CASE REPORT

Collision Tumour of Ovary - A Report of Two Cases

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Abstract:

Collision tumour is defined as the presence of two distinct tumours in the same organ without any histological intermixing. Such tumours involving ovaries are extremely rare. We are presenting report of two cases of ovarian collision tumour. Our first case revealed features of mature cystic teratoma with mucinous cystadenoma. The second case showed components of both mature cystic teratoma and serous cystadenoma. Correct diagnosis of collision tumour will guide the surgeon towards proper treatment and favorable prognosis of patient.

Keywords: Collision Tumor Ovary, Mucinous Cystadenoma, Serous Cystadenoma, Teratoma

Introduction:

Collision tumours represent occurrence of two histologically distinct tumours adjacently in the same organ without any admixture [1]. Although rare, these tumours are described in various organs of body such as stomach, esophagus, liver, kidney, brain, lung, skin, adrenals, uterus, central nervous system and bone [2]. Their occurrence in ovary is found to be very rare. Due to infrequency of these tumours, it is difficult to ascertain the biological behaviour of these tumours. It is debatable in such cases whether outcome depends on the most predominant component or the most aggressive one. In majority of the cases, these tumours are diagnosed during post operative histopathological examination and treated according to clinical stage and nature of most aggressive component. Here, we are presenting two rare cases of collision tumour in ovary.

Case Report:

Case 1:

A 24 year old female presented with complaints of pain and abdominal lump for the past seven months with regular menstrual cycles. Physical examination revealed a soft to firm mobile abdominal mass on the left iliac region. On per vaginal examination, left adnexal mass was felt. Ultrasonography of abdomen revealed a left ovarian cyst measuring 17 × 11cm. Exploratory laparotomy was done and cystectomy specimen was sent for histopathological examination. Gross examination revealed a cystic mass measuring 17 × 13 cm. Cut surface showed a thin walled cyst filled with serous fluid, smooth inner surface and wall thickness measuring 0.2-0.3 cm. On one side of wall, a small cyst identified filled with pultaceous material and hair (Fig. 1a). Sections from thin walled cyst wall showed low cuboidal lining consistent with serous cystadenoma. Sections examined from wall of smaller cyst containing pultaceous material revealed stratified squamous epithelial lining, pilosebaceous unit, hair and colloid filled follicles consistent with a mature cystic teratoma (Figs. 1b, c, d). Post operative phase and regular follow up for six months was unremarkable.

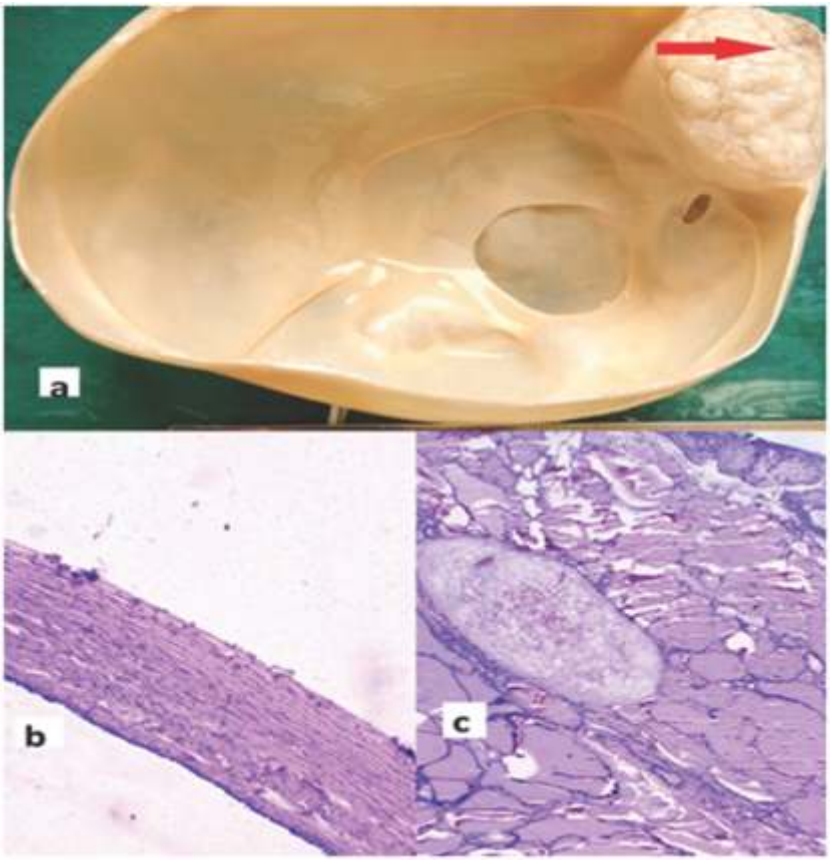

Fig. 1: Case 1(a) Gross Specimen of Ovarian Tumour showing Two Adjacent Cysts, One Large Thin Walled and Other Filled with Pultaceous Material and Hair (Red Arrow), Case 1(b) Photomicrograph showing Thin Walled Cyst Lined by Low Cuboidal Epithelium (H & E × 100) Case 1 (c) Photomicrograph from Smaller Cyst showing Cyst Wall showing Features of Mature Cystic Teratoma (H & E × 40).

Case 2:

A 26 year female presented with on and off abdominal pain on left side for five months. Physical examination revealed a soft, mildly tender, mobile mass in left iliac fossa. Ultrasonography revealed a multiloculated cystic mass measuring 12 × 10 cm. Clinical diagnosis of mucinous cystadenoma was made and left salpingoophorectomy was preformed. Gross specimen revealed a multiloculated cyst measuring 13 × 11 × 9 cm. Cut section shows cyst filled with pale mucinous thick fluid. One of the cysts was filled with pultaceous material and hair (Fig. 2a). Attached fallopian tube measured 5.6 cm. Hematoxylin and eosin stained sections from wall of multilocular cyst showed mucin secreting epithelium consistent with features of mucinous cystadenoma. Sections from wall of small cyst revealed features of mature cystic teratoma (Figs. 2b, c). Patient had no complaints in two visits in next 3 months after that she was lost on follow up.

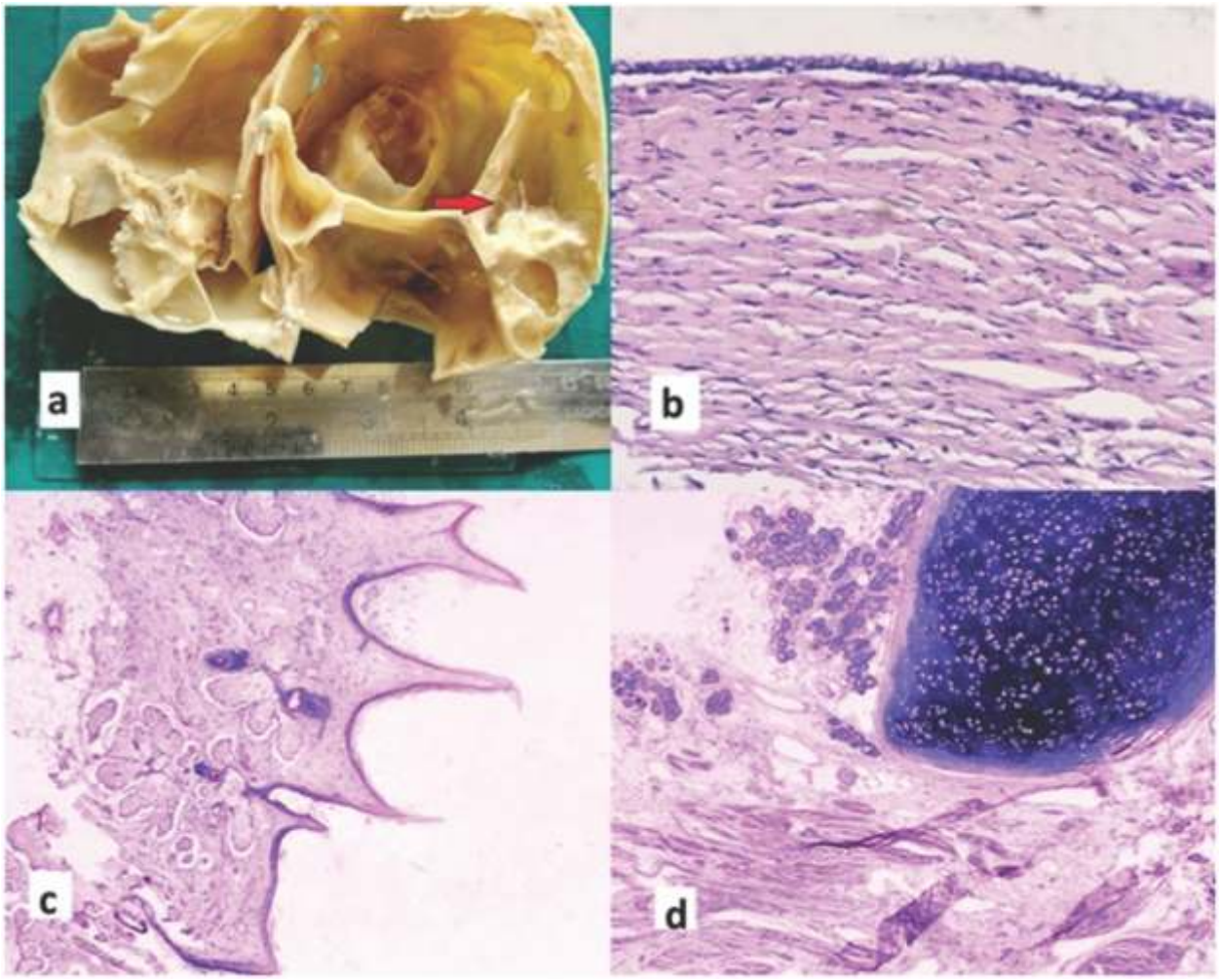

Fig. 2: Case 2(a) Gross Specimen of Ovarian Tumour showing Multiloculated Cyst with one of the Cyst Filled with Pultaceous Material and Hair (Red Arrow), Case 2(b) Photomicrograph from Multiloculated Cyst showing Lining by Mucin Secreting Epithelium (H & E × 200), Case 2(c) and Case 2(d) Photomicrograph showing Features of Mature Cystic Teratoma (H & E × 40).

Discussion:

Collision tumours are described as the occurrence of two or more distinct tumours, benign or malignant in the same anatomic region, but without histological admixture in the same tissue or organ [1]. Such tumours have been reported in almost all major organs of body; however similar tumours arising from ovaries are extremely rare. Collision tumours are mostly unilateral occurring in the age group of 17-66 years. Teratoma is one of the most common components of collision tumour in ovary. The most common histological combination of collision tumour in the ovary is the coexistence of teratoma with mucinous tumours [3, 4]. Many other combinations have been

reported like serous cystadenocarcinoma and dermoid cyst, carcinosarcoma and dermoid cyst, choriocarcinoma and cystadenoma, sarcoma and mucinous tumour, sarcoma and serous carcinoma, serous cystadenoma and sertoli-leydig cell tumor, granulosa cell tumour and ovarian hepatoid carcinoma [2].

Various hypotheses have been proposed to explain the pathogenesis of collision tumour. The first hypothesis says that the occurrence of such tumours is coincidental or chance apposition of two unrelated tumours. According to another hypothesis such tumours may result due to simultaneous proliferation of two different cell lines [5, 6]. The third hypothesis proposes that each primary tumour has its origins in a common pleuripotent stem cell that differentiates into two components [4, 6]. It was also suggested that the oncogenic growth factor produced by a metastatic tumour could induce the growth of primary cancer at the site of metastases or may favor the differentiation of metastatic lesion to mimic the histology of primary tumour from the organ of metastatic lesion [7]. As per another hypothesis, the primary tumour can cause alteration in the microenvironment, such as angiogenesis and inflammation which can facilitate the growth of metastases from a second primary tumour from another organ [8].

Singh *et al*. reported four cases of collision tumours of ovary. Out of four, two cases had a combination of mucinous cystadenoma and teratoma whereas the third case was a combination of serous papillary cystadenoma with teratoma and the fourth case had a combination of serous papillary cystadenocarcinoma and teratoma [2] Kajo *et al.* reported a case of a collision tumour composed of invasive serous cystadenocarcinoma and mature cystic teratoma in the right ovary in a 45-year-old woman [9].

Collision tumours are mostly diagnosed postoperatively after histopathological examination. Kim *et al.* analyzed radiological findings of collision tumours associated with teratoma and found in 6-7 cases of collision tumour that non fatty fluid in the cyst along with large solid component in the ovarian mass points towards the diagnosis [10]. Hence, keeping the differential diagnosis of collision tumours in these anatomic sites, careful grossing and histopathological examination by pathologist is essential. The most important factors which should be considered for further management after surgery are the types of component, most aggressive component and the stage of tumour which will determine the prognosis.

Conclusion:

Collision tumours of ovary are rare entity and recognition of such tumours by the histopathologist intraoperatively if possible or post operatively is very important as this will guide the surgeon to take appropriate treatment strategies depending on the individual biological aggressiveness of each of the tumour components.

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