

## Case Report

### Borderline Mucinous Ovarian Tumours: Presenting a Treatment Challenge in Young Females

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#### Abstract

**Background:** Borderline ovarian tumors have both benign and malignant characteristics with no stromal invasion. These tumours are found in the reproductive age. These tumours are unilateral in 80% cases and bilateral in 20% cases. Serous and mucinous subtypes are common. The prognosis of patients with borderline tumours is good with a relapse rate of 5-33%.

We are reporting three cases of borderline ovarian neoplasm, who presented with abdominal pain and mass abdomen. The first girl was 13 years old with 20×15cm size nontender pelvic mass with normal Ca-125 level. The second girl aged 15 years presented with 15×10cm mass. Ca-125 was 48 IU. Both underwent oophorectomy and histopathology report showed a mucinous borderline tumor. Third patient 33 years old had 18×10cm mass in pelvis. She underwent hysterectomy with bilateral salpingo-oophorectomy as her family was complete. Histopathology showed mucinous borderline tumour with invasive carcinoma. Patients were followed up in OPD. One patient lost follow up.

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#### Introduction

Ovarian tumours are epithelial in origin in 90% of cases, while 10-30% of epithelial ovarian tumours are borderline ovarian tumours (BOTS).<sup>1</sup> The occurrence of all ovarian tumours in children and adolescents is less than 1%.<sup>1</sup> According to WHO, BOTS are defined as having both benign and malignant characteristics with no stromal invasion.<sup>2</sup> The incidence of borderline tumors ranges from 1.4-3.1 per 100,000. Serous and mucinous subtypes account for about 95% of borderline tumors.<sup>3</sup>

In 80% of cases, these tumors are unilateral while 20% of cases are bilateral.<sup>2</sup> The prognosis of patients

with BOTS is generally good with a relapse rate of 5-33%.<sup>4,5</sup> But the prognosis is less favorable for bilateral involvement.<sup>2</sup>

The rationale of reporting these cases was to make a proper diagnosis of BOTS preoperatively, because presentation resembles with benign and malignant ovarian tumor which can lead to over or under treatment. Radiological features of presence of solid or cystic component, papillary projection and vascular mass points toward the nature of cyst which needs to be documented with precision to decide the type and extent of surgery as our two cases are from the adolescent group who have their whole reproductive

life ahead and conservative surgery should be offered. Informed consent was taken before the procedure and for publication as well. Ethical approval was taken from hospital ethical committee.

### Case 1

A 13 year old unmarried Asian girl presented with acute gastroenteritis for one week and mass abdomen for one month in OPD of Sharif medical city hospital in January 2018. She had a complaint of pain abdomen for the last 6 months. No history of weight loss, nausea, vomiting and loss of appetite. She had urinary frequency and urgency. She had normal menstrual cycle since menarche which was at 13 years of age. No relevant family history of malignancy and no history of medication. On abdominal examination a 20×15 cm non tender and mobile mass was arising from the pelvis. Rest of abdominal examination was normal with normal bowel sounds. Vaginal examination was not done due to her unmarried status. Her Ca-125 was 70 IU/ml. Ultrasound scan revealed a cystic septated mass of pelvic origin arising from right ovary. The mass was causing pressure effects on ureters with resultant hydronephrosis more on right side. CT scan was done for extent of disease which showed a 20×15 cm right ovarian mass with thin internal septae and no solid components. Left ovary was normal. Decision was taken to proceed for exploratory laparotomy after informed consent. Right oophorectomy was done. Left ovary, uterus and tubes were normal looking. No peritoneal deposits were seen. Histopathology revealed a borderline mucinous tumor of 23 cm with intact capsule and no invasion. Her postoperative period was uneventful and she was discharged home on 5<sup>th</sup> postoperative day in a stable condition. She came for 3 monthly follow up with clinical examination and ultrasound with no evidence of recurrence. She is still on follow-up.

### Case 2

A 15 year old unmarried girl presented with complaint of abdominal pain and distension for one month in OPD of Sharif city hospital in March

2018. The pain was dull in nature, continuous and non radiating. No associated gastrointestinal and urinary symptoms. She had no weight loss and anorexia. Family history was unremarkable. No history of medication. Abdominal examination revealed a 15×10 cm size firm and non tender mass arising from the pelvis. Gut sounds were audible and rest of abdominal examination was unremarkable. Ultrasound and CT scan showed a 15×10 cm right ovarian cyst with solid and cystic component. Flow was seen on Doppler studies. CA-125 was 48 IU/ml. She underwent exploratory laparotomy and right salpingo-oophorectomy was done as nature of mass seems to be malignant on radiological findings. On histopathology, the diagnosis of mucinous borderline ovarian tumours was made. Findings were confirmed from another lab and report was showing mucinous borderline ovarian tumour. Patient was discharged from hospital on 4<sup>th</sup> postoperative day in a stable condition. She was asked for follow up but she did not come up.

### Case 3

A 33year old lady P3+1 married for last 10 years presented with complaint of lower abdominal pain for 3 months in OPD of Sharif city in June 2018. Pain was mild continuous and in lower abdomen with no associated bowel symptoms. She had frequency of urine with no dysuria and burning micturation. No history of weight loss and loss of appetite. No significant family history. No history of medication. Abdominal examination revealed a 15×10cm size mass arising from pelvis with restricted mobility and mild tenderness. Ca- 125 was 7 IU/ml. Ultrasound showed a complex left ovarian cystic mass measuring 157×90×143 mm in size with heterogeneous solid component measuring 10×4 cm with profuse internal vascularity. CT scan was also done which confirmed the above findings. Her staging laparotomy was done after taking informed consent. Options of treatment were discussed with patient about conservative surgery and definitive surgery. Frozen section from left ovary was planned already with informed consent of patient and it shows suspicion of malignancy so

decision to perform total abdominal hysterectomy with bilateral salpingo oophorectomy was done with Infracolic omentectomy for which consent was taken before surgery. No evidence of any peritoneal deposits was seen. Her histopathology report revealed mucinous borderline tumour of left ovary with intraepithelial carcinoma. Cervix, endometrium, myometrium, right ovary and bilateral fallopian tubes were free of tumour. Omentum was unremarkable. She was followed up in OPD 3 monthly for one year. On each visit clinical examination and ultrasound scan done to look for any recurrence. Further follow up explained to the patient.

### Discussion:

The histological diagnosis of borderline malignancy can be difficult, particularly in mucinous tumors<sup>2</sup>. Most borderline tumors remain confined to the ovaries and this may account for their much better prognosis.<sup>2</sup> Peritoneal lesions are present in some cases and although a few are true metastases, many do not grow and even regress after removal of primary tumor with a relapse rate of 5-33%.

Borderline tumors are more common in younger patients and most often diagnosis is made on histopathology because they resemble with benign and malignant ovarian tumors macroscopically.<sup>3</sup> In our first two patient oophorectomy was done as ultrasound and CT scan showed vascular mass. Diagnosis of BOTs was not confirmed till histopathology report. Reason of presenting these cases is to avoid overtreatment in the form of oophorectomy. In literature, both CT scan and MRI were used for the diagnosis of BOTs, but MRI is considered superior than CT particularly for BOTs. On MRI, mucinous BOTs shows multilocular cystic masses with multiple septae and contain fluids of different signal intensities.<sup>6</sup> CT scan was done in our two patients. CT scan was chosen as ultrasound revealed ovarian mass with solid and cystic component and blood flow on Doppler suggestive of malignant ovarian tumour. In our cases BOTs was not a diagnosis preoperatively there was a high index of suspicion of malignancy. Preoperatively it is difficult to differentiate on clinical and radiological ground about the true nature of these

lesions whether they are benign, borderline or malignant. Final diagnosis is made on histopathology. Regarding frozen section, firstly it is a useful tool but its facility is not available readily. Secondly it can over diagnose in less than 10% cases and under diagnose in 25-30% in differentiating between borderline and malignant ovarian tumors as happened in our 3<sup>rd</sup> case in which frozen section showed invasive carcinoma but histopathology report showed mucinous BOTs. A dedicated facility of frozen section is mandatory if conservative surgery is an option. On transvaginal ultrasound (TVS), the finding which are peculiar to BOTs include unilocular cyst with positive ovarian crescent sign, positive extensive papillary projection arising from the inner wall or a cyst with a well defined multilocular nodule.<sup>5</sup> In our case series, first two patients were 13 and 15 years of age and germ cell tumours are common presentation in this age group. So plan for oophorectomy was done. In 3<sup>rd</sup> case frozen section showed suspicion of malignancy so definitive treatment was done for which patient has already given consent. In literature, varying reports regarding treatment options are available ranging from ovarian cystectomy, unilateral salpingo-oophorectomy and total abdominal hysterectomy with bilateral salpingo-oophorectomy.<sup>7,8</sup> In conservative surgery both cystectomy and salpingo oophorectomy are done as treatment option. Relapse rate is higher with conservative surgery. If family is complete removal of ovarian tissue should be done to prevent recurrence. They had excellent outcome in terms of prognosis. The estimated relapse rate of these tumors is 10-15% in 10-15 years.<sup>9,10</sup> In cases of cystectomy alone the relapse rate is up to 25% while in cases of oophorectomy it falls down to 10-15%.<sup>2</sup> Our third patient underwent hysterectomy. She was counseled beforehand about the options of cystectomy, oophorectomy and hysterectomy. This was patient's decision to have a frozen section done and proceed for definitive treatment in case mass seems to be malignant. Frozen section limitation was also explained.

Long term follow-up is needed in these patients because it can recur up to 20 years after the first diagnosis. On follow-up patient should be exami-

ned. TVS and Ca 125 level should be monitored (though not reliable in BOTS). Frequency of follow-up should be 3 monthly in first 2 years. After that evaluation should be done 6 monthly for 3-5 years after surgery and then annually.<sup>5,6</sup> MRI was not done as diagnosis of BOTS was not confirmed preoperatively and CT scan is considered better modality for ovarian masses. Preoperatively they were suspicion of malignancy because of high blood flow on Doppler so decision to remove the ovary was taken but it was borderline tumor on histopathology. The purpose of reporting these cases was to keep the diagnosis of BOTs in mind also as a differential diagnosis.

### Conclusion

In conclusion, BOTs though less frequently encountered can be seen in different age groups. Preoperative assessment by a radiologist for benign, borderline and malignant features should be done carefully. This will prevent overtreatment. Dedicated facility of frozen section can result in avoidance of overtreatment.

### References:

1. Pourali L, Toosi FS, Vatanchi A, Taghizadeh A, Rastin Z. A rare case of mucinous borderline tumour in adolescent age accompanied by complete vaginal obstruction. *Acta Medica Iranica*. 2019;57(2):134-137.
2. Findekle S, Lotz L, Heusinger K, Hoffmann I, Dittrich R, Beckmann MW. Twenty five year old woman with bilateral borderline ovarian tumor desiring to preserve fertility-case report and literature review on the current state of fertility preservation in women with borderline ovarian tumors. *Geburtshilfe Frauenheilkunde*. 2016;76(11):1189-1193.
3. Ahmed R, Din HU, Hashmi SN, Muhammad I. Sarcoma-like mural nodule in a borderline mucinous tumour of ovary. *J Coll Physicians Surg Pak*. 2016;26(5):435-437.
4. Childress KJ, Patil NM, Muscal JA, Venkatramani R. Borderline ovarian tumor in pediatric and adolescent population: A case series and literature review. *J Pediatr Adolesc Gynecol*. 2018;31(1):48-54.
5. S Gollakota, S. Anuradha. Borderline ovarian tumor: A case report and review of literature. *J Dental Med Sci*. 2015;14(2):8-12.
6. Kozawa E, Inoue K, Yano M, Yasuda M, Hasegawa K, Tanaka J, et al. An Unusual Ovarian Mucinous Borderline Tumor with a Large Solid Component. *Case reports in radiology*. 2019;2019:1-4.
7. Berbecar VT, Zeca CE, Aldoescu S, Ivancu C, Draghia A. Large borderline ovarian tumor: A case report. *Surgery Curr Res*. 2016;6(2):258.
8. Goyal B, Rao TS, Regmi H. Histopathological study of ovarian tumors at a tertiary care hospital of central Nepal. *J Coll Med Sci-Nepal*. 2019;15(8):22-29.
9. Wills V, Mathew R. A study on clinico-histopathological patterns of ovarian tumors. *Int J Reprod Contracept Obstet Gynecol*. 2016;5(8):2666-2671.
10. Anthony C, Michael A, Mary F, Mirna M. Case report: Elevated tumor markers in ovarian low malignant potential tumors. *J Gynecol Oncol*. 2020;3(4):1037.