Squamous Cell Carcinoma Arising in Ovarian Teratoma: A Diagnostic Conundrum

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Sir,

Germ cell tumors (GCT) comprise 20–30 % of the ovarian tumors [1]. Mature cystic teratoma (MCT) is the most common benign GCT comprising 10–20 % of all tumors in women of reproductive age group. The cancers in the ovary are most commonly of epithelial origin with serous cystadenocarcinoma and mucinous cystadenocarcinoma comprising the majority of these lesions. Malignant germ cell tumors are less common and malignant transformation of MCT is rare. Most common malignancy to occur in the setting of MCT is SCC, though other malignancies including sarcomas, melanomas and carcinoid have been highlighted in case reports [2]. The other differentials of SCC in the ovary to be considered are of de novo origin, metastases and transformation in endometriotic foci. De novo origin of SCC in an ovary is extremely rare [3].

We recently reviewed two cases of SCC in the background of MCT. Both these middle aged females presented with a few months history of vague lower abdominal pain and distension. Evaluation revealed unilateral ovarian masses. CA-125 levels were normal. Pre-operative diagnosis of malignant epithelial

ovarian neoplasm was considered in both cases and staging laparotomy was performed. Histopathology, however, revealed a diagnosis of MCT with malignant transformation based on the findings of solid cystic tumor showing areas of calcification, fat and hair [Fig. 1].

The clinical features, imaging findings and per-operative findings are no different from other ovarian malignancies and the diagnosis is established by histopathology. The importance of diagnosing this entity preoperatively lies in the prognosis that has been found to be uniformly poor even after several forms of adjuvant treatment. These tumors usually present in the post-menopausal women with the age range of 45–65 years, though cases of these tumors in young women have been documented in literature [4]. Patients present with non-specific complaints of vague abdominal pain, nausea, vomiting, constipation, vaginal bleeding, abdominal enlargement and weight loss. Examination findings including the abdominal and per-vaginal examination are non-specific and reveal a pelvic or abdomino-pelvic mass.

Imaging in these cases is not specific and confirms the presence of a complex pelvic mass and provides an insight into the disease extent and the presence of metastases that is critical before the surgical exploration is undertaken. However, certain clinical, imaging and biochemical markers for suspecting these cases have been suggested by various researchers. These include older age at presentation, large size (>10 cm at presentation) and proportion of solid component [5]. The most important differential diagnosis to be considered is the metastasis, particularly from cervical carcinoma, by both clinical examination and at histopathology [6].

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Fig. 1 A solid cystic mass with cystic component showing a tuft of hair (*arrows*) (**a**). Solid area of the tumor shows nests and islands of malignant squamous cells (*arrow*) within the ovarian stroma (**b**) [H&E x20X]. Hair shafts (*arrows*) along with nests of tumor cells are seen in the ovarian stroma (**c**) [H&E x40X]. Omentum shows metastatic squamous cell carcinoma (*arrows*) (**d**) [H&E x40X]

Management comprises staging laparotomy with total hysterectomy and bilateral salpingo-oophorectomy and omentectomy with or without pelvic lymphadenectomy. Though, several forms of adjuvant treatment protocols have been followed in case series, limited experience with these tumors and lack of controlled studies prevents any universal recommendations to be suggested in this respect. The prognosis of this entity remains poor, though it is better compared to other transformations encountered in MCT. Various factors affecting prognosis include FIGO stage, tumor grade, growth pattern, lympho-vascular invasion, invasion of the cyst wall, tumor dissemination and ascites [7]. Thus, increased awareness among clinicians, pathologists and radiologists is required in diagnosis of the rare entity of malignant transformation in a MCT both pre-operatively and on histopathology. This occurrence should be considered in old age, large size tumors and those having a large solid component.

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