

# Case Report



## Clear Cell Carcinoma of Ovary: A Rare Case Report

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### Abstract

Clear cell carcinoma of ovary is rare neoplasm and have varied clinical manifestations. Mean age at presentation is between 40-70 years. Risk factors includes diverse conditions both acquired and genetic. Here we report a case of 25year unmarried female who presented with complaints of polymenorrhagia and abdominal distension for past 3 months. Ultrasound of abdomen revealed complex mass with solid component seen in the left adnexal region measuring 15x12x10 cm. CT scan showed left sided adnexal cystic mass with solid mural component with thick internal septation. The patient was transferred for exploratory laparotomy. Overall morphology and IHC favored a diagnosis of Clear cell carcinoma of left ovary.

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### Keywords:

*Clear cell carcinoma, Clear cells, hobnail cells, Epithelial ovarian tumor, Serous tumor*

## Introduction

Ovarian cancer is a heterogeneous disease and is morphologically divided into six types of epithelial ovarian cancers-serous, mucinous, endometrioid, brenner, clear cell and undifferentiated carcinoma.[1] Clear cell carcinoma (CCC) represents 2-10% of all epithelial ovarian cancers. The median age of presentation is between 40 to 70 years with peak incidence at 52 yrs. [2] Clinical manifestations include abdominal and pelvic pain with bloating, increased frequency of micturition, and weight loss. Risk factors include early menarche, late menopause, nulliparity, infertility, BRCA1 and BRCA2 (breast cancer 1 and 2 gene) mutations, as well as Lynch syndrome.[3] In 1973, the World Health Organization (WHO) strictly defined ovarian clear cell carcinomas (OCCCs) as lesions characterized by clear cells growing in solid, tubular or glandular patterns with hobnail cells lining tubules and cysts. Subsequently, it was observed that Schiller's original descriptions actually included two distinct populations: a highly malignant germ cell tumor occurring in younger women, and another tumor of epithelial origin with a less aggressive phenotype,

which was formally designated as ovarian clear cell carcinoma in 1973 by the World Health Organization. [4-6] We hereby present a case of a 25-year female with incidental finding of Clear cell carcinoma of ovary.

Gross specimen was received in department of pathology. Previous history, examination and radiological findings were retrieved from hospital record section after taking informed consent of the patient. Sections were stained by hematoxylin and eosin and relevant immunohistochemistry was applied to reach the conclusive diagnosis.

## Case Report

A 25-year unmarried female, complained of polymenorrhagia and abdominal distension for past 3 months. There was no previous history of any menstrual complaint or pain, burning during micturition or any discharge. On per abdominal examination, uterus was of 24-26 weeks, with left flank fullness which was non ballotable, firm and non-tender.

Ultrasound of abdomen revealed complex mass with solid component seen in the left adnexal region measuring 15x12x10 cm showing internal vascularity on color doppler suggesting left ovarian mass. CT scan showed left sided adnexal cystic mass with solid mural component with thick internal septation. Right adnexal mass was also seen measuring 8x6 cm. Serum tumor markers were as follows CA-125 – 92units/ml, S.AFP- 1.47ng/ml, S.LDH 296 IU/L

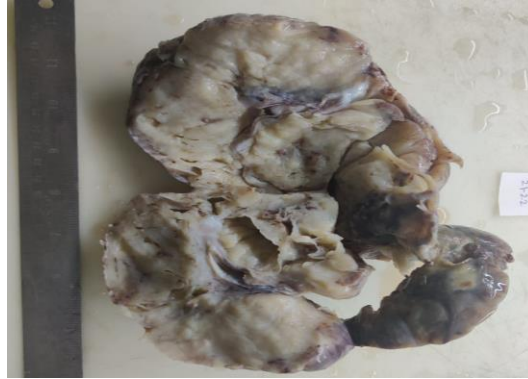
The patient was transferred for exploratory laparotomy. Left ovary measuring 15x12x10 cm with solid cystic areas and firm consistency was removed. Imprint smears were made. A cyst arising from right ovary measuring 7x6 cm filled with haemorrhagic fluid was also removed. A small part of right ovarian tissue was left. Adhesions were present in pouch of Douglas. Adhesiolysis was done.

Imprint smear from Left ovary, showed singly scattered and clusters of cells with round to oval vesicular nuclei and scant amount of eosinophilic cytoplasm. Few clusters showed acinar and papillary patterns. Occasional small clusters and singly scattered cells showed hyperchromatic, pleomorphic nuclei with scant eosinophilic cytoplasm. Background showed cystic macrophages, mixed inflammatory infiltrate and hemorrhage, suggestive of a serous tumour.

On gross examination, of left ovary a globular solid cystic mass measuring 15x12x6 cm was received. The outer surface was greyish white, showed congested dilated vessels. Glistening white capsule seen only on one side. The cut section showed solid yellowish white areas with specks of hemorrhage and multiple variable sized cysts filled with clear fluids. (Fig 1, 2). The right ovary was enlarged measuring 7x 6 cm, with a small blood-filled cavity (endometriotic cyst).

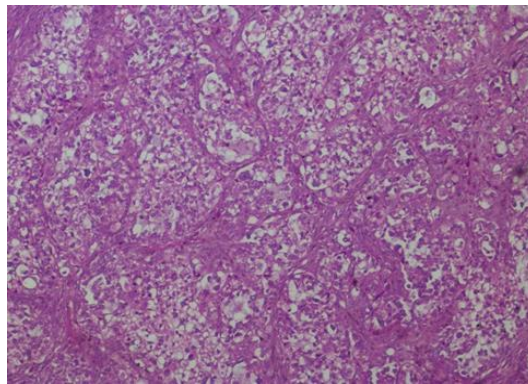


**Figure 1** Left ovarian tumor showing glistening white capsule

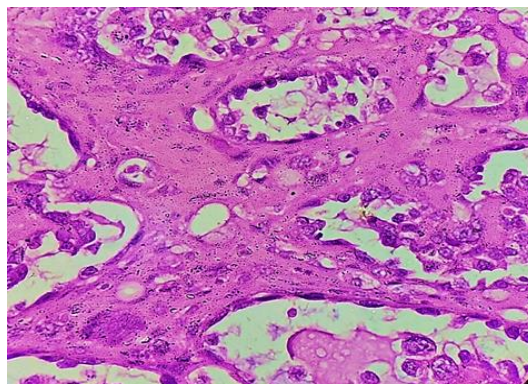


***Figure 2 Cut section showing solid areas and multiple variable sized cysts***

On microscopic examination, tumor cells were arranged in small sheets, glands and tubules separated by fibrous stroma. These were lined by clear and hobnail cells (Fig 3, 4). The cells were cuboidal to columnar with abundant clear cytoplasm and eccentric nucleus. At places, small papillae were seen with hyalinized eosinophilic cores (Fig 5). The pouch of Douglas was infiltrated by tumor cells. Omental tissue was unremarkable.

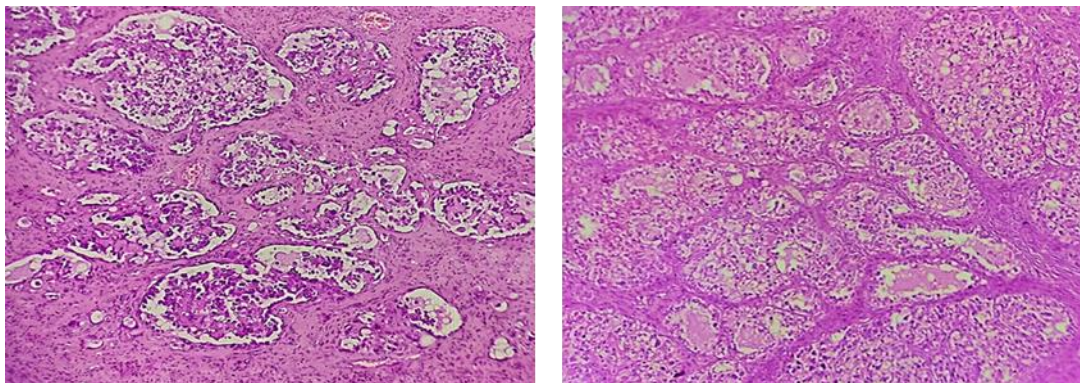


***Figure 3 Tumor cells are arranged in glandular pattern and small cysts lined by clear and hobnail cells , separated by thick fibrous septa***



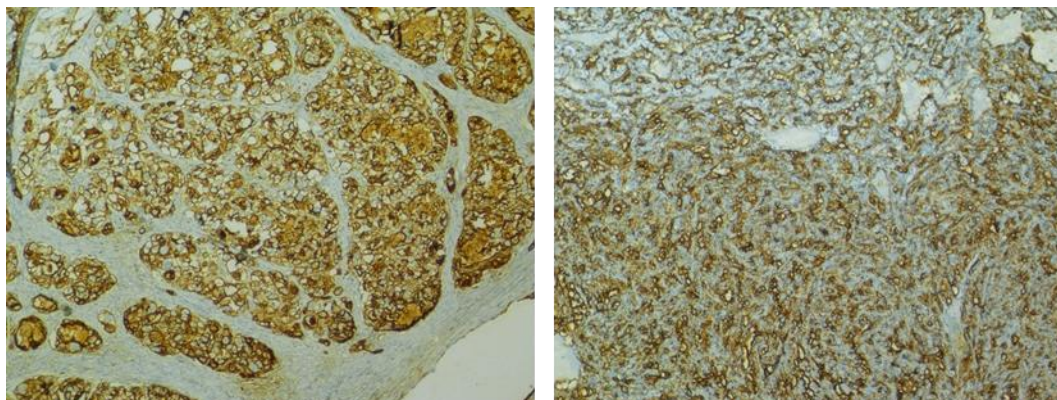
***Figure 4 The nucleus is eccentric and there is abundant clear cytoplasm***





**Figure 5** Papillary and Solid pattern showing intraluminal projections referred to as glomeruli bodies

Immunohistochemistry showed EMA and PanCK (Fig 6) positivity. Overall morphology and IHC favored a diagnosis of Clear cell carcinoma of left ovary. The tumor was graded as pT2bN0Mx. The patient was followed up postoperatively. CA-125 returned to normal levels during follow-up.



**Figure 6** EMA and PanCK positivity

## Discussion

Patients with clear cell carcinoma of ovary usually present with pelvic mass or as an incidental finding, with a mean age of 52 yrs and an average size of 13cm. [7] Ours was a 25yrs unmarried female presenting with polymenorrhagia and abdominal distention. In a retrospective study on 254 patients of clear cell carcinoma of ovary, the median age was found to be 52.2 years [2] and 55yrs [8] which is much higher than the age our patient. However, Gupta et al.,2017 reported clear cell carcinoma in a 24years old female like our case. This patient had endometriosis which is a common finding associated with clear cell carcinoma ovary. [9] There was no complain of burning micturition, pain or any discharge. The size of the mass was 15x12x6 cm which is slightly larger than the mean size according to Kurman et al.,2014 which was 13 cm. [7]

## Conclusion

Although peak incidence of clear cell carcinoma is between 40-70 years, it can occur in younger age group as well which was true in our case. The median size was also slightly larger than the reported median sizes previously. The symptoms varied in different cases, but our patients were presented with minimal symptoms of polymenorrhagia and abdominal distension. Therefore, we

conclude that every patient of dysfunctional uterine bleeding of any age should be evaluated thoroughly without delay for timely management and better treatment.

**Consent** Informed consent was taken from the patient.

**Funding** No grants or funding was taken for the study.

**Ethical consideration** Ethical permission was taken from the institutional ethical committee.

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