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Case Report

Giant Cystic Mucinous Borderline Tumour of the Ovary in a Young Female: A Rare Case Report.

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Abstract

Giant mucinous borderline tumours of the ovary are an unusual finding and pose a diagnostic challenge. We present a case of a 20-year-old unmarried, nulliparous female who presented with left quadrant pain and a progressively increasing abdomino-pelvic mass. Based on clinical and radiological investigations, a provisional diagnosis of mass arising from the ovary was made. The histopathological evaluation revealed it to be a mucinous borderline ovarian tumour.

Keywords: Giant; Mucinous; Borderline; Young; Ovary; Ovarian Tumour.

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Introduction:

Ovarian tumours are the most common gynaecological neoplasms and have a prevalence rate ranging from 2.5–6.6 % worldwide [1,2]. Mucinous cystadenomas are benign cystic ovarian tumours originating from the surface epithelium of the ovary and are characterized by mucin production and classified into benign (80 %), borderline (10 %) and invasive (10 %) subtypes [3]. Mucinous cystadenomas occur most commonly in the third to sixth decades of life and can be asymptomatic or present with progressive abdominal distention, bloating, an adnexal mass or abdominal pain [4,5]. They are predominantly unilateral in 95% of total cases and can be detected on radiological imaging [5]. Giant mucinous tumours are a challenging subset due to the increased tumour size which leads to pressure effects on surrounding organs. These giant tumours can even exceed more than 20 cm in diameter and are generally considered to have a favourable prognosis when compared to invasive carcinomas.

Mucinous borderline ovarian tumours are histologically characterized by cellular proliferation and nuclear atypia without destructive stromal invasion [1]. The surgical management of these masses is associated with many life-threatening complications like pulmonary edema and requires close follow up due to recurrence and susceptibility to its malignant potential [1].

Case Presentation:

A 20-year-old nulliparous woman presented to the outpatient department (OPD) with left quadrant pain for one month and three months history of a progressively increasing abdominal pelvic mass. On clinical examination, the vital signs of the patient were found to be within normal limits. On physical examination, the abdomen was found to be grossly distended revealing a large mass corresponding with 32 weeks of gravid uterus. The mass was slightly mobile, non-tender and soft to firm in consistency. On the vaginal examination, the cervix appeared normal and both the fornices were full. There was no evidence of ascites, lymphadenopathy or any organomegaly. No significant personal, family or drug history was noted.

Routine laboratory investigations were performed and were found to be within normal limits. Tumour markers like Cancer antigen-125 (CA 125), Carcinoembryonic antigen (CEA) and alpha-fetoprotein were all within normal range. A transabdominal ultrasound scan was done which showed a multi-septated cystic lesion with an internal nodular mass measuring 24 × 23 × 20 cm and occupying the abdominal and pelvic cavities causing mass effect on adjacent intra-abdominal structures. Based on clinical and radiological findings, the differentials considered were serous cystadenoma, mucinous cystadenoma and invasive mucinous carcinoma. Given the age of the patient and the size of the tumour, conservative surgical management was planned. Exploratory laparotomy was done, and a cystic, well circumscribed and encapsulated globular mass was seen to arise from the right ovary. The tumour was excised, and the uterus and left ovary were preserved. The specimens were received in the histopathology section. The right ovarian cystic mass measured 24x23x18cm (Figure 1) with an intact capsule and an attached 11cm fallopian tube. On opening, straw coloured gelatinous material was exuded with multiple septations attached with a soft to firm brownish nodular mass measuring 4x4x3cm on the inner surface of cyst wall (Figure 2). On serial slicing of this mass, flat topped papillary excrescences were noted.

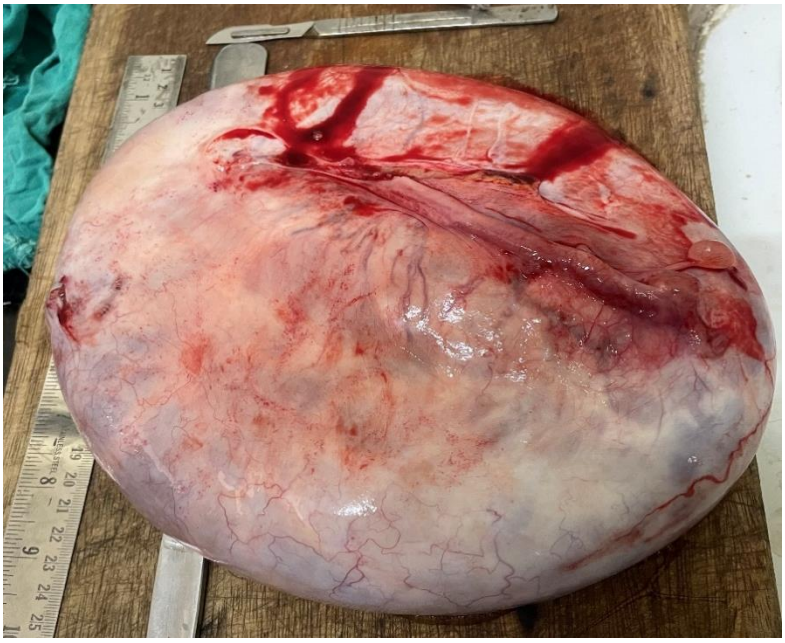

Figure 1: The right ovarian cystic mass total measuring 24x23x18cm with an intact capsule.

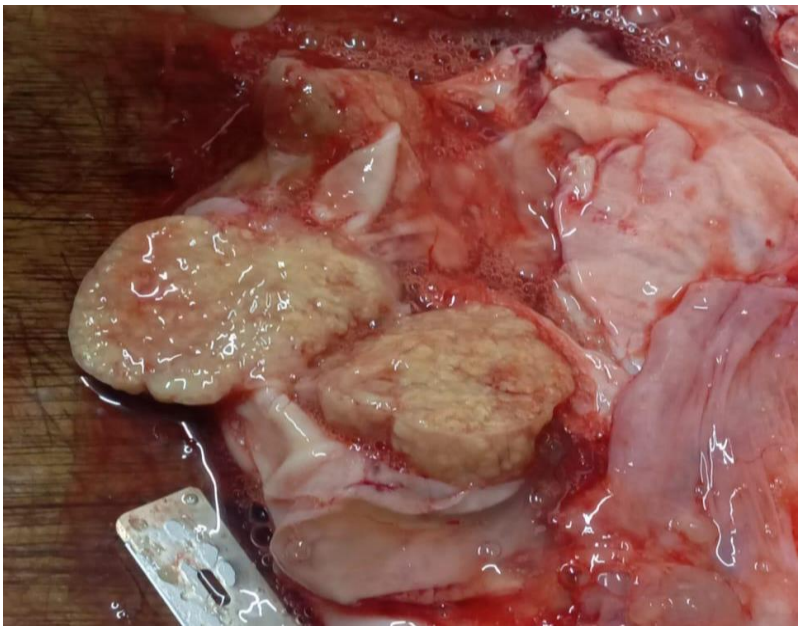

Figure 2: A brownish nodular mass with papillary excrescences measuring 4x4x3cm was seen attached to the inner aspect of the wall with straw coloured mucinous material which was exuded.

Microscopic examination revealed multiple variably sized cystic spaces lined by hyperplastic gastrointestinal epithelium arranged in tufts, papillae, cribriform arrangement and villo-glandular architecture with stratification (>10%). The individual cells showed mild to moderate nuclear pleomorphism, hyperchromatic nuclei, irregular nuclear contour, and variably conspicuous nucleoli with apically placed mucin. Extracellular and intracellular mucin was also seen. (Figure 3,4 and 5). Mitosis was 0-1/10hpf with no necrosis or cellular atypia.

Based on the morphological features, a diagnosis of a Mucinous Borderline Tumour with TNM Staging of p T1a was made (Figure 3,4 and 5). The attached fallopian tube was found to be morphologically unremarkable. The patient had an uneventful postoperative recovery and was discharged on the seventh day after surgery. On 1.5-months of follow-up, the patient remained asymptomatic with no signs of tumour recurrence. Repeated radiological imaging confirmed the absence of any residual or recurrent mass.

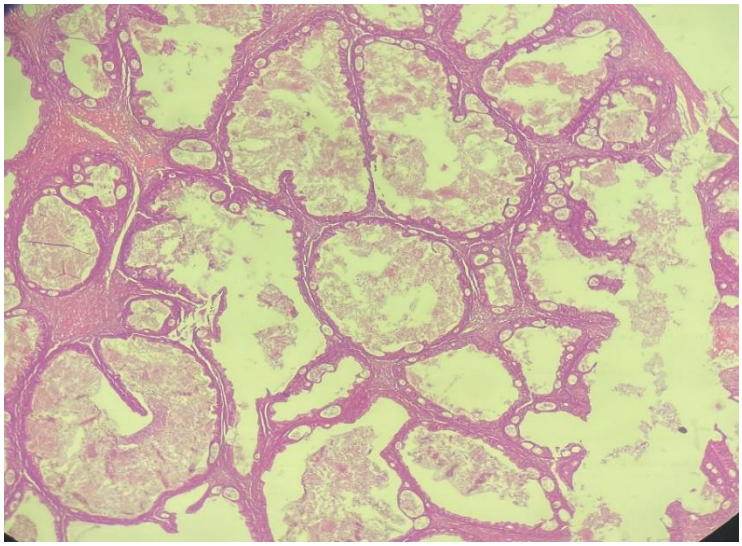

Figure 3: Section shows complex architecture with multiple variably sized cystic spaces arranged in cribriform arrangement and villo-glandular architecture with presence of mucin. (H&E stain,10x magnification).

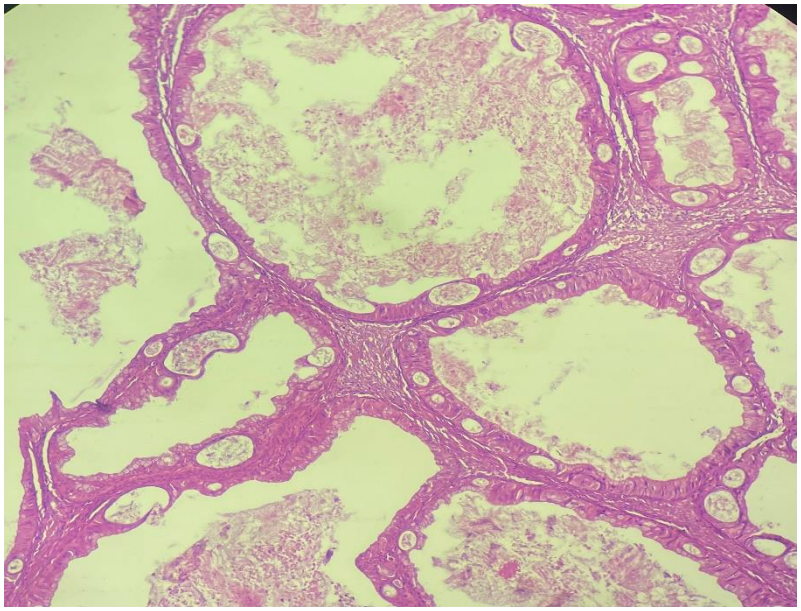

Figure 4: Section shows cystic spaces lined by hyperplastic gastrointestinal epithelium arranged in cribriform arrangement and villo-glandular architecture with stratification. (H&E stain, 20x magnification).

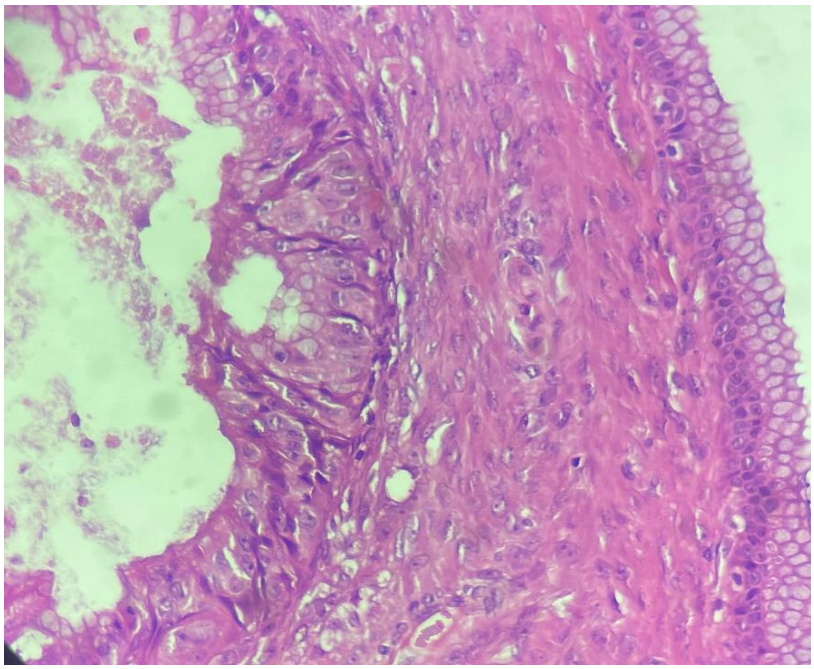

Figure 5: Section shows individual cells showing mild to moderate nuclear pleomorphism, hyperchromatic nuclei, irregular nuclear contour, variably conspicuous nucleoli with apically placed mucin favouring diagnosis of mucinous borderline tumour. (H&E stain, 40x magnification).

Discussion:

Mucinous ovarian tumours are among the most common benign epithelial ovarian neoplasms and account to 10-15% of all ovarian neoplasms [1]. They are further classified as benign, borderline and invasive subtypes, out of which the borderline variant accounts for 10% of all mucinous cystadenomas [3]. Mucinous borderline tumours were first described in 1929 and were considered as "semi-malignant" [6]. In 2016, the Japan Society of Obstetrics and Gynaecology (JSOG) and the Japanese Society of Pathology defined epithelial ovarian tumours of borderline malignancy with "histologic characteristics intermediate between benign and malignant tumours"[7]. The term "borderline" refers to tumours with epithelial proliferation that showatypia but without evidence of invasive carcinoma. Mucinous borderline tumours are classified as gastrointestinal type (85 %), endocervical-like type or Müllerian type (15 %) based on the histological architecture and type of tumour cells [8].

Gershenson et al. [9] reported that 30 % of borderline ovarian tumours remained asymptomatic and up to 60 % could present with non-specific symptoms such as abdominal pain, abdominal distention, nonspecific vaginal bleeding and dyspareunia. They are predominantly associated with a relatively favourable prognosis but require careful monitoring due to the potential for recurrence and malignant transformation.

Giant mucinous borderline tumours are rare and are defined as those which exceed 10 cm in diameter on radiological assessment [10]. Their management is often challenging due to their size, pressure effects on surrounding structures and the potential complications such as torsion or rupture. Due to the expanding size, they may also lead to dyspnea in some patients [11]. Imaging studies like abdominal pelvic ultrasound remain an important diagnostic modality and allows accurate diagnosis in almost 70-90% of the cases [12]. The absence of typical morphological features, presence of thickened septations or solid

masses in ovarian borderline tumours can make it difficult to distinguish benign from malignant tumours even on computed tomography (CT) and magnetic resonance imaging (MRI) [13,14].

The treatment protocol for any suspected ovarian mass includes cystectomy, usually involving procedures like abdominal hysterectomy, bilateral salpingo-oophorectomy, and staging procedures including lymphadenectomy [15,16]. In our case, fertility preservation was a primary consideration and the decision to perform unilateral salpingo-oophorectomy was done due to the young age of the patient. After the surgery, the patients should be closely monitored clinically and radiologically for any recurrence or residual tumour thereby, allowing for timely intervention [16].

Conclusion:

This case report highlights a giant mucinous borderline tumour of the ovary in a young unmarried nulliparous woman. Clinical and radiological investigations, appropriate surgical management and histopathological evaluation play an important role in final confirmation. Although mucinous borderline tumours have an excellent prognosis, regular follow-up is essential due to the possibility of recurrence and malignant transformation.

References:

1. Mondal SK, Banyopadhyay R, Nag DR, Roychowdury S, Mondal P, Sinha S. Histologic pattern, bilaterality and clinical evaluation of 957 ovarian neoplasms: a 10-year study in a tertiary hospital in eastern India. J Cancer Res Ther. 2011;4: 433–7.
2. Torre LA, Islami F, Siegel, RL Ward EM, Jemal A. Global cancer in women: burden and trends. Cancer Epidemiol. Biomarkers Prev.,2017 April;26 (4) :444-457.
3. Kumar V, Abbas AK, Aster JC. Robbins and Cotran Pathologic Basis of Disease (Ninth edition), Elsevier/Saunders, Philadelphia, PA 2015: 696-698.
4. Myers ER, Bastian LA, Havrilesky LJ, Kulasingam SL, Terplan MS, Cline KE, Gray RN, McCrory DC. Management of adnexal mass. Evid Rep Technol Assess (Full Rep). 2006 Feb;(130):1-145.
5. Akhras LN, Akhras LN, Faroog S, AlSebay L. A 27-kg Giant Ovarian Mucinous Cystadenoma in a 72-Year-Old Postmenopausal Patient: A Case Report. Am J Case Rep. 2019 Nov 1;20:1601-1606. doi: 10.12659/AJCR.917490.
6. Hauptmann S, Friedrich K, Redline R, Avril S. Ovarian borderline tumors in the 2014 WHO classification: evolving concepts and diagnostic criteria. Virchows Arch. 2017 Feb;470(2):125-142. doi: 10.1007/s00428-016-2040-8.
7. Shuppan K. Japan Society of Obstetrics and Gynecology, The Japanese Society of Pathology. The General Rules for Clinical and Pathological Management of Ovarian Tumor, Fallopian Tube Cancer, and Primary Peritoneal Cancer Pathological Edition (1 ed), Kyoto, Japan 2016:15-65.
8. Fischerova D, Zikan M, Dundr P, Cibula D. Diagnosis, treatment, and follow-up of borderline ovarian tumors. Oncologist. 2012;17(12):1515-33. doi: 10.1634/theoncologist.2012-0139.
9. Gershenson DM. Management of borderline ovarian tumours. Best Pract. Res. Clin. Obstet. Gynaecol.,2017 May; 1(41): 49-59.
10. Pramana C, Almarjan L, Mahaputera P, Wicaksono SA, Respati G, Wahyudi F, Hadi C. A Giant Ovarian Cystadenoma in A 20-Year-Old Nulliparous Woman: A Case Report. Front Surg. 2022 May 5;9:895025. doi: 10.3389/fsurg.2022.895025.

11. Posabella A, Galetti K, Engelberger S, Giovannacci L, Gyr T, Rosso R. A huge mucinous cystadenoma of ovarian: a rare case report and review of the literature. Rare Tumors. 2014 Jun 3;6(2):5225. doi: 10.4081/rt.2014.5225.
12. Gwanzura C, Muyotcha AF, Magwali T, Chirenje ZM, Madziyire MG. Giant mucinous cystadenoma: a case report. J Med Case Rep. 2019 Jun 14;13(1):181. doi: 10.1186/s13256-019-2102-z.
13. Yazbek J, Ameye L, Timmerman D, Testa AC, Valentin L, Holland TK, Van Holsbeke C, Jurkovic D. Use of ultrasound pattern recognition by expert operators to identify borderline ovarian tumors: a study of diagnostic performance and interobserver agreement. Ultrasound Obstet Gynecol. 2010 Jan;35(1):84-8. doi: 10.1002/uog.7334.
14. Yang S, Tang H, Xiao F, Zhu J, Hua T, Tang G. Differentiation of borderline tumors from type I ovarian epithelial cancers on CT and MR imaging. Abdom Radiol (NY). 2020 Oct;45(10):3230-3238. doi: 10.1007/s00261-020-02467-w.
15. Brown J, Frumovitz M. Mucinous tumors of the ovary: current thoughts on diagnosis and management. Curr Oncol Rep. 2014 Jun;16(6):389. doi: 10.1007/s11912-014-0389-x
16. Ozgun MT, Turkyilmaz C. A giant ovarian mucinous cystadenoma in an adolescent: a case report. Arch. Med. Sci., 2009; 5 (2): 281-283.