International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Vernekar VM et al. Int J Reprod Contracept Obstet Gynecol. 2023 Jun;12(6):1879-1882
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20231573

Case Report

Ovarian collision tumour: a rare case of serous cystadenoma with granulosa cell tumor of ovary

Veena M. Vernekar*, Prashanth F. Gollar, Syeda Sana, Sreelatha Sampath Kumar

Department of Obstetrics and Gynaecology, ESIC MC and PGIMSR, Rajajinagar, Bengaluru, Karnataka, India

Received: 28 March 2023
Revised: 04 May 2023
Accepted: 05 May 2023

***Correspondence:**
Dr. Veena M. Vernekar,
E-mail: veenamvernekar@gmail.com

ABSTRACT

A collision tumor is the coexistence of two distinct tumours without any histological intermixing in the same organ or tissue. Each component of collision tumors occurs coincidently and biologic behaviour depends on their own tumor characteristics. A 48 year aged P2L2 women with pain abdomen since 15 days, on abdominal examination-a cystic mass occupying left iliac fossa present, bimanual examination a cystic mass measuring 13x10x8 cm in size, felt separately from the uterus. Sonography of abdomen and pelvis revealed a large cyst in the right adnexa 11.5x10.5x9.5 cm extending upto umbilical region. The serum tumor markers were within the normal range. Patient complained of severe pain abdomen on next day. Emergency laparotomy was done. Left ovarian cyst measuring 13x12x7 cm in size with one loop of torsion seen. Left salphingo-ophorectomy done and specimen sent for frozen section. It reported as serous cystadenoma of left ovary. Then proceeded to total abdominal hysterectomy with right salphingo-oophorectomy. Histopathology reported Serous cystadenoma with focal Granulosa cell tumour- left ovary. Patient was followed up with serum inhibin and CECT abdomen. The demographic factors, presentations and diagnosis of collision tutors are as similar as with single ovarian tumours. It is important for gynaecologist, radiologist and pathologist to be aware of occurrence of collision tumours. Histopathogical diagnosis of such neoplasms becomes very important, to provide appropriate treatment based on the individual biological characteristics of each component of collision tumours.

Keywords: Collision tumor, Laparotomy, Serous cystadenoma, Granulosa cell tumor, Inhibin

INTRODUCTION

A collision tumor is the coexistence of two distinct tumours without any histological intermixing in the same organ or tissue.[1] Ovarian cancer is the seventh most common cancer in women accounting for 3% of all malignancies, while it is the second most common gynaecological cancer. It is the fifth most common cause of death from malignancy in women, the lifetime risk of being diagnosed with ovarian cancer is 1% to 1.5% and of dying from ovarian cancer is almost 0.5%.

The higher mortality rate is attributed to the fact that ovarian cancer present with vague symptoms and lack of proper screening method that result in its diagnosis in the advanced stage.[2]

Based on histological classification of Ovarian tumours approximately 90% of malignant ovarian tumours are of epithelial origin and the rest are non-epithelial which include sex cord stromal tumours, germ cell tumours and metastatic or miscellaneous tumours. Collision tumors are histologically distinct neoplasms that coexist without histologic intermixing. Simultaneous occurrence of surface epithelial tumors of ovary with other types of ovarian tumors is rare. But still few such cases have been reported.[1]

Each component of collision tumors occurs coincidently and the biologic behaviour depends on their own tumor characteristics

We report one such rare case of a serous cystadenoma occurring simultaneously along with granulosa cell tumor of left ovary.

CASE REPORT

A 48 years P2L2 tubectomised women presented to our gynaecology OPD with complaints of pain abdomen since 15 days which was sudden in onset, dull aching type, non-radiating present throughout the day, aggravated with movements, relieved with analgesics. She had regular menstrual cycles. No history of malignancy in family members.

On examination - patient is conscious, co-operative and well oriented, afebrile. Vitals are stable.

Abdominal examination showed distension of lower abdomen, a cystic mass of approximately 13×10 cm felt on palpation occupying left iliac fossa, umbilical and hypogastric region with smooth surface with ill-defined borders. On percussion Dullness present over the mass and tympanic note over the flanks. On bimanual examination - uterus anteverted 10 weeks' size, firm in consistency, non-tender.

A mass measuring 13x10x8 cm in size, felt separately from the uterus, in anterior and left fornix, lower margin is regular, smooth surface, cystic in consistency, with restricted mobility, non-tender.

On rectovaginal examination was rectal mucosa free, no deposits in rectovaginal septum, bilateral parametrium supple, no nodularity felt in pouch of Douglas.

Investigations of all routine blood investigations were within normal limits

Ultrasound abdomen and pelvis showed large cystic lesion in the right adnexa 11.5×10.5×9.5 cm extending upto umbilical region, shows eccentric mural wall thickening, showing mild vascularity, predominantly in the superior aspect, no evidence of septations within and no free fluid in the abdomen. Both ovaries are not visualised.

Risk of Malignancy Index (RMI) is computed by ultrasound score×menopausal score×CA125 levels

RMI score of this patient= 1×1×19= 19 (low risk of malignancy)

MRI pelvis was done of large thin walled cyst of 10x13x11 cm is seen in the pelvis extending in lower abdomen in midline superior to uterus and bladder. It shows one septum, no solid component.

Oncologist opinion taken and advised for following tumor markers

LDH:142 U/l [135-214 U/l]; alpha feto protein: 0.86 ng/ml [<7 ng/ml]; β HCG: 0.28 mU/ml [<0.5-2.90 mU/ml]; CA 125:19 U/ml [upto 35 U/ml].

PAP smear was negative for intra epithelial lesion or malignancy.

Patient complained of severe pain abdomen on next day of admission. There was tenderness on bimanual examination, could be probably ovarian torsion. Hence emergency staging laparotomy was done under regional anaesthesia. Midline vertical incision taken. Careful evaluation of all peritoneal surfaces done, no suspicious lesions or deposits seen.

Washings of the peritoneal cavity done and sent for cytology report- no malignant cells. Left ovarian cyst measuring 13×12×7 cm in size with fallopian tube is stretched over the ovary with one loop of torsion seen, uterus was 10 weeks' size. Multiple fibroid present (Figure 1).

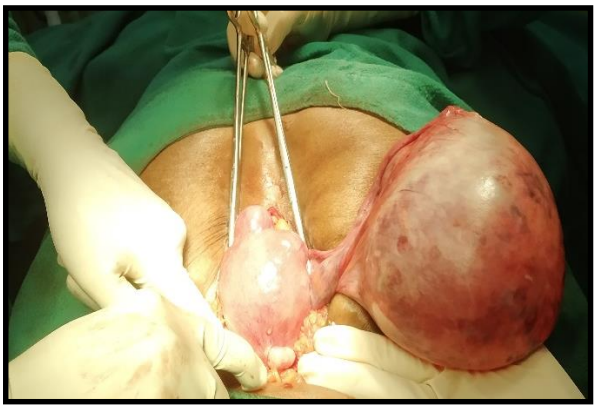

Figure 1: Intraoperative finding of left ovarian cyst 13×12×7 cm in size with one loop of torsion seen.

Left salphingo-ophorectomy done and specimen sent for frozen section. It reported as serous cystadenoma of left ovary. Then proceeded to total abdominal hysterectomy with right salphingo-oophorectomy.

Post-operative period was uneventful suture removal was done on post-operative day 8 and discharged with advised to follow up.

The histopathology reported serous cystadenoma with focal granulosa cell tumour-left ovary (Figure 2).

Hence onco surgeon opinion taken and advised to follow up at proper intervals with serum inhibin levels, CA 125 levels and CECT abdomen.

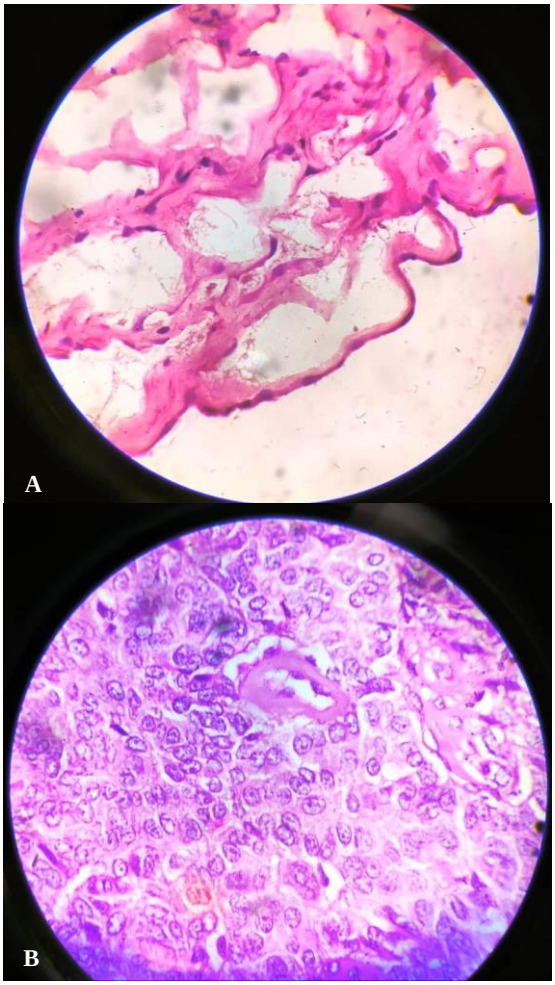

Figure 2: (a) Histopathology: serous cyst adenoma of ovary: flattened to low cuboidal epithelium; (b) Histopathology of a focal thickened area composed of cuboidal to polygonal cells arranged in trabecular, insular pattern. The cells exhibit scant cytoplasm with hyper chromatic nuclei: coffee bean cells, focal granulosa cell tumor of ovary.

DISCUSSION

A collision tumor is the co-existence of two distinct tumours without any histological intermixing in the same organ or tissue.[1] Though very rare, they have been found to occur in many organs like skin, kidney, ovary etc.

There are various hypotheses for the formation of collision tumors.[3]

There can be simultaneous proliferation of two different cell lines in the same tissue.

Common origin from pluripotent stem cell.

The presence of the first tumour alters the microenvironment which leads to the development of the second primary tumour or the seeding of the metastatic tumour cells.

A carcinogenic agent interacting with different tissues and inducing different tumours.

Collision tumours can occur in either pre or post-menopausal women. The demographic factors, presentations and diagnosis are as similar as with single ovarian tumours.

The most common symptoms in early stage are abdominal bloating, nausea, vomiting, pain, indigestion, early satiety, loss of appetite, urinary frequency and constipation. Or it may present as acute abdomen due to rupture of ovarian tutor, haemorrhage or torsion of ovarian cyst.

In advance stages may present as dyspnea due to ascites, diaphragmatic compression or due to metastasis to lungs, deep vein thrombosis, cachexia. Abnormal uterine bleeding can occur in Hormone secreting ovarian tumours.

Collision tumours are clinically and radiologically indistinguishable from single ovarian tumours, hence generally collision tumors are diagnosed post operatively, by histopathological examination.

A case report and literature review was done by Borges et al, Portugal in 2019.[1] They reported 3 cases of colliding mature cystic teratoma with mucinous cystadenoma and one case of mature cystic teratoma colliding with benign Brenner tumor in the ovary and they also have provided a review based on 35 other cases identified by PubMed search for original articles electronically listed until October 2019.

Ozbey C3 reported a collision serous papillary adenocarcinoma and adult granules cell tumor in same ovary in a 50 year P1L1 woman.

Bachhav et al reported a serous cyst adenoma with co-existing stromal tumor with sex cord stromal elements in a 18 year old girl.[4]

Bichel reported a collision of papillary serous cystadpnocarcinom and a granulosa cell tumour in the same ovary of a seventy-five-year-old woman.[5]

Most common combination is of mature teratoma -serous epithelial lesion, either benign or malignant. Other examples are combination of epithelial and stromal tumours.

It is important to histologically differentiate collision tumors with mixed tumors which are composite ovarian tumours formed due to intermixing of different components in one mass like the mixed malignant mullerian tumors.

Serous cystadenocarcinoma

They are the most common epithelial ovarian cancers accounting or 60% of all epithelial ovarian cancers.

Benign serous tumors most frequently occur between the fourth and fifth decades of life. They vary in size from 3 cm to very large size.

Cut section has variegated appearance with areas of haemorrhage, necrosis, with papillary excrescences and projections. 'Psamomma bodies': extracellular round laminar eosinophilic concentric rings of calcifications.

Non epithelial ovarian cancer account for about 10% of all ovarian cancers, among which sex cord stromal tumours account for 5-8%. This group of ovarian neoplasm is derived from the sex cords and the ovarian stroma.

They are composed of female cells such as granulosa and theca cells and male cellssuch as sertoli and leydig cells.

Granulosa cell tumour is the most common (70%) of sex cord stromal tumour, 2-5% of all ovarian cancers.[6] Two major forms of granulosa cell tumors are recognized: the adult form (95%), which primarily occurs in middle-aged and older women, and the juvenile form (5%), which typically occurs in children and younger women. These are hormone secreting tumours - may present as abnormal uterine bleeding or post-menopausal bleeding

Juvenile granulosa cell tumors: approximately half occur before puberty, because of their estrogenic hormone production, many of these tumors result in precocious sexual development.

Adult granulosa cell tumors are considered to be tumors of low grade or low malignant potential.

Grossly range from few millimeters to 20 cm or more, they are multi cystic, the solid part is granular, trabeculated, greyish yellow in colour. Microscopy- classically the cells are round with scant cytoplasm with hyper chromatic nucleus. "Coffee bean" grooved nuclei are characteristic. These cells have a tendency to arrange themselves in small rosettes around a central cavity filled with eosionophillic fluid- it is 'Call Exner' bodies.[7]

CONCLUSION

It is important for gynaecologist, radiologist and pathologist to be aware of occurrence of collision tumours. Due to rarity of such lesions, the knowledge of its actual etiopathogenesis, epidemiology is limited. Histopathogical diagnosis of such neoplasms becomes very important, to provide appropriate treatment based on the individual biological characteristics of each component of collision tumours.

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

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Cite this article as: Vernekar VM, Gollar PF, Sana S, Kumar SS. Ovarian collision tumour: a rare case of serous cystadenoma with granulosa cell tumor of ovary. Int J Reprod Contracept Obstet Gynecol 2023;12:1879-82.