FIGO 1A, comprising 30% of the tumor volume. The pelvic washing was negative. Following hysterectomy the patient was started on megestrol acetate with ongoing surveillance. Today she is alive with no evidence of disease (ANED) at 41 months (3.4 years).

2.2. Patient #2

A 55-year-old Hispanic woman initially presented to our facility with 3 years of abnormal uterine bleeding managed with combined oral contraceptives. On initial pelvic exam at our hospital, there was heterogenous appearing tissue protruding through a dilated cervical os with biopsies showing only necrotic tissue. A subsequent endometrial pipelle biopsy was performed and diagnosed as endometrial adenocarcinoma FIGO Grade 1. One month later, an open modified radical hysterectomy and bilateral salpingo–oophorectomy was performed. The uterine cavity showed a sessile, fleshy mass obliterating the endometrial cavity, measuring 5 × 4 cm, with invasion through the uterine wall to the broad ligament. Histologically the mass showed two distinct components. The first was an EAC, FIGO1, invading through 63% of the myometrial thickness and involving the endocervical stroma. The second component, an ESS, showed tumor cells cytologically resembling endometrial stromal cells. They infiltrated the myometrium as jagged irregular islands and nodules with foci of necrosis. In some areas, the tumor cells still retained classic histology of a LG ESS. However, in other areas, the tumor cells exhibited moderate to severe atypia and a high mitotic rate, more representative of a HG ESS. The ESS component involved 100% of the myometrial thickness with involvement of the right adnexa and broad ligament (Fig. 2A–D). These tumor cells were positive for CD10, SMA, ER and PR, while negative for pancytokeratin and desmin. The EAC component constituted 50% of the tumor (stage II) and the ESS component formed 50% of the tumor (FIGO stage IIB). Following surgical staging, the patient completed systemic treatment with carboplatin (AUC 5) and paclitaxel (175 mg/m2) dosed every 21 days, followed by whole pelvic radiotherapy (5040 cGy) and vaginal brachytherapy (2283 cGy). Currently, she is undergoing surveillance, and she ANED at 4 years after treatment completion.

2.3. Patient #3

A 59-year-old Hispanic woman presented with abdominal pain and 2 months of post-menopausal vaginal bleeding. Pelvic exam revealed an enlarged 18-week sized uterus. An endometrial pipelle biopsy diagnosed high grade sarcoma and radiographic evaluation showed ascites and multiple peritoneal and omental lesions. Ten days after the initial diagnosis, the patient underwent a total abdominal hysterectomy, bilateral salpingo–oophorectomy and optimal tumor reductive surgery. On gross examination of the specimen, the uterine cavity showed a large, polypoid, necrotic mass in the right anterior wall measuring 15 × 7.5 × 6 cm. HE sections of the mass showed 2 separate components: An EAC FIGO grade I with no myometrial invasion and a HG ESS infiltrating 76% of the myometrial thickness in irregular islands and nodules with extensive lymphovascular invasion. There was involvement of the left and right adnexa, pelvic wall, peri-rectal and peri-cecal tissue, and omentum. The tumor cells were focally positive for desmin and CD10, and negative for pancytokeratin, SMA, and ER/PR (Fig. 3A–B).

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