# Case Report

# Metastatic Mucinous Carcinoma of the Sigmoid Colon Mimicking a Mucinous Borderline Tumor of the Ovary: A Learning Lesson

**Natasha Dogra[1], Abhishek Singh[2], Divya Shelly[2], AK Das[2]**

[1]Command Hospital, Bengaluru, India
[2]Department of Pathology, INHS Asvini, India

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***Corresponding Author**:
*Dr Natasha Dogra*
natashadogra11@gmail.com

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## Abstract

Mucinous tumors of the ovary are a diverse group of neoplasms with varying degrees of malignant potential. Metastatic colorectal cancer can occasionally present in the ovary, mimicking primary ovarian mucinous tumors on morphology. This report describes a case of metastatic mucinous carcinoma of the colon masquerading as a mucinous borderline tumor of the ovary on morphology, highlighting the diagnostic challenges and the importance of a multidisciplinary approach in such cases.

***Keywords:***

*Mucinous carcinoma, colon cancer, ovarian tumor, metastatic disease, case report, immunohistochemistry.*

## Introduction

Mucinous tumors of the ovary are classified into benign, borderline, and malignant categories. Metastatic involvement of the ovary by a colorectal carcinoma, particularly mucinous carcinoma, can lead to diagnostic confusion due to overlapping histological features with primary ovarian mucinous tumors. Accurate diagnosis is crucial for appropriate management and treatment.

## Case Report

A 27-year-old female presented with abdominal pain for the past six days. The patient was clinically and radiologically diagnosed as a case of left ovarian complex cyst (? left ovarian torsion), measuring 10.3 × 6.9 × 9.7 cm with internal septae. The right ovary

was opined as normal on ultrasonography. There was mild free fluid in the pelvis. Left salpingo-oophorectomy was done in Civil. A diagnosis on morphology was given as mucinous borderline tumour in view of hierarchical branching, lining by simple mucinous columnar epithelium, and no invasive component.

On review after two months at our hospital, the diagnosis remained the same due to suggestive morphology [Fig. 1]. However, on PET CT, FDG avidity was noted in the right adnexa, with thickening of the sigmoid colon and rectum. On colonoscopy, a polypoidal growth was found in the sigmoid colon measuring 6 × 4 cm in size. Biopsy revealed a moderately differentiated adenocarcinoma with a signet ring cell component. Review of the ovarian slides again did not reveal any invasion or signet cells.

The patient underwent sigmoidectomy and total abdominal hysterectomy at this center at the same time. Histopathology revealed moderately differentiated adenocarcinoma of the sigmoid colon with metastatic deposits in bilateral ovaries and lymph nodes [Fig. 2]. On IHC, the case was found to be microsatellite unstable.

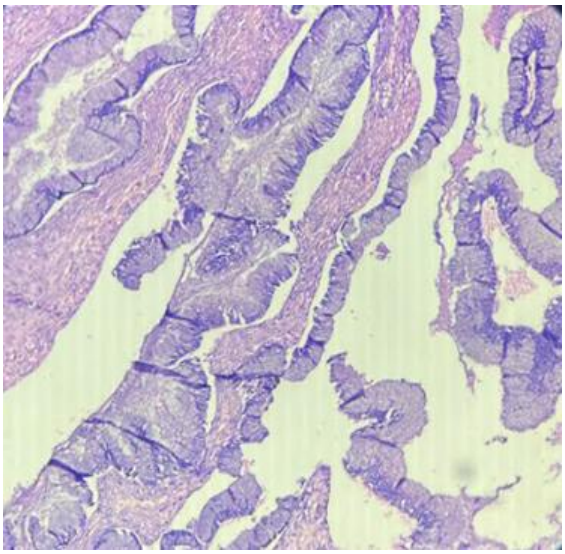

***Figure 1: Features of mucinous borderline tumour with complex papillary proliferation of mucinous lining in ovary (H&E stain x20)***

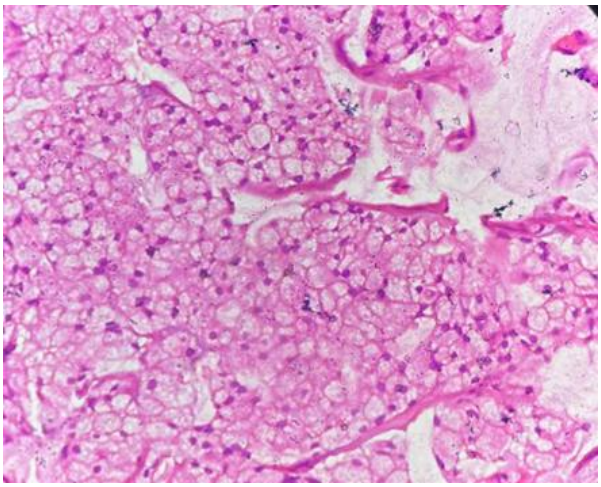

***Figure 2: Signet ring cells in sigmoid colon biopsy (H&E stain x40)***

## Discussion

Mucinous ovarian tumors can be challenging to differentiate from metastatic mucinous carcinomas on histopathology alone, particularly when clinico-radiological details are not available at initial reporting. Immunohistochemical profiles of these two entities also show considerable overlap. Varying combinations of PAX8, CK7, CK20, CDX2, and SATB2 have been used with varying success for primary versus metastatic ovarian tumours. IHC may be helpful, but in distinction between primary mucinous ovarian tumours vs. ovarian metastasis, the role of IHC is limited [1].

Literature mentions that secondary involvement of ovaries by metastatic extraovarian mucinous carcinoma (particularly from the appendix, gall bladder, and pancreas) can result in mistaken pathological impression of mucinous borderline tumour [2, 3]. Cases mentioning origin as sigmoid colon have also been reported [4]. Bilaterality, surface involvement, multinodularity, and a dominantly infiltrative pattern of stromal invasion are known typical features of metastatic carcinoma. However, atypical presentations are common, and so it is difficult to classify an ovarian mucinous tumour as a primary or metastatic lesion solely on histological features. The differentiation is imperative, as misdiagnosing metastatic ovarian carcinoma as primary ovarian borderline neoplasm can deprive the patient of an opportunity to be treated altogether [5].

For accurately diagnosing such cases, an informative clinical history and a collaboration between pathologists, gynecologists, radiologists, and oncologists is the cornerstone, and only morphology in few cases cannot be relied upon.

## Conclusion

This case underscores the importance of thorough clinical, radiological, and pathological evaluation in all cases presenting as mucinous tumours of the ovary, including those with low-grade and borderline morphology, to ensure accurate diagnosis and appropriate treatment. Awareness of such unusual presentations can aid in avoiding misdiagnosis and ensuring optimal patient management.

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