CASE REPORT

MALIGNANT TRANSFORMATION OF MATURE CYSTIC TERATOMA OF THE OVARY IN A 19 YEAR OLD PREGNANT WOMAN: A CASE REPORT AND REVIEW OF LITERATURE.

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ABSTRACT: Mature cystic teratomas (MCT) are common ovarian neoplasms accounting for 20% of all ovarian tumors. Malignant transformation is reported in 1-2% of mature cystic teratomas of ovary. The most common malignant evolution is that of squamous cell carcinoma. Malignancy in mature cystic teratoma occurs rarely during the first two decades of life. We report a case of malignant transformation into squamous cell carcinoma in mature cystic teratoma of ovary in a 19-year-old pregnant woman. This indicates that malignant transformation in MCT of ovary can occur in patients <20 years of age.

KEY WORDS: Mature cystic teratoma, malignant transformation, ovary, squamous cell carcinoma.

INTRODUCTION: Mature cystic teratomas of the ovary are one of the most common benign ovarian tumors and 80% occur during reproductive years (1). They account for 70% of benign ovarian neoplasms among women younger than 30 years (2). Malignant transformation of MCT occurs in 1-2% of the cases (2,3,4). The most common malignant evolution is that of squamous cell carcinoma. Malignancy in association with MCT of ovary occurs rarely during the first 2 decades of life (5). A few cases have been reported during pregnancy.(1,2)

CASE REPORT: A 19-year-old primigravida presented with amenorrhea of 9 months. Routine ultrasonogram revealed single live intrauterine gestation and maternal right sided ovarian dermoid cyst. Patient had full term normal delivery. A week later, she was operated and right salpingo-oophorectomy was done. Per-operatively, the ovarian tumor was intact and not adherent to surrounding structures. Grossly, the tumor was an ovoid cystic mass measuring 10x6x4 cm. with smooth and intact external capsular surface and fallopian tube was stretched over it. On cut section, the cyst was unilocular containing sebaceous material and hair. The cyst wall was 0.2-0.4 cm. thick. At one focus, the cyst wall was thickened to 1.5 cm. with few papillary excrescences projecting into the cyst. Microscopy showed tissue composed of benign ectodermal derivatives- skin, hair follicles, sweat, and sebaceous glands. Sections from the thickened area and papillary excrescences showed invasive well differentiated squamous cell carcinoma merging with the benign areas.

CASE REPORT

DISCUSSION: Mature cystic teratoma of the ovary is one of the commonest benign tumors occurring during the reproductive years (2). They constitute 95% of ovarian tumors of germ cell origin. (1) Malignant transformation in MCT is seen in 1-2% of cases.(2) Although germ cell tumors generally occur in younger patients, squamous cell carcinoma arising from MCT occurs in patients who are older than those who develop other malignant germ cell tumors. Mean age of patients was 55.2 years in a study by Kikkawa F et al.(6) However, it has been reported in younger patients. A 24-year-old nulliparous woman with bilateral ovarian teratoma and squamous cell carcinoma (7), a 31-year-old pregnant woman with squamous cell carcinoma in dermoid cyst(1) and a 33-year-old pregnant woman who had squamous cell carcinoma arising in an ovarian MCT (8) have been reported. Malignancy in association with dermoids however, occurs only rarely during the first 2 decades and three quarters of such cases have been detected between the ages of 30-70 years with a peak incidence at 40-70 years.(5)

Prognosis of patients with squamous cell carcinoma of the ovary is poor. In most instances, squamous cell carcinoma arising in MCT is not diagnosed pre-operatively. There are no signs or symptoms which are characteristic of malignancy arising in MCT. Malignant component sometimes exists in only part of the lesion, causing difficulty in pre-operative diagnosis. Making a differential diagnosis is important for patients with ovarian tumors because the surgery performed is different for benign and malignant tumors. There is no definite method to diagnose malignant transformation of MCT at a very early stage. According to Singh P et al(1) dermoid cysts in women above 30 years of age with unusual adherence, suspect solid areas or firm, friable, myxomatous or variegated portions should be suspected to contain malignancy. In the present case, the patient was <20 years of age. Per-operatively, the tumor capsule was intact and not adherent to neighbouring structures. On cut section, the cyst wall was focally thickened with papillary excrescences. Kikkawa F et al evaluated tumor markers, tumor size and age as parameters for differentiating between MCT and squamous cell carcinoma arising from MCT.(7) They conclude that SCC and CEA were superior to CA125 and CA19-9 as screening markers and clinical factors of age and tumor size were quite important in the differential diagnosis of squamous cell carcinoma arising from MCT and MCT. A good clinical strategy for differential diagnosis of MCT-like ovarian tumors maybe to examine SCC and CEA levels if the patient's age is 45 years or older and the tumor is >99mm. in greatest dimension according to the study. Another study reported that serum SCC level>2.5ng/ml and patient's age >40 years is a suitable marker for malignant transformation in MCT.(9)

According to Yamaguchi K et al, although serum tumor markers, patient's age and tumor size are useful factors in distinguishing malignant transformation from MCT, there is no one definite factor or one combination to satisfy both the sensitivity and specificity of the diagnosis.(2) Surgical removal is the best treatment to prevent MCT from malignant transformation, but not all patients accept surgical treatment. If patient desires a conservative follow up, repeat blood tests for serum markers and monitoring tumor size by imaging are useful in decreasing false positive cases.(2)

In the present case the patient was 19-year-old, an age at which malignant transformation is very rare. But the tumor was 10 cm. in greatest dimension with wall thickening and papillary excrescences which give rise to a suspicion of malignancy.

CONCLUSION: This case highlights that malignant transformation in MCT can occur in young patients <20 years of age and large tumor size and presence of solid, variegated areas should be suspected to contain malignancy. Hence, thorough sampling of the cyst wall should be done in a

CASE REPORT

MCT especially solid and irregular areas to rule out malignancy regardless of the age of the patient.

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Fig.1: Scanner view showing (H&E, 50X) dermoid cyst lining on the right and squamous cell carcinoma on the left.

CASE REPORT

Fig.2: Low power view showing (H&E, 100X) stratified squamous keratinised epithelium of mature cystic teratoma.

Fig.3: High power view showing (H&E, 450X) malignant squamous cells lining the cyst wall.