Malignant mixed mullerian tumor of uterus with rhabdomyosarcomatous component - A case report

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Abstract:
Malignant mixed Mullerian tumours (MMMT) also known as Carcinosarcoma of the Uterus are high-grade neoplasms composed of an admixture of malignant epithelial and mesenchymal components. These usually occur in the elderly post-menopausal women. A case of Malignant Mixed mullerian Tumour of Uterus with Heterologous Elements in a 60 year old lady is presented. This case is being reported for its rarity.

Keyword: MMMT, uterus, carcinosarcoma

Introduction:
Malignant mixed Mullerian tumours (MMMT) of the uterus are rare, high-grade neoplasms comprising only 1-2% of uterine cancers and 3-5% of all uterine malignancies. They are the most common variety of mixed epithelial and non-epithelial endometrial tumours, with a clinically aggressive course. Common in the uterus, this tumor may arise in the ovaries, fallopian tubes and vagina. Based on their sarcomatous component, two categories of uterine carcinosarcomas have been identified: homologous and heterologous. The homologous-type has a sarcoma composed of tissues native to the uterus such as endometrium or smooth muscle whereas in the heterologous-type cartilage, skeletal muscle, or bone is present which is not native to the uterus.

Case report: A 60 yr old woman, known asthmatic, P6L6 came with complaints of brownish vaginal discharge, lower abdominal pain for 1 month and abdominal distension for 10 days. She had increased frequency of urination for 2 months. She also gave h/o constipation for 10 days. Her menstrual cycles and obstetric history were unremarkable. No mass was palpable. Per speculum examination showed a healthy cervix. Per vaginal examination revealed a uterus of 6-8 weeks size. Blood and urine routines were within normal limits. CT whole abdomen showed grossly enlarged uterus with distended endometrial cavity with
irregular enhancing lesions and large amount of fluid suggesting the possibility of uterine malignancy. Dilatation & Curettage was done and the curettings were sent for Histopathology which showed features suggestive of rhabdomyosarcoma uterus. The patient was posted for staging laparotomy. Per operatively, uterus was uniformly enlarged to 16 weeks size with intact, smooth surface serosa. B/L adnexa, Pouch of Douglas and bowels were normal. A total abdominal hysterectomy with bilateral salpingo-oophorectomy with pelvic lymphadenectomy was done. The specimen was sent for Histopathology

**Gross:** Received a specimen of uterus with cervix, both tubes and ovaries. Uterus with cervix is enlarged and mea. 17x14.5x9cms. Ectocervix appears unremarkable. Endocervical canal mea. 1.5cms in length. Endometrial cavity is entirely filled with a mass which is arising from the fundus and the right side of the body of the uterus. The mass mea. 12x10x10cms and is soft to firm, pale brown with focal dark brown areas. The wall of the uterus is thinned out. Right tube mea. 3cms in length and 0.4cm in diameter. Right ovary mea. 5.5x1.5x0.5cms. Cut surface appears unremarkable. Left tube mea. 3cms in length and 0.5cm in diameter. Left ovary mea. 3x3x0.4cms. Cut surface appears unremarkable.

**Micro:** Sections show wall of uterus with a neoplasm composed predominantly of mesenchymal elements, arranged in solid sheets, interlacing fascicles and bundles. The cells are pleomorphic with eosinophilic cytoplasm and hyperchromatic nuclei. Rhabdomyoblasts with abundant eosinophilic cytoplasm and round to oval vesicular nuclei with prominent nucleoli are seen. There are focal glandular structures lined by atypical cells with large, darkly stained nuclei. Occasional squamoid foci and island of cartilage are seen. The tumour is seen infiltrating the inner half of the myometrium.

**Rhabdomyoblasts:**
Mesenchymal sarcomatous component

Myogenin - positive

Discussion:
Malignant mixed Mullerian tumors (MMMT) of the uterus are the most common variety of mixed epithelial and non-epithelial endometrial tumors with a clinically aggressive course. MMMT is a biphasic tumor of the female genital tract. Alternative names in the literature include “malignant mesodermal mixed tumor,” “metaplastic carcinoma,” and “carcinosarcoma. Based on their sarcomatous component, two categories of uterine carcinosarcomas have been identified: homologous and heterologous. The homologous-type has a sarcoma composed of tissues native to the uterus such as endometrium or smooth muscle whereas in the heterologous-type cartilage, skeletal muscle, or bone is present which is not native to the uterus. Carcinosarcomas though rare, represents less than 5% of all uterine tumors account for 16.4% of all deaths caused by a uterine malignancy. Incidence of women over 35 years of age affected by carcinosarcoma is 1.8 white and 4.3 black women per 100,000 in the United States. Risk factors for the development of carcinosarcoma are similar to those of endometrial carcinoma and include nulliparity, advanced age, obesity, exposure to exogenous estrogens, and long-term use of tamoxifen. On the contrary, oral contraceptives are reported to provide a protective effect against these tumours. There are 4 predominant theories being proposed. (1) The collision theory suggests that the two components had separate points of origin prior to their “colliding” together to form a single tumour. (2) The combination theory postulates that a common stem cell precursor undergoes bidirectional differentiation that results in the creation of the two histological types.

Immunohistochemistry results showed the epithelial component positive for cytokeratin and the rhabdomyosarcomatous element positive for myogenin and desmin.

Desmin - positive
In conversion theory, a single epithelial component is hypothesized to undergo metaplastic differentiation from which the mesenchymal component is derived. Composition theory states that the spindle cell component is just a stromal reaction to the carcinomatous element. A typical presentation of carcinosarcoma includes pyometra with vaginal bleeding, bloody or watery discharge, abdominal pain, or as a polypoid mass in an older, postmenopausal woman, the “symptom triad” indicative of carcinosarcoma rather than endometrial adenocarcinoma includes pain, severe vaginal bleeding, and the passage of necrotic tissue per vagina. Grossly, the cut surface of carcinosarcomas is often flesher (because of high cellularity and sarcomatous differentiation) than adenocarcinomas, with areas of necrosis, and occasionally gritty or hard areas corresponding to osseous or cartilaginous differentiation. Within the uterus, carcinosarcomas most commonly arise on posterior wall of uterine body near the fundus. Microscopically, the 2 components of MMMT may be mixed or seen as 2 distinct components. Epithelial component is often a high-grade carcinoma such as papillary serous (66%) or endometrioid (42%) though it may be composed of a variety of histological subtypes including squamous cell carcinoma, basaloïd squamous carcinoma, adenocarcinoma, adenosquamous carcinoma, adenobasal carcinoma, adenocystic carcinoma, or an undifferentiated carcinoma. The stromal component may resemble mesenchymal cell types normally present in the uterus (homologous differentiation), with histologic features of leiomyosarcoma, endometrial stromal sarcoma, or fibrosarcoma, or may have heterologous elements (i.e., those not normally found in the uterus), such as rhabdomyosarcoma, chondrosarcoma, and osteosarcoma, in decreasing order of frequency.

MMMT express epithelial membrane antigen [EMA], pancytokeratin and stromal lineage markers like desmin. The current surgical practice recommended for uterine carcinosarcoma is surgical staging with TAH with BSO, pelvic lymphadenectomy, and para-aortic lymph-node sampling with peritoneal washings. The role of pelvic and para-aortic lymph-node sampling, the method, technique of dissection, and the optimal number of lymph nodes to be sampled remains undetermined. In conclusion, we present a rare case of mixed Mullerian tumor of uterus with rhabdomyosarcomatous component in a 60 year old woman.

References:


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