Clear cell carcinoma of ovary: A case report with literature review

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ABSTRACT

Clear cell carcinomas account for about 5% of all ovarian cancers, and occur most often between the ages of 40 – 70 yrs. We report a case of patient of age 45 yrs who presented with with post menopausal bleeding, pain and mass per abdomen since 1 year. Clinical diagnosis of multiple fibroids in the uterus was made and was operated upon (total abdominal hysterectomy with bilateral salpingo-oophorectomy). Histopathological examination showed the ovarian tumour to be clear cell carcinoma, which was corroborated by the positivity with CK 7 and PAS stains. Cervix showed the presence of in-situ squamous cell carcinoma and myometrium showed adenomyosis with foci of leiomyoma.

Key words: clear cell carcinoma, ovarian tumour, immunohistochemistry

INTRODUCTION

Clear cell carcinoma is a distinctive surface epithelial ovarian tumour with gross features of spongy, often cystic appearance, which microscopically can grow in tubular-cystic, papillary and solid-sheet patterns. Stroma-rich variants of clear cell carcinoma are known as clear cell adenocarcinofibroma and cystadenocarcinofibroma, on the basis of predominance of solid or cystic component. This tumour is regarded as a variant of endometrioid carcinoma, which is supported by the high association with pelvic endometriosis. Electron microscopically, the cytoplasmic clearing is seen to be largely due to accumulation of glycogen, and the stromal hyalinization is due to the accumulation of basal lamina material. Patients are usually in the fifth or sixth decade and is bilateral in 10% of cases. This case is reported due to its unusual non-association with endometriosis, and also the presence of fibroid and adenomyosis along with incidental finding of in situ carcinoma of cervix.

CASE REPORT

A 45 year old woman presented with post menopausal bleeding, pain and mass per abdomen since one year. Clinical examination revealed 22-24 weeks size abdominal enlargement with firm, lobulated mass of irregular surface. She had normal menstrual history and has attained menopause 4 years back. An anteverted uterus of 13.5 x 7.5x8cms, with multiple space occupying lesions, of solid echotexture (multiple large fibroids) was the impression of Ultrasonography. The diagnosis of multiple uterine fibroids was concluded and patient was operated with total abdominal hysterectomy with bilateral salpingo-oophorectomy. Uterus with cervix measures 10x9x2 cms. Cervix was elongated and the ovarian mass was of 13x13x10cms. The cut section of uterus showed small fibroids and the cut section of ovarian mass showed greyish – white and lobular areas, with predominantly firm and solid areas and a foci of mucinous area. Microscopic examination of sections from cervix showed features of in-situ squamous cell carcinoma. Myometrium showed features of adenomyosis with leiomyoma. Sections from the tumour mass showed round to oval to polygonal tumour cells with uniform vesicular nuclei and clear cytoplasm, arranged in well-defined nests and lobules, separated by fibrous
strands. Focal areas show thick papillae bulging into tubules and small cysts, suggesting tubulocystic pattern. PAS staining shows cytoplasmic positivity for glycogen in the tumour cells. CK7 immunohistochemistry suggests strong diffuse membrane positivity in the tumour cells, indicating surface epithelial origin of the tumour.  

**Fig. 1.** Cut open ovarian tumour mass showing solid and firm grayish white tissue and a foci of mucinous area.

**Fig. 2.** In-situ squamous cell carcinoma in cervix (H&E 100X).

**Fig. 3.** Ovarian tumour showing sheets of clear, polygonal cells with clear cytoplasm (H&E 400X).

**Fig. 4.** Areas of the ovarian tumor exhibiting the clear cells in tubulocystic pattern (H&E 100X).

**Fig. 5.** Positivity of clear cells of ovarian tumour with PAS (periodic acid Schiff) stain (PAS 400X).

**Fig. 6.** Diffuse strong positivity of cytoplasmic membranes of ovarian tumour cells with CK7 immunostain (400X).

**DISCUSSION**

In this instant case, clear cell carcinoma of ovary is seen along with adenomyosis, fibroid and in-situ carcinoma of cervix. Generally, clear cell ovarian tumours have been referred to as “endometriosis-associated ovarian cancers.” Several cases have been reported proving this association as in a study by Scarfone G et al.
concludes that endometriosis per se does not appear to be associated with or does not predict prognosis in ovarian clear cell cancers. Penson RT et al, found that only a subset of clear cell cancers evolve from endometriosis and that the oxidative stress conditions found within endometriotic lesions are likely to contribute to the transformation process. Association of clear cell tumours with endometriosis is six times as great as with ovarian carcinomas in general, but cases without endometriosis also occur. Grasspool RM et al, demonstrated a definite role of endometriosis in some cases of clear cell carcinoma of ovary, which substantiates the role of inflammatory cytokine Interleukin-6 as a therapeutic agent. Del Carmen MG et al, also found in their study about the association of some cases of clear cell carcinoma of ovary with endometriosis.

CONCLUSION

Literatures advocate a characteristic association of a subset of cases of clear cell carcinoma of ovary with endometriosis; however, in the present case there is no association with endometriosis.

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REFERENCES