

Sarcoma-Like Mural Nodule in a Borderline Mucinous Tumour of Ovary

Rabia Ahmed, Hafeez Ud Din, Shoaib Naiyar Hashmi and Iqbal Muhammad

ABSTRACT

A 37-year female presented with complaint of lower abdominal pain and amenorrhoea to the Military Hospital, Rawalpindi. Ultrasound of pelvis showed a right adnexal cystic lesion. On investigation, CA-125 was raised. Her MRI scan of pelvis revealed a right adnexal mass of fluid intensity measuring 15.2 x 12.9 x 9.2 cm. Right ovarian cystectomy was performed and the specimen was sent for histopathological examination. Grossly, the mass was cystic in appearance and measured 13.5 x 10 x 10 cm. On sectioning, it was unilocular and filled with turbid material. The cyst wall showed multiple papillary structures along with a nodule measuring 1.1 x 1 cm. Microscopically, the sections revealed borderline mucinous tumour with a sarcoma-like mural nodule composed of spindle shaped cells and epulis-like giant cells. Sarcoma-like mural nodules are rare nodules which are associated with mucinous tumours of the ovary. However, they have excellent prognosis and should not be interpreted as malignant.

Key Words: *Mucinous tumour of ovary. Mural nodule. Sarcoma-like mural nodule.*

INTRODUCTION

A mural nodule is a rare lesion to arise within an ovarian neoplasm. Mucinous cystic tumours of the ovary whether benign, borderline, or malignant, account for the majority of cases that are associated with such nodules.¹ There are 3 types of mural nodules; sarcoma-like mural nodules (SLMNs), sarcomatous nodules, and anaplastic carcinoma foci. Sarcoma-like mural nodules have a favourable outcome and their distinction from true sarcomatous mural nodules and foci of anaplastic carcinoma is extremely important.²

We report a case of borderline mucinous tumour of the ovary with a sarcoma-like mural nodule.

CASE REPORT

A 37-year multiparous female presented to the Gynaecology Department of Military Hospital, Rawalpindi with 2 months history of abdominal pain and amenorrhoea. On examination, an abdominal mass was palpable. Upon investigation, her serum carbohydrate associated (CA-125) was 8.9 IU/mL (normal < 35 IU/mL). Ultrasound abdomen and pelvis revealed a well defined, round, homogenous mass with light lobulated margins measuring 12.4 x 11 x 7 cm, with a volume of 585 ml, most likely arising from right adnexa. Contrast enhanced magnetic resonance imaging (MRI) revealed a well

defined, smooth walled, fluid intensity lesion in pelvis arising from right adnexa, occupying whole of pelvis and abdomen measuring 15.2 x 12.9 x 9.2 cm, displacing the adjacent bowel loops and compressing the uterine fundus.

Right ovarian cystectomy was performed and the specimen was sent to the Department of Histopathology, Armed Forces Institute of Pathology, Rawalpindi, for histopathological examination.

On gross examination, the specimen was cystic in appearance, and was partially punctured. It measured 13.5 x 10 x 10 cm. On sectioning, it was unilocular, filled with turbid material. The cyst wall showed multiple papillary structures along with a grayish nodule measuring 1.1 x 1 cm. Multiple representative sections were taken from the cyst wall and the nodule.

On light microscopy, the sections showed features of a borderline mucinous cystadenoma. The surface epithelium was papillary and lined by columnar mucinous (intestinal type) cells with focal architectural complexity and nuclear stratification. The nodule was composed of large number of multinucleated osteoclast-like (epulis-like) giant cells and mononuclear, spindle shaped. A mitotic rate of 5/10 high power field (HPF) and chicken wire calcification was also seen. Immuno-histochemistry showed that CD 68 was positive in the giant cells while vimentin was positive in the spindle shaped cells. Pan cytokeratin was negative. On the basis of gross and microscopic examination, and immunohistochemistry, the diagnosis of sarcoma-like mural nodule in a borderline mucinous tumour of ovary was made.

The patient's postsurgical period was uneventful. The patient and her family was informed and reassured about the prognosis and outcome of the diagnosed

Department of Histopathology, Armed Forces Institute of Pathology, Rawalpindi.

Correspondence: Dr. Rabia Ahmed, Trainee Histopathology, Department of Histopathology, Armed Forces Institute of Pathology, Rawalpindi.

E-mail: rabia.ahmad88@gmail.com

Received: July 19, 2014; Accepted: October 08, 2015.

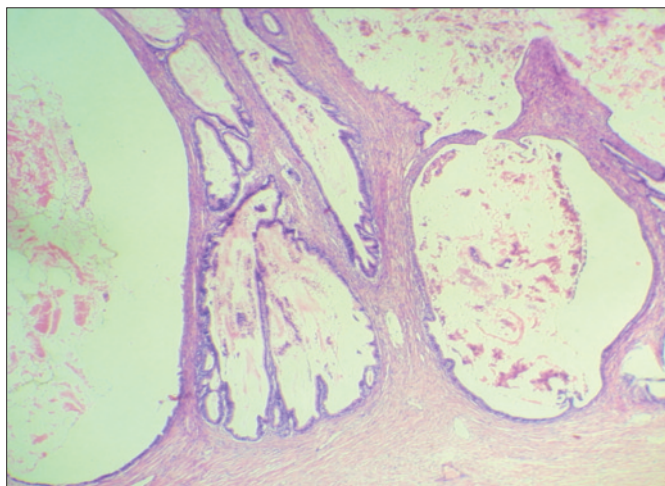


Figure 1: Photomicrograph of borderline mucinous tumour. The cyst wall is lined by intestinal type of epithelium, showing architectural complexity and nuclear stratification. (Hematoxylin-Eosin original magnification 10x).

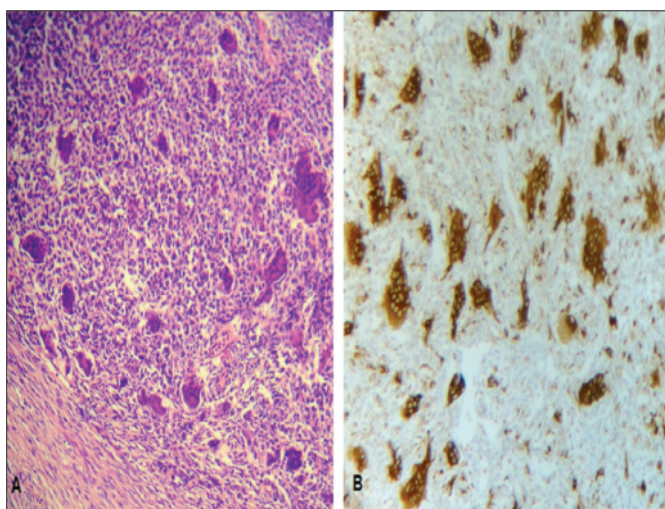


Figure 2: Photomicrograph of sarcoma-like nodule. (A) SLMN is composed of spindle shaped cells and osteoclast like giant cells. (Hematoxylin-Eosin original magnification 10x), (B) CD 68 is positive in the osteoclast-like giant cells (original magnification 10x).

lesion. On 3-monthly follow-up, the patient's condition was stable with no sign of recurrence.

DISCUSSION

Ovarian mucinous tumours account for 15% of all ovarian neoplasms. Mural nodules are rare single or multiple nodules which arise within the wall of mucinous tumours whether they are benign, borderline or malignant.³ Their incidence ranges between 2 - 5 per million.⁴ The first case series of mural nodules arising within mucinous tumours of the ovary was reported by Prat and Scully in 1979.⁵ In addition to ovarian cancer, mural nodules are also associated with mucinous cystic neoplasm (MCN) of the pancreas and of the gallbladder.^{6,7}

SLMNs occur at a mean age of 40 years.² Nearly half of them are associated with mucinous cystadenocarcinomas while rest occur within benign or borderline mucinous

cystadenomas.⁸ The exact etiology is unclear but clinicopathologic and follow-up studies have shown that these lesions are benign and reactive rather than neoplastic.⁹ Grossly, they are multiple, vary in size from 0.6 to 6 cm, sharply demarcated and reddish brown. Microscopically, the nodules are composed of multinucleated osteoclast-like and epulis-like giant cells, pleomorphic spindle cells with prominent mitotic activity and inflammatory cells. A mitotic count of 5-10/10 HPF may be observed but there is no capsular or vascular invasion.¹⁰ The prognosis of SLMNs is excellent and their presence does not affect the outcome of the associated mucinous tumour. Immunohistochemical stains like vimentin and CD 68 are positive while keratin is negative.

Literature review shows that association of sarcoma-like mural nodules with mucinous tumour of ovary is a very rare phenomenon. The Armed Forces Institute of Pathology Fascicle of Tumours of Ovary, showed that 16 cases of SLMNs had been reported till the year 1998.¹⁰ Subsequently, 10 cases were reported by Bague *et al.* in 2002. Among them, one sarcoma-like mural nodule had osteoid formation while another revealed densely cellular stroma with necrosis.³ Thereafter, 3 cases were reported from India.^{9,11} In the cases reported by Chakrabarti *et al.* in 2005, the nodules measured 4 cm and 4.5 cm, respectively. One of the nodules was composed of spindle shaped cells, multinucleated giant cells and haemorrhage, while the other nodule was composed of polygonal cells and osteoclast-like giant cells.¹¹ In the case reported by Garikaparthi *et al.* in 2012, the nodule measured 2 cm in diameter was composed of spindle to polygonal cells and abundant osteoclast-like giant cells. The stromal cells were monomorphic, lacked atypia, and the mitotic count ranged from 1-5/10 HPF.⁹ In this case, the nodule measured 1.1 x 1 cm. The microscopic features were similar to the aforementioned case. In this case, a mitotic count of 5/10 HPF and chicken wire calcification were observed within the nodule.

Sarcomatous nodules are rare, occur in an older age group and have a poor prognosis. They are large, poorly circumscribed, composed of fibrosarcoma, rhabdomyosarcoma or undifferentiated sarcoma and exhibit vascular invasion.¹¹ There is variable positivity for desmin and actin stains, while keratin and epithelial membrane antigen (EMA) are negative.

Anaplastic carcinoma foci are also large, poorly circumscribed, with foci of haemorrhage and necrosis. They are composed of sheets and nests of large cells having atypical nuclei and prominent nucleoli.¹¹ They show positivity for keratin and EMA and are also associated with a poor prognosis.

Sarcoma-like mural nodules are a rare entity. The purpose of reporting this case is to emphasize the

importance of careful sampling of the mural nodules associated with mucinous cystic tumours of the ovary. This aids in establishing the nature of the nodule and subsequently, in the management and reassurance of the patients regarding the prognosis and clinical outcome.

REFERENCES

1. Baergen RN, Rutgers JL. Mural nodules in common epithelial tumors of the ovary. *Int J Gynecol Pathol* 1994; **13**:62-72.
2. Clement PB, Young RH. Ovarian surface epithelial tumours. In: Mills, Stacey E, editors. *Sternberg's diagnostic surgical pathology*. 5th ed. *Lippincott Williams & Wilkins*; 2010.p .2291.
3. Baque S, Rodriguez IM, Prat J. Sarcoma-like mural nodules in mucinous cytic tumours of ovary revisited: a clinicopathologic analysis of 10 additional cases. *Am J Surg Pathol* 2002; **26**: 1467.
4. Yamazaki H, Matsuzawa A, Shoda T, Iguchi H, Kushima N. Ovarian mucinous cystic tumor of borderline malignancy with a mural nodule of anaplastic spindle cell carcinoma: a case report. *J Ovarian Res* 2013; **6**:86.
5. Prat J, Scully RE. Ovarian mucinous tumors with sarcoma-like mural nodules: a report of seven cases. *Cancer* 1979; **44**:1332-44.
6. Wenig BM, Albores-Saavedra J, Buetow PC, Heffess CS. Pancreatic mucinous cystic neoplasm with sarcomatous stroma: a report of three cases. *Am J Surg Pathol* 1997; **21**: 70-80.
7. Mizuno T, Eimoto T, Tada T, Tateyama H, Inagaki H, Murase T. Mucinous tumor of the gallbladder with a separate nodule of anaplastic carcinoma. *Arch Pathol Lab Med* 1999; **123**:1280-4.
8. Provenza C, Young RH, Prat J. Anaplastic carcinoma in mucinous cystic tumors: a clinicopathologic study of 34 cases emphasizing the crucial impact of stage on prognosis, their histologic spectrum, and overlap with sarcoma-like mural nodules. *Am J Surg Pathol* 2008; **32**:383-9.
9. Garikaparthi S, Inuganti Venkata R, Yarlagadda KB, Parvatala A. Benign mucinous tumor of ovary with a sarcoma-like mural nodule: a case report. *Case Rep Oncol Med* 2012; **2012**: 213765.
10. Scully RE, Young RH, Clement PB. Tumors of the ovary, maldeveloped gonads, fallopian tube, and broad ligament. Washington, DC: Armed Forces Institute of Pathology;1998. p.81-101.
11. Chakrabarti S, Konar A, Biswas S, Das S. Sarcoma-like mural nodules in ovarian mucinous cystadenomas: a report of two cases. *Indian J Med Sci* 2005; **59**:499-502.

