FUNCTIONING OVARIAN TUMORS IN THE ADOLESCENT

by

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Summay

Fifty five cases of ovarian tumors in the adolescent age group were studied over a period of 10 years, at K.E.M. Hospital, Parel, Bombay. There were 7 (12.74%) functional ovarian tumors. The clinical presentatiton, management and follow-up findings of these 7 cases are presented. The rational mode of management of functioning ovarian tumours in the adolescent patients is discussed.

Introduction

Neoplasms of the ovary present a challenge to the gynaecologist, especially in the adolescent girls. The clinical presentation is varied. The incidence of functioning tumours is high and consequently there is a deleterious effect on the physical and psychological development of the young girl.

The functioning tumours are diagnosed early because of their hormone production which produces clinical manifestations (Abel and Holtz). However, some of them are associated with an increased risk of recurrence or malignant change, so that the early diagnosis and treatment may not turn out to be as beneficial as expected.

Material and Methods

Between January 1971 to December 1980, a total of 55 adolescent girls presented at K.E.M. Hospital, Parel, Bombay, with ovarian tumours.

A detailed history was taken with an emphasis on menstrual disturbances hirsutism, defeminization and masculinization.

Investigations performed on these patients included haemogram, blood urea nitrogen, anteroposterior plain radiograph of the abdomen and pelvis, intravenous pyelography when essential, and ultrasonic scan of the abdomen and pelvis when feasible.

An exploratory laparotomy was performed in all cases. Samples obtained for pathological examination included peritoneal washings for cytological study, the ovarian tumour for histopathological study, removed alone or with the uterus and adnexal structures as deemed essential, biopsy of enlarged lymph nodes, if any, and omentectomy.

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A frozen section study was performed, when in doubt about the benign or malignant nature of the tumour, to decide the feasibility of conservative surgery.

Post-operatively radiotherapy or chemotherapy was given.

The patients were followed up regularly to detect recurrences early, if any.

Results

Table 1 shows the type and distribution of the ovarian tumours in this study group.

This classification was adopted for the sake of simplicity. Though dysgerminoma is considered to be hormonally inert, it is capable of producing hormones and causing amenorrhoea, menorrhagia, clitoromegaly, sexual underdevelopment and rarely masculinization. Hence it is included in the functional group.

None of the patients other than the 7 described in the functional group had any evidence of hormone production.

Out of 4 cases of dysgerminoma, 2 prestnted with widespread intraperitoneal metastases. The third patient came with a complaint of a large lump in lower abdomen associated with pain off and on. The fourth patient presented with severe dysmenorrhoea and was found to have a solid, mobile ovarian tumour. The first 3 were treated by abdominal hysterectomy with bilateral salpingo-oophorectomy, omentectomy, and resection of intraperitoneal secondaries till the local residues were 1 cm in diameter or less. All 3 were given radiotherapy to abdomen and pelvis postoperatively. The last patient had a well encapsulated tumour with negative peritoneal cytology and no spread of the tumour to any other structures. Oophorectomy, bisection of the opposite ovary and suspension of the other ovary out of the field of irradiation were done, followed by post-operative radiotherapy to the abdomen and pelvis. The first 2 patients expeired in less than 3 months from the

TABLE I

Type and Distribution of Ovarian Tumours

Ovarian tumor	No. of cases	Per cent
I. Benign		
(1) Benign cystic teratoma	15	27.30
(2) Simple serous cystadenoma	14	25.48
(3) Mucinous cystadenoma	10	18.20
(4) Fibroma	1	1.82
(5) Endometrioid cystoma	1	1.82
II. Malignant		
(1) Mucinous cystadenocarcinoma	3	5.46
(2) Endodermal sinus tumor	1	1.82
(3) Malignant teratoma	1	1.82
(4) Mesonephric carcinoma	1	1.82
(5) Immature teratoma	1	1.82
III. Functioning		
(1) Dysgerminoma	4	7.18
(2) Choriocarcinoma	1	1.82
(3) Granulosa cell tumor	1	1.82
(4) Arrhenoblastoma	1	1.82
Total	55	100.00

time of operation. The other 2 are alive and well, 3 and 7 years after the operation respectively.

The patient with primary choriocarcinoma of the ovary was a 16 year old girl with well developed secondary sex characteristics, irregular and profuse vaginal bleeding, and an ovarian mass. She had a very high HCG titer in urine (1:2000). At exploration, she was found to have a stage III choriocarcinoma of the left ovary. Despite total abdominal hysterectomy, bilateral salpingo-oophorectomy and omentectofy followed by combination chemotherapy (vincristine, actinomycin-D and cyclophosphamide), she expired after 8 months.

The patient with arrhenoblastoma was an 18 year old woman with two children. She came with secondary amenorrhoea for 3 years, hirsutism and a lump in lower abdomen. She was found to have a large, cystic ovarian tumour of the size 24 weeks' gestation, clitoromegaly, and right-sided pleural effusion. There were no signs of defeminization. Vaginal smear showed parabasal cells. Pleural fluid had no malignant cells. Serum testosterone level was 1.8 ng/ml. A unilateral salpingo-oophorectomy was performed. There were fleshy white friable areas in a cystic tumour, the histopathological examination of which showed a Sertoli-Leydig cell tumour (Fig. 1). Following surgery, her hirsutism regressed, the pleural effusion disappeared but the clitoromegaly persisted. Two years after the operation, she was found to be well and carrying a 6 months' gestation.

The last patient was a 14 year old girl who presented with profuse vaginal bleeding for 3 months, starting 1 year after her menarche, accompanied by lower abdominal pain. She had well developed secondary sex characteristics. Pelvic examination revealed a solid ovarian mass of 5 cm x 5 cm x 8 cm on the right side. A unilateral salpingo-oophorectomy was done. Radiation was given with shielding of the other ovary, when the histopathological diagnosis was confirmed as a granulosa cell tumour. She is alive and well 8 years after surgery, thinking of matrimony.

Discussion

As per the review of the world literature, the incidence of functioning ovarian tumours is 10%, while in the present series it was 12.74%.

Most of the dysgerminomas are asymptomatic. When not, the complaints are abdominal enlargement, frequency of micturition, and lower abdominal pain. Advanced cases show ascites, and/or pleural effusion. Brody (1961) reported genital malformations in 12% of the cases. The 4 cases of dysgerminoma presented here fit in this picture. None had any evidence of hormone production.

A primary choriocarcinoma of the ovary usually presents with vague lower abdominal pain, precocious puberty in 50%, and menstrual irregularities. This tumour many a times mimics a granulosa cell tumour. The patient of ovarian choriocarcinoma in this series was typical.

An arrhenoblastoma produces hirsutism, defeminization and musculinization in that order (Janorski and Paramanandhan 1973). The tumour is usually not large. The patient in this series was atypical in that the tumour was rather large and cystic; and there was right sided pleural effusion.

A granulosa cell tumour produces feminization and menstrual irregularities, usually with menorrhagia. It is associated with greater incidence of recurrence and

malignant change than a theca cell tumour.

The treatment of ovarian neoplasm in adolescent girls includes consideration of what effect surgery and radiation will have on the patient's sexual and somatic developments (D'Angio and Tefee 1967). Despite these differences the basic principles that govern the treatment of genital neoplasms in young girls are those which are followed in the management of ovarian neoplasms in patients of all ages.

Stage Ia(1) dysgerminoma may be managed by unilateral salpingo-oophorectomy with due risk, though total abdominal hysterectomy plus bilateral salpingo-oophorectomy is recommended. Stage Ia(2) to Stage III cases require total abdominal hysterectomy, bilateral salpingo-ooporectomy and omentectomy, followed by whole abdominal irradiation of 2500-3000 rads over 4-6 weeks. Additional 2000 rads to mediastinum and supraclavicular fossae over 2-3 weeks is optional (Mallengly 1977). After conservative surgery for Stage Ia(1) dysgerminoma, 5 year survival rate is 96%, while in Ia(2), Ib and Ic, it falls to 63% (Asadourian and Tafor 1969).

Granulosa cell tumours and arrhenoblastoma are both potentially malignant. They may be managed by unilateral adnexectomy if well encapsulated. The other ovary is bisected. However, such patients require a life long follow up for recurrences.

A choriocarcinoma requires total abdominal hysterectomy bilateral salpingo-oophorectomy and omentectomy, followed by combination chemotherapy. HCG is an excellent tumour marker, useful in deciding the response to treatment, and during follow-up of treated patients.

Conclusion

A correct diagnosis, proper planning of treatment, and its implementation make a world of difference to a young girl with a functioning ovarian tumour. The risk involved with conservative surgery is real. But it is justified in view of the young age of the patient and her future physiological needs, provided facilities are available for regular, prolonged follow-up examinations, supplemented with investigations such as ultrasonic scan and assay of tumour markers.

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See Fig. on Art Paper I