DYSGERMINOMA OF OVARY IN ADOLESCENT GIRLS

(A Report of 3 Cases with Review of Literature)

by

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Introduction

The tumour of ovary is often wrongly spelt dysgerminoma, the prefix dis was originally applied to denote "two" and not "difficult" or "disordered" and refers to the fact that tumour occurs in both sexes. Chenot (1911) termed disgerminoma to indicate a possible origin from 'neutral' or "disgermal" cells which have lost their capacity for further differentiation into female granulosa cells or male sertoli cells. The term dysgerminoma is now more generally used since the neoplasm is thought to arise from primitive germ cells which have migrated from the yolk sac to gonadal ridge Extragonadal dysgerminomata (Meyer 1931) have been described in the anterior mediastinum in the region of the pineal gland.

In most of the reports of Meyer 1931 a great emphasis was laid upon the frequent occurrence and sexual under development and pseudohermaphroditism associated with this tumours.

Material and Methods

This present paper deals with three histologically proved and well documented cases of dysgerminoma recorded in the department of Obstetrics and Gynaecology, Seth G.S. Medical College, K.E.M. Hospital, Parel, during two years period. All 3 cases were adolescent girls. Their salient clinicopathological features have been shown in Table 1.

The chief complaints were either lump in pelvis or pain in lower abdomen. Menstrual cycles were not affected in the two cases who were menstruating and the third case had not reached menarche. All the necessary investigations were within normal limits. Gonadotrophins and urinary 17 KS levels were normal in the two cases who were menstruating. In the third case not menstruating, the gonadotrophins were within the high normal range.

All 3 cases were explored. A unilateral, solid, encapsulated ovarian tumour

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TABLE

S.N.	Age	Presenting symptoms	M.H.	Sexual development	Gross and Microscopic features	Uri/Bi Lateral	Meta-stasis	Treatment
1	16 yrs.	Lump in pelvis— 1 year Vague lower abd. pain	3/28 RMPL	Breast: Normal (B3)* Axillary hair } Scanty Pubic hair } No sexual maldevelop-ment	Rounded greyish White Friable mass encapsu-lated 10 x 8 x 4 cms. Micro-dysgerminoma (Photographs) Fig. 1	Unilateral	Nil	Unilateral Salpingo-oophorectomy
2	16 yrs.	Gradually increasing abdominal mass for 6 months and Dyspepsia	5/30-35 RMPL	Breast: Normal (B3)* Axillary hair } Moderate Pubic hair } No sexual maldevelop-ment	Lobulated ovarian Mass 14 x 8 x 6 cms. Greyish white with area of haemorrhage and Necrosis capsule Intact Microscopic: dysger-minoma with Necrosis and haemorrhage	Unilateral	Nil	Unilateral Salpingo-oophorectomy
3	15 yrs.	Primart amenorrhoea Occasional episode of abdominal pain — 8 months	Not Mens-truating	Breast: Infantile (B1)* Axillary hair } Scanty Pubic hair } No sexual maldevelop-ment	Lobulated, encapsulat-ed, ovarian mass 12 x 8 x 8 cms. Microscopic: dysgerminoma	Unilateral	Nil	Unilateral Salpingo-oophorectomy

* Tanner's classification of breast development (16).

was found in all the cases. There was no ascites, no pelvic deposits and the omentum was normal. The uterus was normal in size in all except in the third case with amenorrhoea whose uterus was smaller than normal UCL 2"). Opposite side adnexa was normal in all 3 cases. Hence unilateral salpingo-oophorectomy was carried out in all.

Macroscopically the tumour was solid, the capsule was intact, the external surface was smooth and no dilated veins were seen in all the 3 cases. Cut surface showed homogeneous greyish pink to yellowish appearance. One case revealed areas of haemorrhage and necrosis. All tumours were unilateral and the opposite ovary was normal. Wedge biopsy was taken from the opposite ovary and was sent for biopsy. Histopathological sections did not show any tumour cells.

Microscopically the tumours composed of large cells arranged in bundles and alveoli, separated by a network of connective tissue infilterated with lymphocytes. Multinucleated tumour cells were also seen.

Follow up was possible in all 3 cases for a period ranging from 3 to 6 months where no recurrence or distant metastasis were recorded. The third case who had amenorrhoeoa, started menstruating 6 months after exploration.

Discussion

Dysgerminoma have been found in patients from seven months to 70 years of age but occur most commonly in the 2nd and 3rd decades, Breen, Neubedesr (1967) reporting from U.S. found the average age of presentation to be 20.8 years. In southern India they are found at a slightly earlier age 64% of the neoplasm occurring in girls in their 2nd decade (Mathur *et al* 1981). As shown in the Table, we found all the cases around the age of 17 years.

The reported incidence of dysgerminoma of ovary in Western literature is from 0.7-3.7% of all ovarian tumour and 4.7% of primary malignant tumour of ovary. Mathur *et al* (1981) from India has reported the incidence 0.9%. The incidence is 2% (3 cases/152 ovarian tumours) in the present series.

The tumour is usually unilateral but bilateral involvement of ovary has also been reported in 14.8% of cases (Muller *et al* 1950).

Meyer (1931) drew attention to the relation between dysgerminoma and intersex states but Fathalla *et al* (1966) pointed out that it has not been sufficiently recognised that Meyer used the term "dysgerminoma" to refer to tumours of both ovary and testis and his series included no definite case in a female pseudohermaphrodite. Although the tumour has been considered amongst non-hormone producing tumour, yet its association has been observed with sexual maldevelopment, menstrual abnormalities and pseudohermaphroditism. Cases of precocious sexual development have also been reported with this tumour. Mayer, 1931 reported 27 cases of dysgerminoma associated with pseudohermaphroditism. In our series, however, no case was found associated with such abnormality. However, there is increasing evidence that dysgerminoma occurs in sexually normal females. It is unlikely that a dysgerminoma would arise in a patient with Turner's syndrome (Meyer 1931) but a dysgerminoma has been found in association with a contralateral streak gonad.

Dysgerminoma is sometimes seen coexisting with pregnancy (Goyal *et al* 1979).

Regarding the histogenesis of dysgerminomas Novak and Woodruff (1968) maintain that a neutral germ cell is the best explanation for the usual lesion in male or female. An origin from, or associated with a teratoma may be noted occasionally (Muller *et al* v950).

A recent review of the literature for the past 20 years showed dysgerminoma was associated with malignant teratoma, choriocarcinoma and adenocarcinoma. Abell *et al* (1965), in the group of children and adolescents found 11 pure dysgerminomata, 1 such tumour combined with endodermal sinus cell tumour and other lith choriocarcinoma and teratoma.

The main route of dissemination is by the regional lymlhatics but hematogeneous spread may occur late in the disease. The most commonly involved lymph nodes are retroperitoneal paraortics, mediastinal and sypraelavicular. At necropsy lungs and liver are involved in 90% of cases (Cunnigham and McGarth 1942), and the kidney is not infrequently the site of metastasis. Bony metastasis occasionally cause paraplegia if spinal cord is involved.

Therayy

Dysgerminoma is a radiosensitive neoplasm and the basic treatment would therefore seem to be surgical excision followed by radiotherapy, and the interval of which should be determined by spread of the tumour and distribution of metastasis. Doses of order of 2500 rads to abdomen spread over 3 weeks, and possibly 1000 rads to pelvis and paraaortic lymphnodes should be adopted. However, most of these tumours are seen in childbearing years and the tumour is unilateral encapsulated preservation of fertility may be desired. In this situation unilateral oophorectomy combined with radiotherapy to the pelvis only at the site of the tumour is advocated. If the tumour ruptures during operation postoperative radiation is indicated and possibly irrigation of pelvis by cytotoxic agent (Herbert and Catllman 1974).

Prognosis

A five years survival rate varies from 27% to 75%. The prognosis depends upon the age, haemorrhagic areas, ascites and presence of teratoma and choriocarcinoma. Wider and O'Leary (1968) reported 5 years survival rate as 60% in younger patients (15-39 years) Muller *et al* (1950) reported 427 cases, 75.6% well for first year after surgical treatment but 27.8% survival for 5 years and 4.8% for 10 years. Likewise in 1967 Felmus and Pedowitz reported 5 years survival in 33%.

Summary

3 cases of dysgerminoma in young adolescent patients are reported and literature on the subject is reviewed.

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