대한병리학회지: 제 37 권 제 6 호 2003
The Korean Journal of Pathology. 2003; 37: 429-31

Malignant Mixed Müllerian Tumor of Fallopian Tube with Multiple Distinct Heterologous Components

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Received : September 17, 2003
Accepted : November 23, 2003

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We experienced a case of primary malignant mixed müllerian tumors (MMMT) of the fallopian tube of FIGO stage I. In addition to endometrioid adenocarcinomas, multiple apparent heterologous elements encompassing myxoid chondrosarcoma, osteosarcoma, myxoid liposarcoma and well differentiated angiosarcoma were recognized as separate nodules. These findings have not been described previously in MMMTs of the female genital tract.

Key Words : Fallopian Tube–Malignant Müllerian Mixed Tumor

Primary malignant tumors of the fallopian tube are uncommon, and malignant mixed müllerian tumors (MMMT) of the fallopian tube are extremely rare, with only approximately fifty cases previously reported.[1] The frequency of predominant heterologous mesenchymal elements differs according to anatomic sites; chondrosarcoma (85%), followed by rhabdomyosarcoma (20%) and osteosarcoma (5%) in the ovary,[2] in contrast to rhabdomyosarcoma, followed by chondrosarcoma and osteosarcoma in the uterine body.[3] Although different heterologous elements may be occasionally admixed and intermingled with each other, it has not been reported that multiple apparent sarcomatous elements manifested as separate nodules.

CASE REPORT

A 57-year-old woman (gravida 6, para 2) visited a local clinic for the evaluation of vaginal spotting. Ultrasonography revealed an intraabdominal mass in the right adnexa. She was referred to our hospital under the suspicion of malignancy. On explolaparotomy, the right fallopian tube was found to be markedly distended, measuring 10 × 5.5 × 5 cm. After confirming the diagnosis of a malignant tumor by frozen section, total abdominal hysterectomy and bilateral salpingo-oophorectomy was performed.

On gross examination, the serosa of the right fallopian tube was smooth, glistening and purple-red. On section, the dilated lumen was filled with a gray-white, solid tissue admixed with blood clots along the entire length of the fallopian tube (Fig. 1). The endometrium and both ovaries were uninvolved. On microscopic examination, the tumor was composed of both epithelial and mesenchymal components. The mesenchymal components were overwhelmingly present as variably textured and colored nodules comprising fully differentiated heterologous elements, whereas the epithelial cells formed the conventional endometrioid adenocarcinoma (Fig. 2). Four distinct heterologous elements were recognized: chondrosarcoma (Fig. 3A), osteosarcoma (Fig. 3B) comprising a major proportion, and myxoid liposarcoma (Fig. 3C) and angiosarcoma (Fig. 3D) in a minor proportion. Liposarcoma and angiosarcoma were found in separate nodules. The chondrosarcoma and liposarcoma revealed positive immunoreactivity to S-100 protein, and the angiosarcoma demonstrated intense CD31 expression. The serosa of the fallopian tube was not involved by

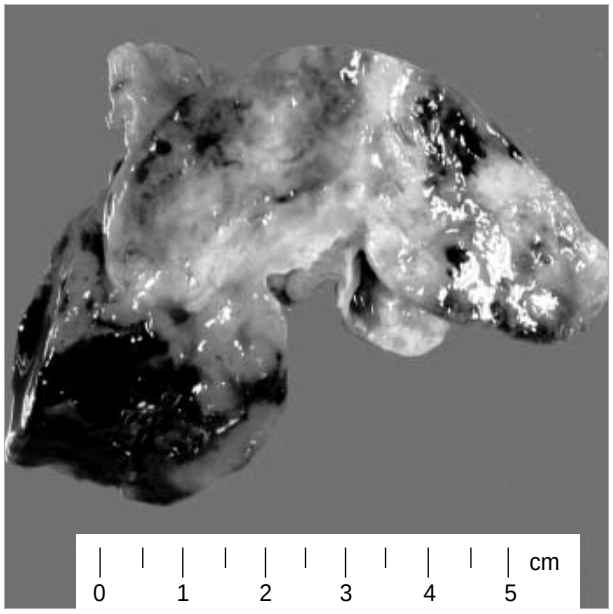

Fig. 1. The fallopian tube is dilated and totally replaced by a gray-white, solid mass admixed with blood clots.

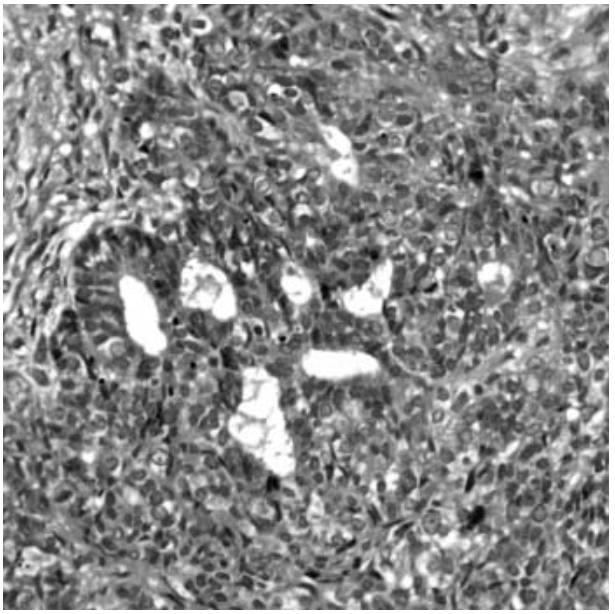

Fig. 2. The epithelial component of the tumor is of endometrioid adenocarcinoma.

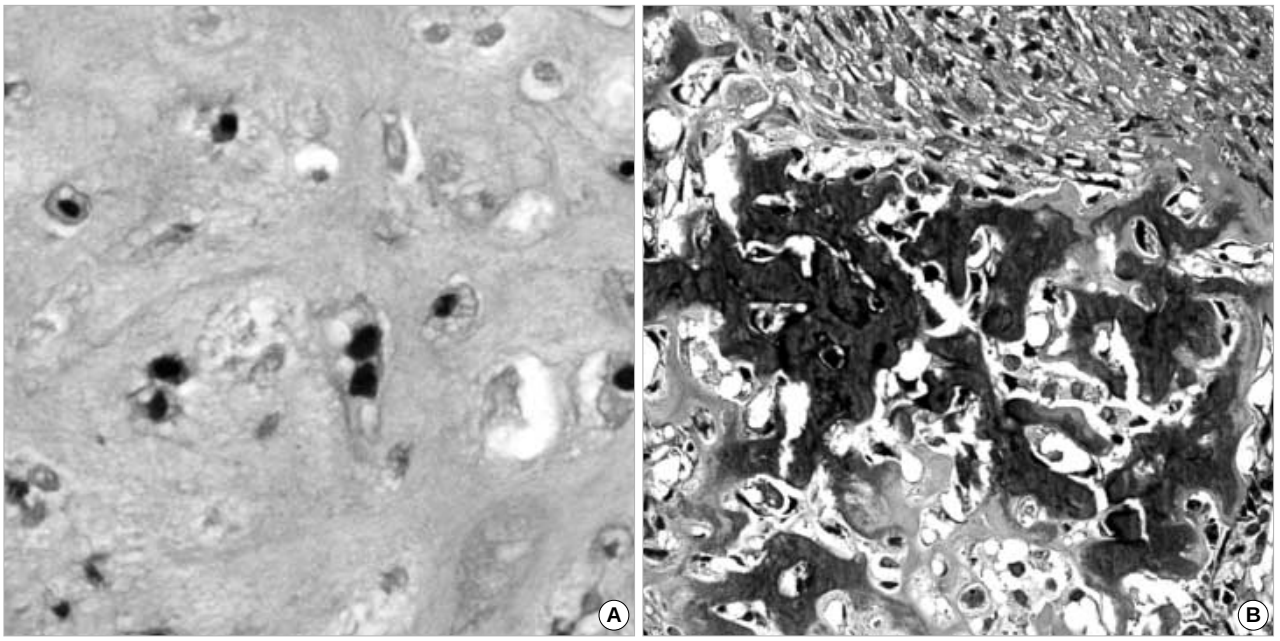

Fig. 3. In the mesenchymal component, four distinct heterologous elements are recognized: (A) chondrosarcoma, (B) osteosarcoma. (*Continued on next page*)

the tumor, and a peritoneal washing cytology smear was also negative for malignant cells. The tumor thus was found to be FIGO stage Ia. The patient is alive and well 6 months after postoperative adjuvant chemotherapy, consisting of cytoxan, cisplatin and adriamycin. She has been followed up with chest X-ray, gynecologic sonograms and cytologies on a regular basis and is currently free of disease 10 months postoperatively.

DISCUSSION

The fallopian tube is a rare site for MMMT, with only fifty three cases reported in the English literature.[1] Most patients were in the fifth or sixth decade of life, which was younger than the cases of MMMT of the endometrium, and older than cases of adenocarcinoma of the fallopian tube.[2] Histologically, mesenchymal

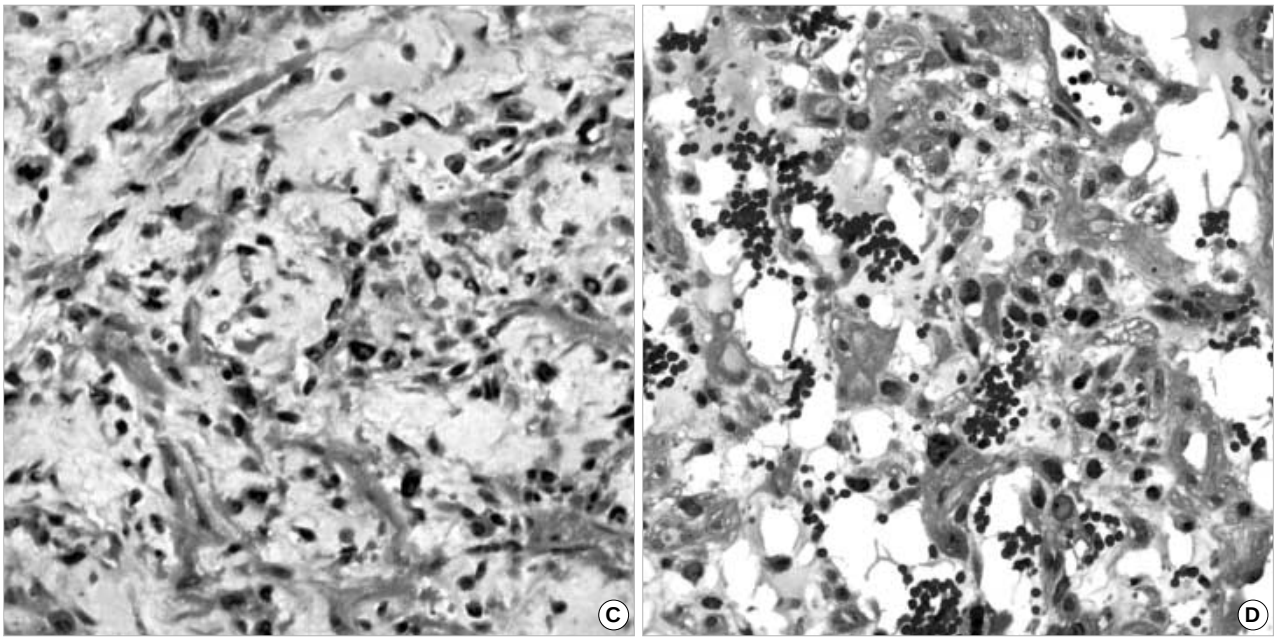

Fig. 3. (*Continued from the previous page*) In the mesenchymal component, four distinct heterologous elements are recognized: (C) myxoid liposarcoma and (D) angiosarcoma.

element, which is an essential requisite for MMMT, has been found to be heterologous in more than half of the cases, and that remains controversial as a poor prognostic indicator. Although all of the sarcomatous components may be present as heterologous elements in MMMT, malignant lipoblasts in liposarcoma and endothelial cells in angiosarcoma have been rarely reported. In the current case, we recognized apparently divergent heterologous elements, including chondrosarcoma, osteosarcoma, liposarcoma and angiosarcoma. Furthermore, they occupied grossly identifiable distinctive nodules without an intermingling pattern. We report a case of MMMT masquerading as malignant mesenchymoma of the fallopian tube.

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