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# COLLISION TUMORS OF OVARY: A RARE FINDING CASE REPORT FROM QUETTA, BALOCHISTAN

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**Abstract**

*Collision tumors are rare pathological entities characterized by the coexistence of two histologically distinct and independent neoplasms within the same organ, without any transitional or intermixed zones. Although collision tumors have been documented in several organs, including the gastrointestinal tract, skin, adrenal glands, lymph nodes, uterus, and central nervous system, their occurrence in the ovary is exceedingly rare. We report a rare case of an ovarian collision tumor in a 48-year-old multiparous woman who presented to the Gynecology Department with complaints of vaginal itching and oligomenorrhea for six months. Laboratory investigations revealed a mildly elevated serum Cancer Antigen-125 (CA-125) level of 84.2 U/mL. Contrast-enhanced computed tomography demonstrated a well-defined, rounded cystic lesion in the right ovary. The patient underwent right ovarian cystectomy, and the excised specimen measuring 10.8 × 9.7 × 6.2 cm was submitted for intraoperative frozen section evaluation. Histopathological examination confirmed a rare collision tumor composed of serous cystadenofibroma and mature cystic teratoma. Accurate recognition of individual tumor components is essential to distinguish collision tumors from mixed neoplasms, as this has important implications for appropriate surgical management and prognostic assessment.*

**Keywords:** *CA-125, Collision tumor, Ovary, Mature cystic teratoma, Serous cystadenofibroma*

## INTRODUCTION

Collision tumors are a very uncommon type of tumors, which is combined of two neoplasms with in one organ and different histological features are co-exist within the organ. This tumor has been reported in gastrointestinal tract, skin, adrenal, lymph-nodes, uterus, central nervous system, but a rare entity in the ovary (1). The most common among the group is co-existing mucinous cystadenoma and teratoma. The mature cystic teratomas make up about 10-20% of the total ovarian tumors but only 2-10% of teratomas are related with co-existent mucinous cystadenomas, so only a handful of cases are reported to date. While combined serous cystadenoma or serous cystadenofibroma and mature cystic teratoma are even rarer (2).

## CASE REPORT PRESENATATION

A 48-year-old multiparous woman presented in the Gynecology Department of Aria Institute of Medical Sciences, Quetta, with complaints of dysuria, vaginal itching, and oligomenorrhea for six months. No mass was revealed in the abdominal examination. The uterus was also fine on examination and normal in size. CA 125 was 84.2 U/ml. The cut surface of the ovarian mass appeared multi-cystic with an area exhibiting papillary excrescences and a separate cavity filled with hair and cheesy material (Fig. 1a & b**)**. The CT scan revealed a well-defined, rounded cystic lesion in the left adnexa with an internal fat component, measuring 7.8 x 7.2cm, suggestive of a dermoid cyst (Fig. 1c). No enhancing solid internal component is noted. No definite internal calcification is seen. The Right ovarian cystectomy measuring 10.8 x 9.7 x 6.2cm was sent for frozen section, followed by a Total Abdominal Hysterectomy with bilateral Salpingo-Oophorectomy. The frozen section and later the paraffin-embedded blocks stained with H&E stain showed solid cystic ovarian parenchyma partially lined by stratified squamous epithelium with pilosebaceous units, keratinous debris filling the cystic cavity, focal respiratory type ciliated columnar epithelium, and foci of mature cartilage; diagnosed as Mature Cystic Teratoma (Figs. 1d & e). In addition to this, serous

cystadenofibroma was also identified as a thick fibrotic cyst wall lined by a single layer of cuboidal epithelium with focal intact cilia, and this lining was diffusely positive for immunohistochemical stain WT1 (Figs. 1f-h). Hence, a diagnosis of collision tumor consisting of Serous Cystadenofibroma with Mature Cystic Teratoma was given to the patient.

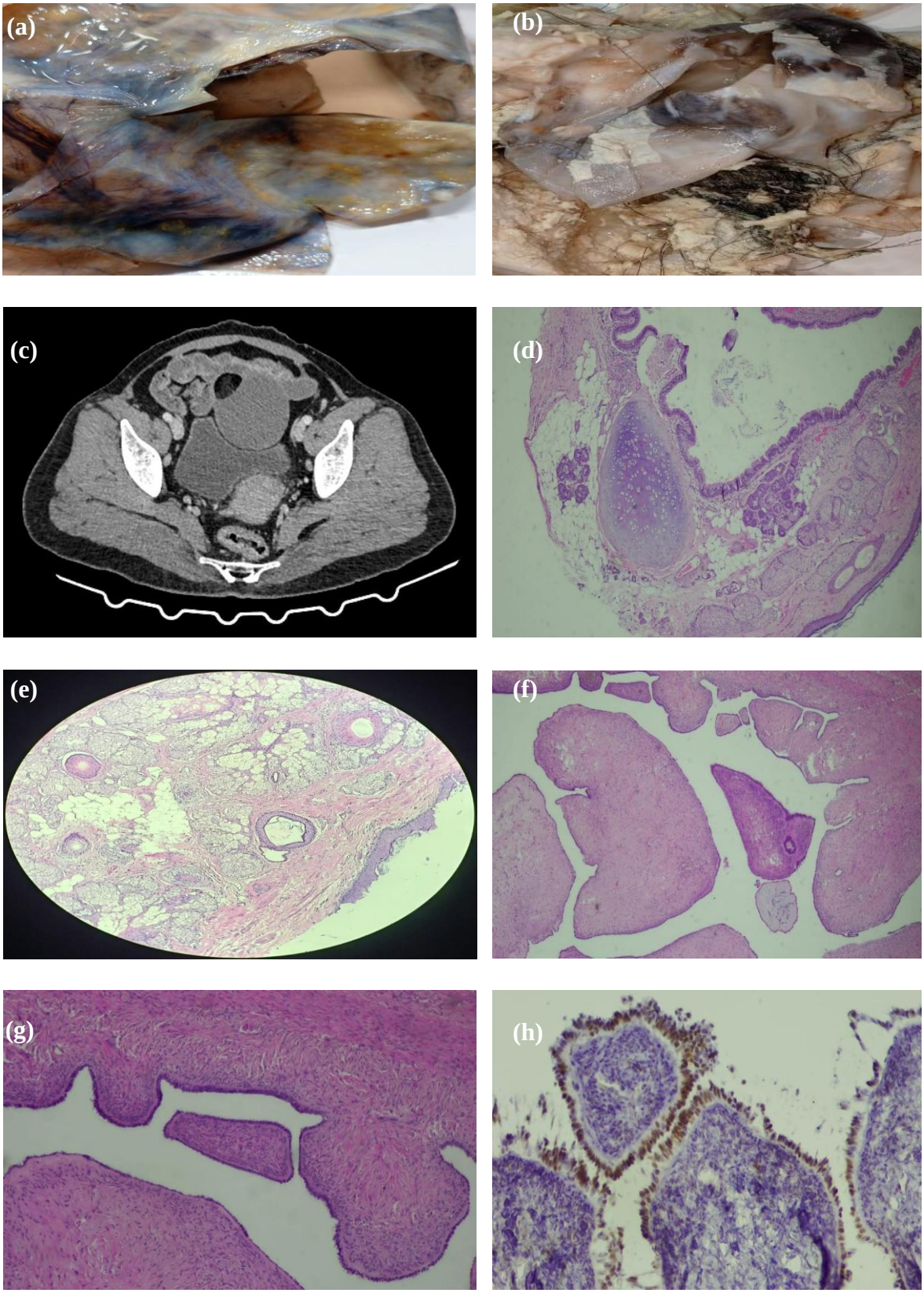


**Fig. 1 (a).** Ovarian cyst with focal area having raised projections; **(b).** Ovarian cyst with cheesymaterial and hair shafts; **(c).** CT scan report showing cystic lesion in the left adnexa with internal fat component suggestive of dermoid cyst; **(d).** H&E (20X)- Section show cartilage surrounded by outer layer of cyst with single layer of columnar cells; **(e).** H&E (20X)- Section with keratinized stratified squamous lining with underlying skin adnexa; **(f).** H&E (10X)- Section show surface having serous cystadenofibroma lining of columnar epithelium along with underlying thick fibrotic wall; **(g). (**H&E (20X)- Section show surface having serous cystadenofibroma lining of columnar epithelium along with underlying thick fibrotic wall; **(h).** IHC stain WT1 (40X) - Highlighting the serious nature of the lining epithelium

# DISCUSSION

The origin of teratomas is still widely disputed. The most accepted theory is that they arise from primordial germ cells. Germ cell tumors comprise approximately 30% of the primary ovarian tumors, and of these, 95% are mature cystic teratomas.

The first hypothesis is that, both primary tumors have same origin from a pluripotent stem cell. A tumor cell changes the micro-environment which will continue to develop the other primary tumor or seeding of metastatic tumor cells. Various tumors are induced by the action of carcinogenic factors with various tissues the other published data represents that two primary tumors can existence is by chance (3). Usually Collision tumors are diagnosed after operations in histopathology examinations and it must be differentiated by composite tumors where there is intermixing of tumor lines, such as in Malignant Mixed Mullerian tumors. According to published data usually collision tumors has a radiology related hints, patient having of non-fatty fluid in the cyst and big solid like material in the mass of ovaries. This presences will point towards two various tumors in the same ovary. When imaging features of an ovarian cyst cannot be attributed alone to a teratoma, the likeliness of a collision tumor should be reasoned. Absolute operative excision followed by help of histopathology judgment is necessary to determine its clear constituent and to prevent misdiagnosis as a malignancy (4).

# CONCLUSION

Though collision tumor of the ovary is very rare, the pathologist and surgeons should be aware of the existence of such tumors. Radiological clues and their confirmation in a frozen section can help in avoiding unnecessary extensive surgeries.

## Conflict of interest:

Authors declared no conflict of interest.

## Authors' contribution:

LZ Supervised the study, responsible for case identification and clinical data collection; MHA Histopathological evaluation and diagnosis; MAH Critically reviewed the manuscript.

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