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CASE REPORT

MALIGNANT MIXED MESODERMAL TUMOR OF THE OVARY

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Mixed mesenchymal and epithelial tumors are highly malignant neoplasms most commonly found in the uterus. Rarely, histologically identical tumors occur in the ovary. We report a 70-yr-old woman with a malignant mixed Müllerian tumor of the ovary. The tumor contained heterologous foci of immature cartilage and striated muscle, in addition to carcinosarcomatous areas. Postoperative chemotherapy was administered, but she died within 5 mth with recurrent and metastatic tumor. A review of the literature concerning extrauterine malignant mixed Müllerian tumors is added.

mixed mesodermal tumor; carcinosarcoma; mesodermal adenosarcoma; mixed Müllerian tumor

INTRODUCTION

Malignant mixed tumors of Müllerian origin are combined mesenchymal and epithelial neoplasms which, in order of increasing malignancy, are labeled: (1) mesodermal (Müllerian) adenosarcoma; (2) carcinosarcoma; (3) malignant mixed mesodermal (Müllerian) tumor (MMMT). The MMMT is an uncommon highly malignant neoplasm, which in most cases arises in the endometrium of the corpus uteri in postmenopausal women, the ovary and fallopian tube being very rare primary sites. A review of the English literature revealed 93 cases of malignant mixed mesodermal tumor and carcinosarcoma of the ovary (Anderson et al., 1967; Palladino and Trousdell, 1969; Dehner et al., 1971; Hernandez et al., 1977), and only 22 cases arising from the fallopian tube (Manes and Taylor, 1976; Jain, 1977).

It is the purpose of this report to present another case of MMMT of the ovary, and to discuss the clinical and pathological features of this rare neoplasm.

CASE REPORT

Clinical findings

The patient was a 70-yr-old female, para 0, who had had a normal menstrual history until menopause at 50 yr. She was admitted to the hospi-

tal because of abdominal enlargement and abdominal pain of 2 mth duration. She had an appendectomy in 1945 and hemorrhoidectomy in 1951. Three years previously a monoclonal gammopathy (IgG) without evidence of coexisting amyloidosis, multiple myeloma or other reticular malignancies had been diagnosed.

Physical examination revealed a large tender mass in the left adnexal region. An intravenous pyelogram showed displacement of the left ureter and the bladder. A barium enema examination revealed compression and displacement of the recto-sigmoid by a pelvic mass. Laboratory findings were within normal ranges. At laparotomy, a large, multilocular, cystic tumor, arising in the left ovary, was found. The tumor was adherent to adjacent structures, especially the sigmoid colon. After incision and drainage of the cystic tumor mass, releasing large quantities of bloody soft tissue, it could be removed completely. Total abdominal hysterectomy, bilateral salpingo-oophorectomy and partial resection of the sigmoid colon were performed. The liver and omentum were free of metastatic tumor. The immediate postoperative course was uneventful. She received chemotherapy (Leukeran); however, she developed signs of abdominal tumoral recurrence and lung metastasis. Her condition deteriorated, and she died within 5 mth of operation. Permission for autopsy was not obtained.

Pathological findings

The uterus was irregularly enlarged by several white—tan spherical tumors; no other abnormalities were encountered in the endometrium or myometrium. The left adnexal tumor mass measured 21 × 14 × 8 cm, and consisted of membranous tissue fragments interspersed with soft to firm, grey—white, solid areas. The weight of the tumor mass was 720 g. The right ovary measured 3 × 2 × 2 cm, and grossly appeared atrophic. Microscopic examination of the left ovarian tumor revealed carcinomatous and sarcomatous components. The epithelial component was adenocarcinomatous and consisted of neoplastic glands, cystic spaces and clusters of anaplastic cells. Focally a papillary pattern was seen. Underneath the malignant epithelium there was a sarcomatous stroma (Fig. 1). The main component of the tumor was an undifferentiated sarcomatous tissue, mainly comprised of hyperchromatic round to spindle-shaped cells, between which myxomatous areas were frequently encountered (Fig. 2). Mitotic figures were frequent. There were areas of necrosis. A heterologous area of immature cartilage was seen (Fig. 3). In addition there were large eosinophilic cells with plump, irregular or multiple hyperchromatic nuclei. Elongated 'strap cells' and 'tadpole cells' were easily found. Cross-striations could be demonstrated in many of these cells (Fig. 4). On microscopic study, sections of the right ovary showed papillary adenocarcinoma with psammoma bodies; sarcomatous and heterologous elements were not found. The uterine tumors were leiomyomas; in spite of careful search, no elements of MMMT were found in the

Fig. 1. Sarcomatous stroma covered by carcinomatous elements (H—E, ×45).

Fig. 2. Areas of undifferentiated sarcomatous tissue, between which is a loose meshwork of myxomatous tissue with stellate cells (H—E, ×190).

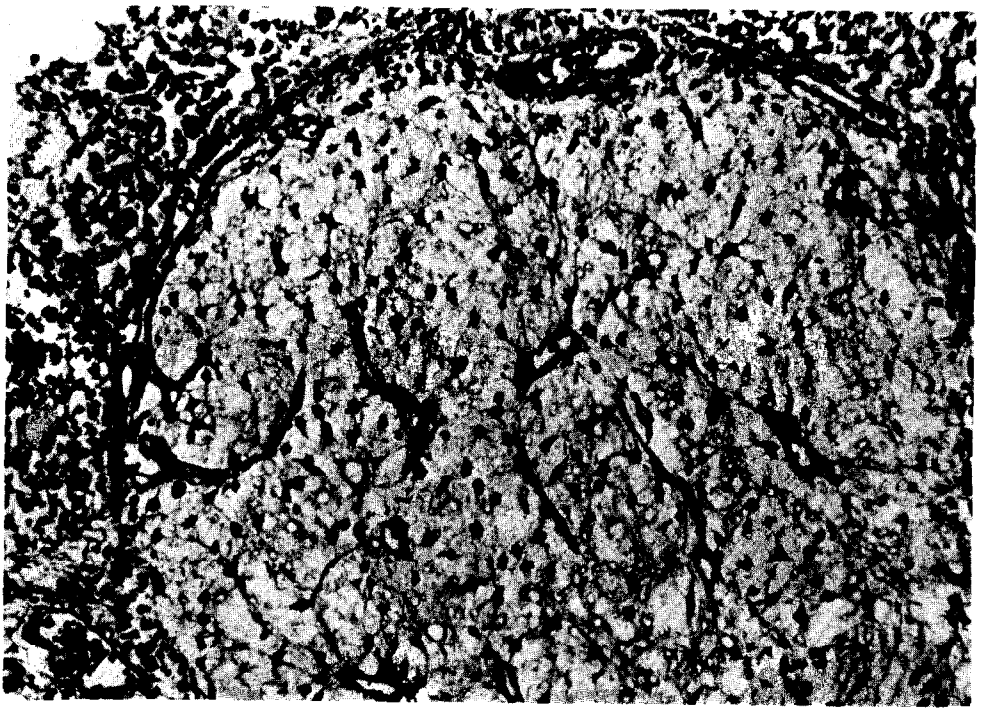

Fig. 3. An area of immature cartilage in an undifferentiated sarcomatous tissue (H—E, ×300).

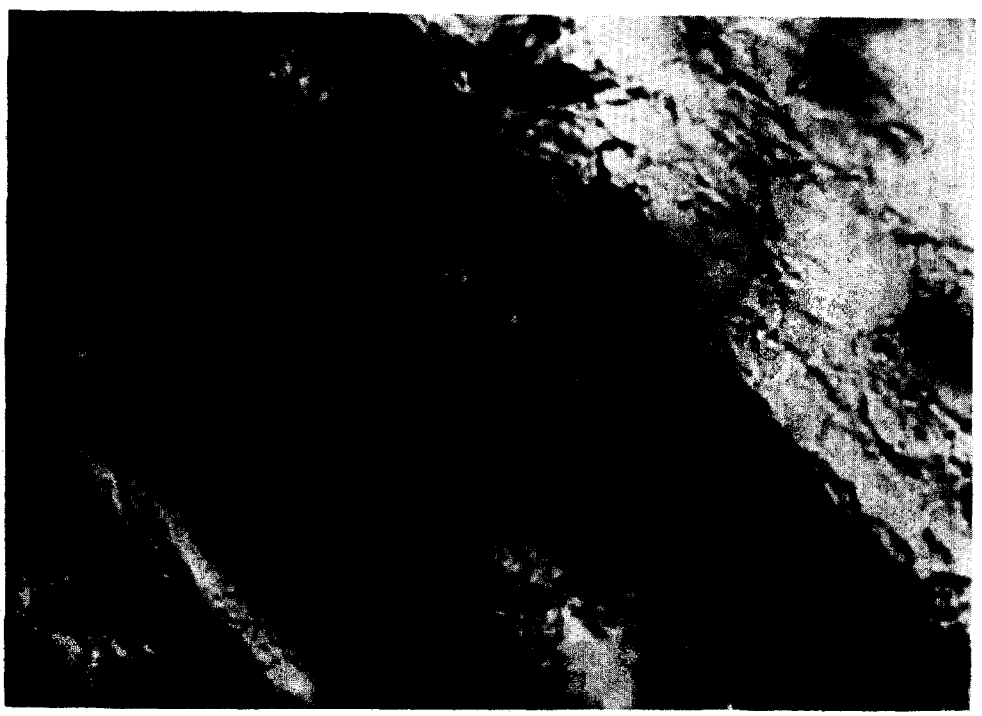

Fig. 4. Sarcomatous elements composed of pleomorphic cells containing bizarre nuclei and strap-shaped cells showing well-marked cross-striation (PTAH, ×760).

uterus. No evidence of endometriosis was present. The sigmoid colon showed deposits of carcinoma on the serosa.

A diagnosis was made of MMMT of the left ovary, extending into the sigmoid colon, with metastatic (epithelial) tumor in the right ovary (FIGO classification IIc).

DISCUSSION

The classic malignant mixed Müllerian tumors are subdivided into a homologous type (carcinosarcoma) and a heterologous type (malignant mixed mesodermal tumor, MMMT), both being characterized by a sarcomatous stromal element and an epithelial component that is carcinomatous. Malignant mixed Müllerian tumors are rare occurrences, most frequently originating in the uterus. The most common site is the corpus uteri, followed in decreasing incidence by the cervix, the ovary, the fallopian tube and other extrauterine sites, such as parametrium, recto-sigmoid, pelvic peritoneum and omentum (Ober and Black, 1955; Ginzler and Herrera, 1957; Scully et al., 1966; Decker et al., 1968; Wu et al., 1973; Hernandez et al., 1977).

Most patients are postmenopausal women in the 5th—8th decades of life. A high incidence of nulliparity in patients with MMMT of the ovary has been noted (Dehner et al., 1971). Abdominal enlargement, abdominal pain, weight loss, constipation and vaginal discharge are the most frequent symptoms. At physical examination a lower abdominal or pelvic mass, and occasionally ascites, is seen.

Monoclonal gammopathies, as in our patient, may be found in patients with non-reticular malignancies. Whether or not they represent a humoral response to tumor-related antigens remains to be established (Solomon, 1977). It must be noted that M-components are often found in normal persons, especially over the age of 70. However, as would be expected in an older population, other disorders may simultaneously occur.

The extrauterine malignant mixed tumors of Müllerian origin are composed of large, multilocular cysts interspersed with solid areas. The epithelial components are recognized as epidermoid, endometrial, tubal epithelia or their more anaplastic variants. Sometimes there is a papillary adenomatous pattern with psammoma bodies. Even clear-cell components have been noted. The mesenchymal component is very variable, but the most common element is a myxomatous tissue composed of spindle and stellate cells.

MMMTs differ from carcinosarcomas by the presence of heterologous tissues, of which cartilage and striated muscle are the most common elements (Dehner et al., 1971). Extension into adjacent structures is often noted. Metastatic spread to fallopian tube, contralateral ovary, peritoneum, liver, lungs, bone, spleen and lymph nodes has been reported. There is no history of prior pelvic irradiation in patients with these ovarian tumors, as was noted in women with carcinosarcomas and MMMTs of the uterus (Norris and Taylor, 1966).

Clement and Scully (1974, 1978) reported another distinctive type of

malignant mixed Müllerian tumor, characterized by an admixture of benign epithelial elements and a malignant stromal component, for which the term mesodermal (Müllerian) adenosarcoma was proposed. In some of these cases heterologous elements were seen (Clement and Scully, 1974).

Mesodermal adenosarcomas should be distinguished clearly from both highly malignant types of mixed Müllerian tumor, because malignancy in this type of biphasic ovarian tumor is manifested mainly by local recurrence, rather than by extensive and rapid metastasis. Kao and Norris (1978) in their report rejected the term 'mesodermal adenosarcoma', because in the low-grade varieties the stroma is not sarcomatous, and regarded these neoplasms as benign and low-grade variants of both highly malignant forms of mixed Müllerian tumor. Therefore, it has to be stressed that, with regard to clinical behavior, it is essential to specify the grade of malignancy of mixed Müllerian tumors by accurate histopathologic examination of the surgical specimen.

Treatment consists of resection of the tumor with hysterectomy and contralateral salpingo-oophorectomy. Postoperative irradiation therapy has often been used, but carcinosarcomas and MMMTs are radioresistant. Some patients were treated with concomitant chemotherapy (Hernandez et al., 1977).

In only a few patients did chemotherapy and irradiation give any objective response. The prognosis of carcinomas and MMMTs is poor. According to Dehner et al. (1971), the median survival for women with MMMTs is 6 mth, whereas it is 12 mth for patients with carcinosarcomas.

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