

CASE REPORT

Ovarian malignant mixed Müllerian tumor: a rare case report from Tanzania

Angela Pallangyo^{1,2}, Jeremia J. Pyuza^{1,2}, Alice A. Andongolile³, Daniel Mbwambo^{1,2}, Jackson P. Claver¹, Ummil-Khairat Koosa¹, Kennedy Lema¹, Patrick Amsi^{1,2}, Gilbert Nkya¹ and Alex Mremi^{1,2,*}

¹Department of Pathology, Kilimanjaro Christian Medical Centre, Moshi, Tanzania, ²Faculty of Medicine, Kilimanjaro Christian Medical University College, Moshi, Tanzania and ³Kilimanjaro Clinical Research Institute, Kilimanjaro Christian Medical Centre, Moshi, Tanzania

*Correspondence address. Department of Pathology, Kilimanjaro Christian Medical Centre, Box 3010, Moshi, Tanzania.
Tel: +255-717-083-983; Fax: 255-027-2754381; E-mail: alex.mremi@kcmuco.ac.tz

Abstract

Malignant mixed Müllerian tumor of the ovary is rare aggressive tumor that is histologically defined by the presence of malignant epithelial and stromal components. We report a 37-year-old woman who consulted our facility complaining of abdominal distention and a painful palpable mass over her lower abdomen. Physical examination including computerized tomography revealed a complex cystic mass lesion on the left ovary with extensive omental involvement. Ovarian cancer was suspected and the patient underwent debulking surgery. The histopathology of the specimen revealed a high-grade tumor composed of both malignant epithelial and sarcomatous elements. Both epithelial and stromal components stained positive for p53 immunostaining. Before the initiation of chemotherapy, on 5th day postoperation, the patient was found unresponsive. The stage of the disease seems to be the most important prognostic factor, thus emphasis should be made to identify it in earlier stages.

INTRODUCTION

Malignant mixed Müllerian tumor is uncommon neoplasm of the female genital tract that is histologically defined by the presence of malignant epithelial and stromal elements [1]. Ovarian malignant mixed Müllerian tumors are extremely rare accounting for <1% of all ovarian malignancies [1, 2]. Due to the rarity of this entity, little is known about the disease course and outcome of women diagnosed with this tumor. Because of its aggressive nature accompanied with poor prognosis, few women with this tumor survive longer than few years, thus stage is best predictor [3]. Optimal debulking surgery followed by chemotherapy is the recommended treatment [4, 5].

We report a case of advanced malignant mixed Müllerian ovarian tumor in a 37-year-old female and a glimpse highlight on review of the literature.

CASE REPORT

A 37-year-old woman from rural area Kilimanjaro in northern Tanzania presented to our hospital complaining of abdominal distension for 3 weeks. The distension started gradually and was progressively increasing. It was associated with abdominal pain, early satiety, bloating, loss of appetite and vomiting. However, the patient reported to have normal bowel movements.

Received: August 17, 2020. Accepted: September 3, 2020

Published by Oxford University Press and JSCR Publishing Ltd. All rights reserved. © The Author(s) 2020.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact journals.permissions@oup.com

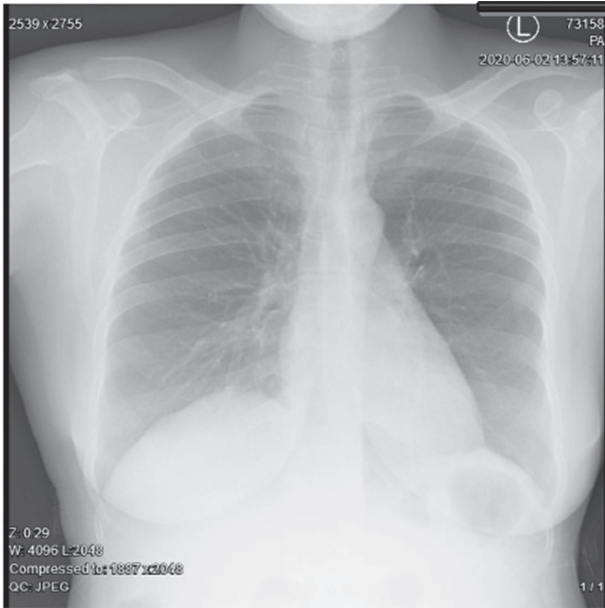


Figure 1: Normal chest X-ray.

On her gynecological history she was gravid 3, para 3, started menarche at 18 years old, although she reported to have had irregular menstrual cycle. During the course of illness she reported to have had per vaginal discharge of pus stained with blood. On past medical history she had history of appendectomy done 9 years ago. Family and social history was unremarkable.

On examination she had normal vital signs except for pulse rates, which were high (127 beats per minute). Per abdomen examination, she had symmetrical distended abdomen, tender at left iliac fossa with positive fluid thrill. Laboratory investigations revealed the hemoglobin level of 14.3 g/dl (12–15 g/dl), white blood count of $13.0 \times 710^9/l$ ($4-10 \times 10^9/l$), platelets of $431 \times 10^9/l$ ($150-400 \times 10^9/l$), serum electrolytes, creatinine and urea were within normal ranges, international normalized ratio was 1.77 (0.9–1.2), activated partial thromboplastin time was 34.9 s (20–40 s), cancer antigen (CA-125) was 188.9 U/ml (0–35 U/ml).

Abdominal pelvic ultrasound revealed ascitic fluid and enlarged uterus. Chest X-ray (Fig. 1) was normal. Computed tomography (Fig. 2) revealed cystic mass arising from left ovary measuring $15.6 \times 7.1 \times 6.1$ cm with multiple soft masses in mesentery, omentum and umbilicus. Diagnosis of left ovarian tumor with peritoneal metastasis was suggested.

Explorative laparotomy was done, intra-operatively, and a complex cystic left ovarian mass was found with extensive omental and uterine carcinomatosis seedlings. The liver and spleen were normal. Omentectomy, total abdominal hysterectomy and bilateral salpingo-oophorectomy was done and the samples (Fig. 3) were taken for histopathology. The histopathology results revealed the presence of malignant mixed Müllerian tumor of the ovaries with metastasis to the omentum (Figs 4, 5). The rest of uterus was essentially unremarkable. The tumor cells were strongly positive for p53 immunohistochemistry (on both epithelial and stromal components) (Fig. 6). Furthermore, the epithelial component of the tumor was positive for epithelial membrane antigen immunohistochemistry, whereas stromal element was positive for vimentin.

After operation, the patient was given 2 units of blood, intravenous (IV) antibiotics and IV fluids. However, the patient succumbed on the 5th day postsurgery where the suspected cause of death being metastatic ovarian cancer.

DISCUSSION

Malignant mixed Müllerian tumor of the ovary is a rare tumor that accounts for ~1% of all ovarian cancers [1, 2]. These tumors are typically large, ranging from 10–20 cm in diameter; our patient's tumor was $15.6 \times 7.1 \times 6.1$ cm (Fig. 3). The presence of an intimate admixture of malignant epithelial and stromal elements (Figs 4, 5) is the morphological characteristic feature of this tumor. The epithelial element is most commonly a high-grade serous or endometrioid carcinoma, but can be of any of the surface epithelial cell types of ovarian tumors. The stromal component usually contains sheets of hyperchromatic rounded to spindle cells with marked nuclear atypia and a high mitotic index (Fig. 5). Immunohistochemical stains for epithelial markers are often positive in the sarcomatous component, as it has been observed in the index case (Fig. 6), and their behavior and

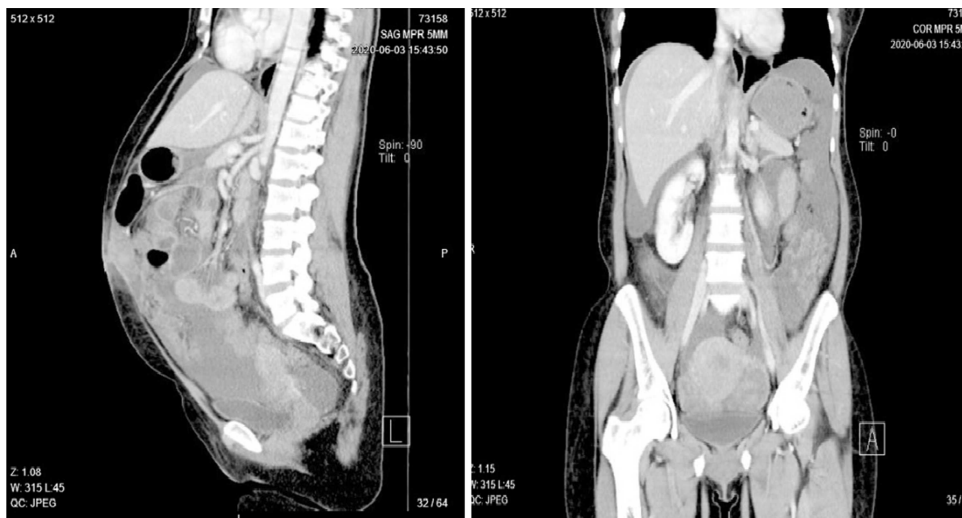


Figure 2: Computed tomography showing a complex cystic mass arising from left ovary with heavy mesentery metastasis.



Figure 3: Hysterectomy specimen with ovarian complex mass and extensive mesentery involvement.

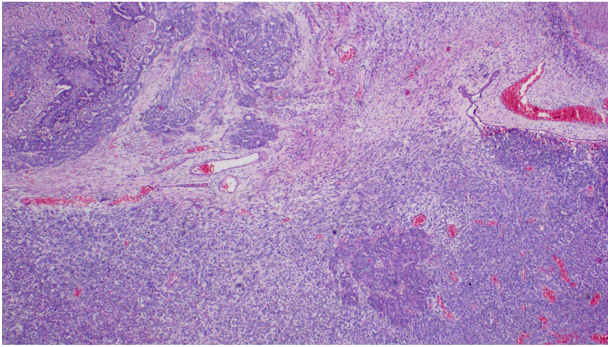


Figure 4: Histopathology of the tumor showing malignant epithelial and sarcomatous elements, hematoxylin and eosin, $\times 40$ magnifications.

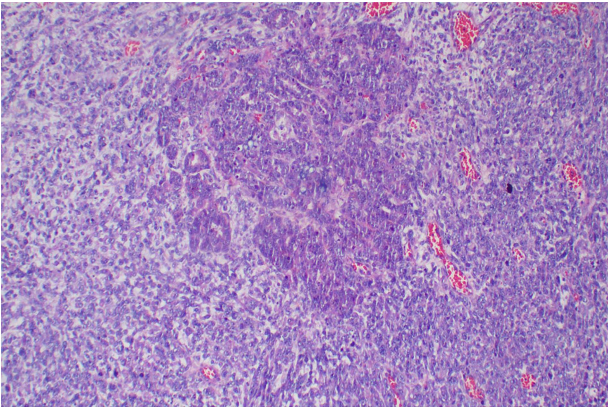


Figure 5: Histopathology of the tumor with malignant epithelial and sarcomatous elements, hematoxylin and eosin, $\times 100$ magnifications.

patterns of spread are similar to high-grade serous carcinomas [3–5].

With regard to the histogenesis origin of this tumor, some authors suggested that the collision of carcinoma and sarcoma indicate that these are two independent tumors. The combination theory hypothesizes that both components are derived from single stem cells that undergo divergent differentiation [2]. The conversion theory suggests that a sarcomatous element is obtained from the carcinoma during the evolution of tumors. The least acceptable view is that the mesenchymal element is just a pseudosarcomatous stromal reaction to an invasive carcinoma [2].

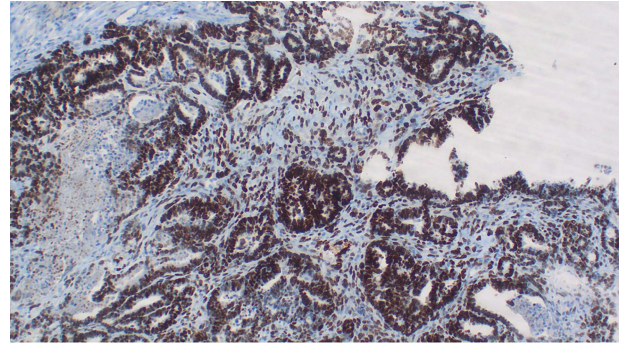


Figure 6: p53 immunohistochemistry highlighting tumor cell positivity on both epithelial and stromal elements, $\times 40$.

The malignant mesenchymal component can be homologous or heterologous. If the sarcomatous part contains element resembling the Müllerian duct system (e.g. fibrosarcoma, leiomyosarcoma and endometrial stromal sarcoma), it is termed homologous. If the tumor has elements not normally found in the ovary (e.g. cartilage, bone, skeletal muscle differentiation, etc.), it is called heterologous. Our tumor was homologous. It has been suggested that heterologous tumors have a worse prognosis. However, some studies have not shown such association [2, 3].

Some authors have reported that there is no well-established consensus regarding the treatment regimen [6]. In the older literature, these tumors were considered aggressive, rapidly fatal with a median survival of about 1 year, but more recent data suggested that with aggressive debulking surgery together with combination of cisplatin and either a taxane or ifosfamide chemotherapy, survival rates could be improved, approaching those for serous carcinoma [7–9]. The role of therapeutic radiotherapy is not established [9]. When stratified by stage, however, limited data suggest that the prognosis is worse than that for serous carcinoma [8]. Despite the treatment that includes radical surgery and chemotherapy, women with these tumors have a significantly increased risk of death compared with women with epithelial ovarian cancer and very poor prognosis [9, 10].

Contrary to the most reports in literature, which indicated that the tumor is commonly seen in postmenopausal women with a peak in the sixth decade and low parity [4, 6], our patient was within the childbearing age; however, in line to the previous reports, our patient presented with an advanced metastatic disease characterized by aggressive and succumbed shortly after surgery.

CONCLUSION

Malignant mixed Müllerian tumor of the ovary is a rare tumor usually diagnosed at an advanced stage, and survival after diagnosis varies by stage of the disease. Despite aggressive treatment that includes surgery and chemotherapy, women with these tumors have very poor prognosis, emphasizing the need for earlier diagnosis to improve patients 'survival'.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

A written informed consent to undergo treatment including surgical and chemotherapy as well as to use de-identified patient's

data for academic purposes including publication were provided by the patient's family. A copy is available for review if requested by editorial office.

CONSENT FOR PUBLICATION

The consent for publication was obtained along with an informed consent from the patient's family.

AVAILABILITY OF DATA AND MATERIALS

All the information included in the current study is available from the corresponding author upon editorial office request.

ACKNOWLEDGMENT

The authors acknowledge Dr Bariki Mchome and his associates who performed the surgery as well as the patient and her family for allowing us to use the patient's information in this publication.

CONFLICT OF INTEREST STATEMENT

None declared.

FUNDING

None.

REFERENCES

- Harris MA, Delap LM, Sengupta PS, Wilkinson PM, Welch RS, Swindell R, et al. Carcinosarcoma of the ovary. *Br J Cancer* 2003;**88**:654–7.
- Burns BA, Geisler JP, Hatterman-Zogg MA, De Young B, Buller RE. Malignant mixed Müllerian tumor of the ovary and bilateral breast cancer: an argument for BRCA3, or a coincidental cluster of unconnected cancers? *Gynecol Oncol* 2003;**91**:426–8.
- Barnholtz-Sloan JS, Morris R, Malone JM Jr, Munkarah AR. Survival of women diagnosed with malignant, mixed Müllerian tumors of the ovary (OMMMT). *Gynecol Oncol* 2004;**93**:506–12.
- Brown E, Stewart M, Rye T, Al-Nafussi A, Williams AR, Bradburn M, et al. Carcinosarcoma of the ovary: 19 years of prospective data from a single center. *Cancer* 2004;**100**:2148–53.
- Chang J, Sharpe JC, A'Hern RP, Fisher C, Blake P, Shepherd J, et al. Carcinosarcoma of the ovary: incidence, prognosis, treatment and survival of patients. *Ann Oncol* 1995;**6**:755–8.
- Rutledge TL, Gold MA, McMeekin DS, Huh WK, Powell MA, Lewin SN, et al. Carcinosarcoma of the ovary—a case series. *Gynecol Oncol* 2006;**100**:128–32.
- Mano MS, Rosa DD, Azambuja E, Ismael G, Braga S, Hondt VD, et al. Current management of ovarian carcinosarcoma. *Int J Gynecol Cancer* 2007;**17**:316–24.
- Muntz HG, Jones MA, Goff BA, Fuller AFJ, Nikrui N, Rice LW, et al. Malignant mixed Müllerian tumors of the ovary: experience with surgical cyto-reduction and combination chemotherapy. *Cancer* 1995;**76**:1209–13.
- Leiser AL, Chi DS, Ishill NM, Tew WP. Carcinosarcoma of the ovary treated with platinum and taxane: the memorial Sloan Kettering Cancer Center experience. *Gynecol Oncol* 2007;**105**:657–61.
- Silasi DA, Illuzzi JL, Kelly MG, Rutherford TJ, Mor G, Azodi M, et al. Carcinosarcoma of the ovary. *Int J Gynecol Cancer* 2008;**18**:22–9.