International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Chandni et al. Int J Reprod Contracept Obstet Gynecol. 2024 Apr;13(4):1079-1081
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20240820

Case Report

Endodermal sinus tumor of ovary with metastasis from breast carcinoma: a case report

Chandni[1]*, Nirbhay Kumar Bind[2], Neeta Meena[1]

[1]Department of Obstetrics and Gynaecology, Vardhman Mahaveer Medical College and Safdarjung Hospital, Delhi, India
[2]Department of Surgical Oncology, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India

Received: 25 February 2024
Accepted: 19 March 2024

***Correspondence:**
Dr. Chandni,
E-mail: chandni280590@gmail.com

ABSTRACT

Endodermal sinus tumor is malignant germ cell tumor of ovary. Endodermal sinus tumours (EST) also know as yolk sac tumor are rare about 1% of ovarian malignancies and highly malignant tumours occurring primarily in children and young women. Overall survival is poor. In present case patient was breast cancer survivor and completed her treatment for breast cancer 10 years back. Later on she developed rapidly growing bilateral ovarian mass. Tumor markers of epithelial ovarian tumor were raised. Gross examination was suggestive of Krukenberg tumor and on histopathological examination that was suggestive of endodermal sinus tumor, Finally, Immunohistochemistry helped to conclude the diagnosis of metastatic ovarian tumor from breast carcinoma.

Keywords: Endodermal sinus tumor, Yolk sac tumor, Ovarian metastasis, Breast carcinoma, Secondary ovarian tumor

INTRODUCTION

Endodermal sinus tumors have also been referred to as yolk sac tumor because they are derived from the primitive yolk sac. They are the third most frequent malignant germ cell tumor of the ovary.[1] Malignant ovarian germ cell tumors are relatively rare and account for 2-3% of all ovarian tumors, with yolk-sac tumors accounting for 20% of these malignancies.[2,3]

ESTs occur in patients with a median age of 16 to 18 years. Most frequent initial symptom is abdominal or pelvic pain in 75% cases. Asymptomatic pelvic masses are seen in 10% cases. EST is unilateral in 100% cases; thus, biopsy of the opposite ovary is contraindicated. Most yolk sac tumors secrets AFP (alpha fetoprotein) and rarely alpha-1 antitrypsin. The serum level of AFP is used to follow up and also for monitoring the patient's response to treatment. Grossly tumor is soft greyish-brown. Capsule is intact in most cases. Cystic areas caused by degeneration or necrosis are present in rapidly growing tumor. The tumors consist of scattered tubules or spaces lined by single layers of flattened cuboidal cells; loose reticular stroma; numerous scattered Para amino salicylic-positive globules; and within some spaces or clefts, a characteristic invaginated papillary structure with a central blood vessel (Schiller Duval body).[4] The glomerular-like process exists in the empty space, and surrounded by tumor cells. The lining of the papillary infolding and the cavity is irregular, with an occasional cell containing clear, glassy cytoplasm, simulating hobnail appearance.[5] This structure is observed in approximately 20% of yolk sac tumor. This structure is not essentially contained for a diagnosis.[6] The 81% of yolk-sac tumors occur in women at or below 35 years of age, encompassing prime reproductive years for many patients.[7] When treated early (Stage I and II), prognosis is good with stage-specific long term survival rates of 94.8% and 97.1% respectively.[7]

CASE REPORT

A 42 years old female P2L2 breast cancer survivor presented in OPD with chief complaint of polymenorrhea in the last 2 months. She was also complaining of loss of

appetite and easy fatigability in the last 6 months. She had undergone modified radical mastectomy of left breast followed by chemotherapy for carcinoma left breast 10 years ago. She also had hormonal therapy for 5 years for the same. On palpation there were 2 masses per abdomen. 1. A mass in right hypochondrium 10×15 cm, lower limit reached, transverse mobility restricted, firm in consistency. 2. Another mass was well defined, felt in infraumbilical and suprapubic region 20×10 cm, irregular, firm consistency, lower limit not reached. On per vaginal examination cervix is downward forward, uterus is anteverted, 8 weeks size, mass of right side is felt high up, and mass on left side was filling POD with irregularities in POD. On per rectal examination rectal mucosa was free. On CECT there were two well defined large multiseptated solid- cystic mass lesions measuring approx 11.2×10.1×16.5 cm, and 14.6×12×16 cm seen in right and left adenexa respectively, reaching superiorly till right hypochondrium and epigastric region, possibly arising from respective ovaries, b/l ovaries are not separately visualised, with post contrast enhancement of solid component with cystic component, with loss of fat planes with adjacent gut loops, uterus and urinary bladder, with encasement of left ureter and abutment of right ureter, with loss of fat planes with anterior abdominal wall. Gross ascitis. Cytology of pleural fluid was suspicious of metastatic adenocarcinoma. Serum AFP, beta HCG, inhibin B and serum LDH were in normal range. CA 125 was raised (1333.3 U/ml).

The patient underwent exploratory laparotomy proceed suboptimal cytoreduction (removal of bilateral ovaries and omentectomy). The gross examination revealed bilateral ovarian cysts of size (30×20×6) cm and (25×20×8), respectively. Which were irregularly enlarged, smooth and lobulated surface, capsule was intact of both the masses, no gross growth over capsules of both the ovarian masses. Uterus was 6-8 weeks size, grossly normal, B/L fallopian tube were grossly normal. There were solid metastatic foci over small intestine which were densely adherent to the posterior surface of the uterus, which was inseparable and was also adherent to right ovary. Omental caking and thickening were present. On cut section of right ovarian mass dark brownish fluid was present, multiloculated, 8×8 cm solid areas inside the mass, necrotic and haemorrhagic areas was present. Left ovarian mass was multiseptated, with dirty discharge. Cytology of ascitic fluid was negative for malignant cells. The thickness of cysts wall varied from 0.5-1.5 cm. No lymph node/solid area identified on palpation.

The microscopic examination of sections examined from bilateral ovarian cysts and solid area showed tumor epithelial cells arranged in glands and forming microcysts. The glands are lined by cuboidal to columnar epithelial cells nuclei showing mild to moderate to severe atypia. Intracellular and extracellular hyaline globules are also seen. Focal schiller-duval bodies are also seen. One of the ovaries also showed necrosis. One of the fallopian tube walls showed infiltration by tumor cells. Sections from omentum were free from tumor deposits. On IHC staining EMA was positive, ER and PR was also present.

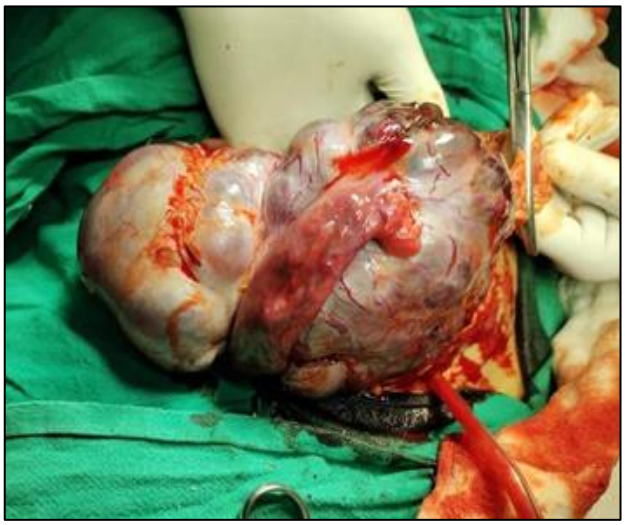

Figure 1: Intra-operative image.

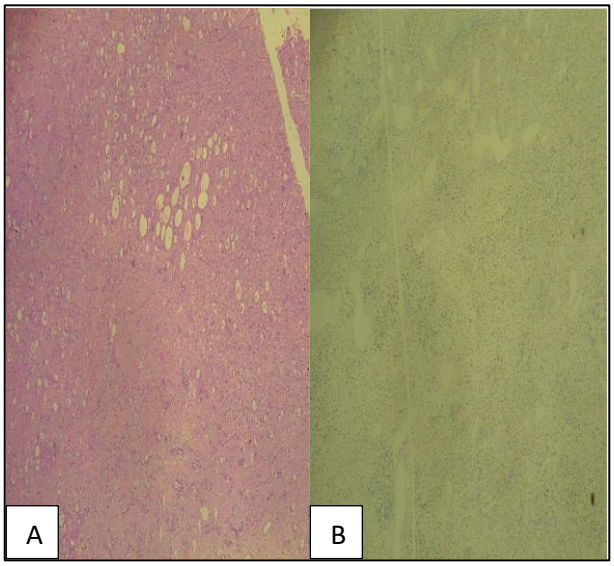

Figure 2 (A and B): ER and PR receptor on staining, which is suggestive of metastasis breast carcinoma.

DISCUSSION

Ovarian metastases are largely found in primary breast cancer patients with poor prognostic factors. Women with carcinoma of the breast and poor prognostic factors may benefit from ovarian surveillance based on CA 125. Following the discovery of ovarian metastases from breast cancer, further investigations are warranted to determine the extent of disease, specifically whether multiple metastases are present.[8]

In our case patient's clinical presentation and intraoperatively finding was suggestive of krukenberg tumor. Microscopic examination of this ovarian tumor was suggestive of Endodermal sinus tumor of ovary. But tumor

marker of epithelial ovarian tumor was highly raised. Hormonal receptor was positive for ER and PR which favours breast carcinoma metastasis. This discrepancy between primary and metastatic lesion is surprising, as such patterns have not been reported in the literature.

Metastatic ovarian cancer is estimated to account for 10% of the total malignant ovarian tumors and originates from various sites, such as the stomach, breast, or colon. Therefore, immunohistochemistry has a pivotal role in differentiating primary and secondary ovarian adenocarcinoma.[9]

CONCLUSION

The diagnosis of ovarian metastasis based on clinical findings alone may be challenging, and oncologist should be aware that histopathological examination along with immunohistochemistry report play important role in deciding diagnosis and further treatment.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Chandni, Bind NK, Meena N. Endodermal sinus tumor of ovary with metastasis from breast carcinoma: a case report. Int J Reprod Contracept Obstet Gynecol 2024;13:1079-81.