Case Report

Histopathology of Ovarian Collision Tumor: A Rare Case Report

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Abstract

Collision tumour is defined as the coexistence of two or more adjacent but histologically distinct tumours without histological mixture in the same tissue or organ. Collision tumours involving ovaries are extremely rare. Although they have been reported in various organs, ovarian collision tumours are very rare. An ovarian tumour with a cystadenoma or cystadenocarcinoma, typically of the mucinous type, is the most commonly encountered combination. Each component of the collision tumour occurs coincidentally, and no connection is found between the tumours. Our case is a collision tumour of the ovary composed of serous cyst, mucinous cystadenoma, and mature cystic teratoma (dermoid cyst). The aim is to present a rare case.

Histopathological processing was done, and Hematoxylin (H) and Eosin (E) stain was used for staining. Though very rare, it is necessary to be aware of collision tumours and the combination of tumours that exist, as the appropriate treatment can then be given to the patient. The most common form of ovarian collision tumour in the literature is the combination with teratoma. Histological recognition of such neoplasms is important, allowing appropriate treatment to be offered to patients according to the individual biological characteristics of each of the components.

Keywords:

Collision tumour, Mucinous cyst, Serous cystadenoma, Teratoma

Introduction

Collision tumours are histologically distinct neoplasms that coexist in the same organ without any transition zone or histological intermixing [1]. Collision tumours have been described in various body organs, e.g., skin, stomach, esophagus, liver, colon, bone, kidney, brain, and lung [2]. However, their occurrence in the ovary is rare. Very few cases have been described—only 35 cases were identified by a PubMed search for original articles electronically listed until October 2018 [2]. Teratoma is one of the most common collision combinations in the ovaries. Ovarian teratomas are the most common ovarian tumours, especially benign mature cystic teratomas, which are known as dermoid cysts. Ovarian mucinous cystadenoma represents approximately 80% of the ovarian mucinous neoplasms and 20–25% of all types of benign ovarian tumours. Generally, mucinous cystadenomas are larger than serous cystadenomas and rarely present bilaterally. Mature cystic teratomas co-existing with a mucinous cystadenocarcinoma are infrequently encountered. Here we have discussed a collision tumour of the ovary with the simultaneous association of serous

cyst, mucinous cystadenoma, and mature cystic teratoma (dermoid cyst).

Pathogenesis: The pathogenesis of ovarian collision tumours is not fully understood. However, many hypotheses have been put forward to understand this: Alteration in the microenvironment, such as angiogenesis and inflammation, by the primary tumor could facilitate the growth of a second primary tumor [3, 4]. The occurrence of two distinct histological subtype tumors can purely be coincidental, as they may originate from neighbouring tissues [5, 6]. The two distinct tumors in the collision tumour may have a common pluripotent precursor stem cell, from which they originated. Simultaneous proliferation of two different cell lines [7].

Clinical Significance: It is important to identify collision tumours and also document all their components for optimal treatment.

Case Report

A 40-year-old multigravida presented with abdominal pain for the last 4 months in the Obstetrics & Gynaecology OPD of Gauhati Medical College and Hospital. On per-abdominal examination, a mass was noted in the right lower abdominal region measuring (11 × 10) cm, which was firm in consistency. On ultrasound, a well-defined heterogeneously hypoechoic mass arising from the right adnexa with minimal internal vascularity was described. Her CA-125 level was 49.10 U/ml [normal: 0–35 U/ml], CEA was 9.09 ng/ml [normal: 0–3 ng/ml], and CA-19.9 was 5.60 U/ml [normal: 0–37 U/ml]. Total abdominal hysterectomy (TAH) along with bilateral salpingectomy and right-sided oophorectomy was done due to chances of malignant transformation, and the specimen was submitted for histopathological examination.

Figure 1: Gross view showing cut open uterus with cervix, cut open multiloculated ovarian cyst, and one sided fallopian tube.

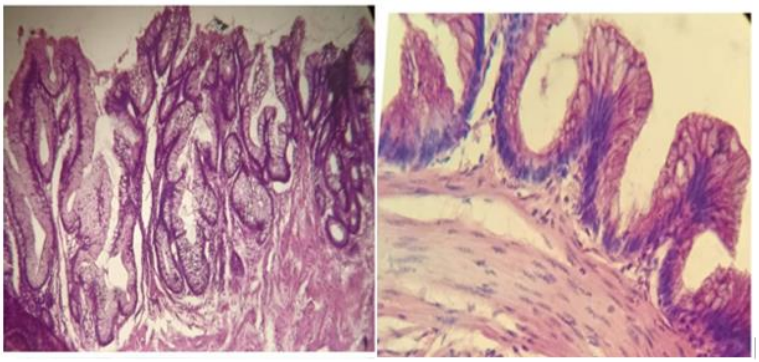

Figure 2: Mucinous cystadenoma: Microscopic view from the multiloculated cyst showing columnar glandular epithelium having basally located nucleus with mild epithelial proliferation.

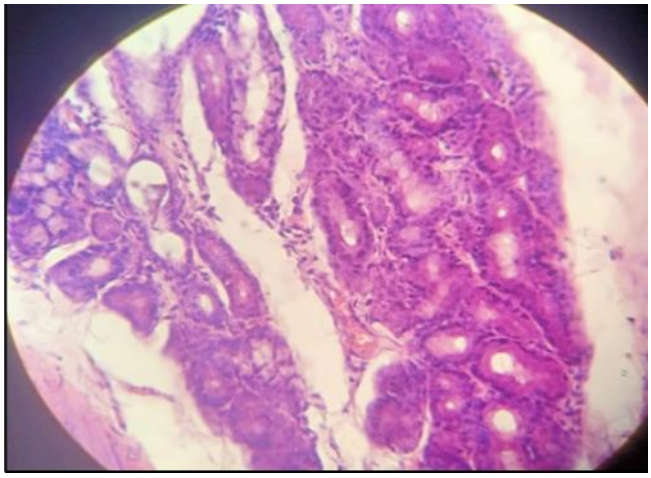

Figure 3: Mature teratoma: Microscopic view shows salivary gland tissue (40 X) , H & E stain

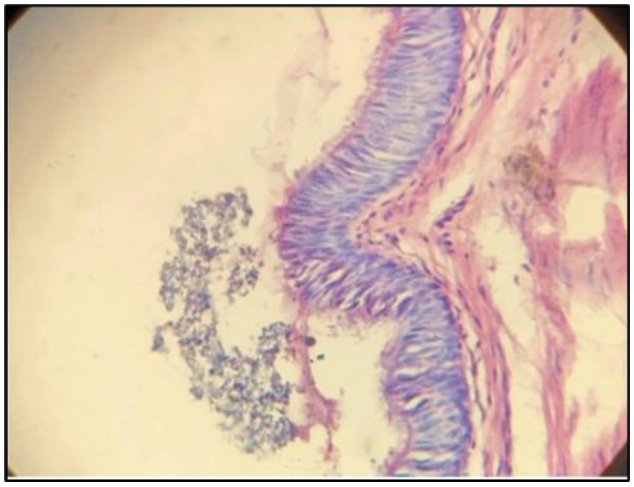

Figure 4: Mature teratoma: Multiloculated cyst shows respiratory epithelium (40 X), H & E stain

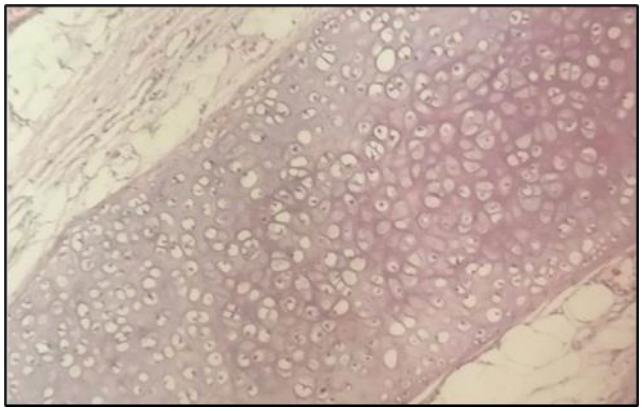

Figure 5: Mature teratoma: Microscopic view from the multiloculated cyst shows cartilaginous component(40 X), H & E stain

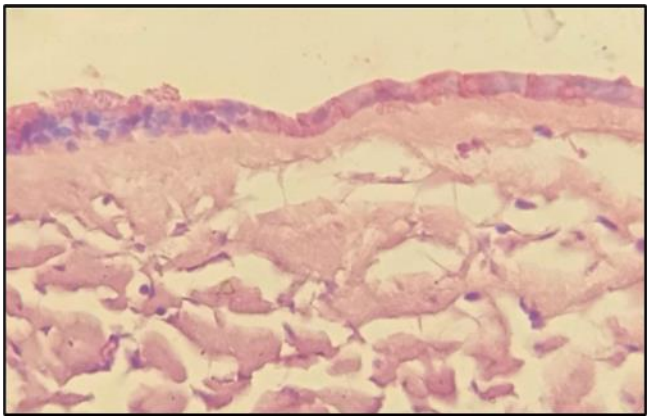

Figure 6: Serous cystadenoma: Microscopic view from the multiloculated cyst shows low-cuboidal epithelium(40 X view),H & E stain.

Discussion

Collision tumours are uncommon neoplasms that represent two or more distinct tumours in the same organ without any histological intermixing. Each component of the collision tumour occurs coincidentally, and no connection is found between the tumours. The collision tumour of mucinous cystadenoma and mature cystic teratoma is the most commonly encountered. Ovarian teratomas are the most common germ cell tumours, which are benign in nature and are composed of mature tissue representing at least two embryonic layers; they are also the most commonly excised ovarian tumours. Mucinous cystadenoma is a benign ovarian epithelial tumour composed of glands lined by columnar epithelial cells without complexity or cytologic atypia. Other combinations of collision tumours reported include mature cystic teratoma with other epithelial ovarian tumours like mucinous cystadenocarcinoma, serous cystadenocarcinoma, choriocarcinoma, cystadenoma, sarcoma, and mucinous tumour. The exact pathogenesis for this tumour coexistence is not clearly understood. Papazious B et al. reported such a rare triple coexistence of a collision tumour [The Indian Journal of Surgery, 227:14:57–60] [8].

Conclusion

This case highlights an extremely rare finding of invasive pulmonary mucormycosis with contiguous spread to the thoracic wall, paravertebral soft tissue, intervertebral disc, vertebral bone marrow, and spinal cord, resulting in spinal mucormycosis. Owing to the rarity of the condition, few case reports exist in the literature, which precludes the development of optimal management strategies and favorable outcomes.

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