DYSGERMINOMA OF OVARY

by

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Introduction

Dysgerminoma of the ovary is a comparatively rare tumour which is of germ cell origin. The disease was first described by Chenot in 1911 and subsequently coined by Meyer in 1931. It is seen in young women usually below the age of 30 years, although cases have been recorded in various age groups ranging from 2 years (Fein and Goldberg, 1934) to 76 years (Mueller *et al*, 1950). Various authors have reported about this disease with varying mortality rates adopting different therapeutic procedures. We are reporting in this paper a study of 6 cases of dysgerminoma who were treated in our Institution in the past few years.

Material and Methods

Six cases of dysgerminoma of ovary had attended the department or Radiotherapy of the Wanless Hospital and the Miraj Medicol Centre, attached to the Miraj Medical College, Miraj, from January 1971 through December 1977. The patients were treated either by a combination of surgery and radiation therapy or by radiation therapy alone. Three cases were operated outside this hospital and were referred to this Institution for post-operative radiation therapy. The remaining 3 cases had only laparotomy at this Institution. All the cases had received radiation therapy at our centre which was given by Cobalt 60 (Theratron 60). All the cases had the histopathological diagnosis of pure dysgerminoma.

Observations

The age of the patients ranged from 7 years to 40 years, the average age being 26. 3 years. Of the 6 cases, 4 were married and 2 unmarried. All the married cases were having children. A palpable mass in the abdomen was the commonest clinical presentation noted in all the 6 (100%) cases. Details of the cases are shown in Table-1. In 3 (50%) cases there was history of pain over the mass in the abdomen and in the rest of the cases there was no pain. In 1 case there was history of retention of urine subsequent to the appearance of the mass in the abdomen. The

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TABLE I

Dysgerminoma of Ovary (6 *Cases*)

Sr. No.	Age (in years)	Marital status	Chief symptoms	Duration	Involved sides	X-ray chest	Gyneco-graphy	Clinical staging	Surgery	Radio therapy	Survival
1	35	Married	Abdominal mass	6 months	Right	N.A.D.	S.T.M.	III	Laparo-tomy	Given	L.F.U.
2	32	Married	Abdominal mass	6 months	Right	N.A.D.	S.T.M.	I	U.S.O. (Right)	Given	2 years
3	40	Married	Abdominal mass	1 year	Right	N.A.D.	S.T.M.	II	B.S.O. and Hys-terectomy	Given	L.F.U.
4	7	Unmarried	Abdominal mass	3 months	Right	N.A.D.	S.T.M.	III	Laparo-tomy	Given	18 months
5	30	Married	Abdominal mass	6 months	Left	N.A.D.	S.T.M.	II	B.S.O. and Hys-terectomy	Given	1 year
6	14	Unmarried	Abdominal mass	5 months	Bila-teral	N.A.D.	S.T.M.	III	Laparo-tomy	Given	1 year

S.T.M. = Soft tissue mass.
N.A.D. = No abnormality detected.
U.S.O. = Unilateral Salpingo-Oophorectomy.
B.S.O. = Bilateral Salpingo-Oophorectomy.
L.F.U. = Lost to follow up.

symptoms persisted in these cases for varying periods of time ranging from 3 months to 1 year. The blood picture was within normal limits in all the cases. Blood chemistry studies did not reveal any abnormality in any of the cases and the urine analysis was normal in all the cases. Chest X-ray was normal in all the cases. Plain x-ray of the abdomen followed by gynaecography confirmed the presence of a soft tissue mass in the lower abdomen in all the cases. In one case I. V. P. had shown evidence of pressure effect on the right ureter and the full bladder. Biopsy taken in each case was reported as pure dysgerminoma. Staging of the cases were done according to the international staging system. There was 1 case in stage I, 2 in stage II and in stage III, there were 3 cases. Active surgical procedures were performed in 3 cases which consisted of unilateral salpingo-oophorectomy in a case of right-sided ovarian dysgerminoma and bilateral salpingo-oophorectomy with hysterectomy in 2 cases. All these 3 cases were operated outside this hospital and they attended this centre for post-operative radiation therapy. The remaining 3 cases were having advanced disease and were not fit for active surgery. Only a laparotomy had been performed in these cases followed by biopsy who were subsequently sent to us for radiation therapy by the gynaecologists of this Institution. All the 6 cases had the histological diagnosis of pure dysgerminoma of the ovary. Radiation therapy was given to all the 6 cases which was delivered by Cobalt 60 (Theratron 60). The treatment was given by two portals (parallel opposed) placed over the pelvis and the abdomen. The dose of radiation therapy varied from 2500 rads to 3500 rads given over a period of 3-4 weeks time giving adequate and careful protection to the kidneys depending on the merit of each individual case. Blood picture of the patients was reviewed regularly before subjecting the patients for radiation therapy. No major complication was noted in any of the cases following radiation therapy. In the present series the patient with stage I disease was doing well for 2 years after the completion of radiation therapy and she was subsequently lost to follow-up. This patient had undergone a right-sided salpingo-oophorectomy prior to radiation therapy. One case with stage II disease survived for I year who had had bilateral salpingo-oophorectomy with hysterectomy followed by radiation therapy. Two patients with stage III disease are well and alive after radiation therapy who have not shown any evidence of recurrence of the disease till 18 months and 1 year of completion of the treatment. Both these patients belong to the younger age group and both are unmarried. The duration of the symptoms in both these cases persisted for less than 6 months before they attended this hospital for treatment. Two patients, one in stage II and the other in stage III are completely lost to follow-up.

Discussion

Dysgerminoma is an uncommon tumour accounting for approximately 2 per cent of primary malignant ovarian neoplasms (Talerman *et al.*, 1973, Krapart *et al*, 1978). The tumour has considerable malignant potential, which infrequently is manifested by rapidly progressive disease (Gillespie and Arnold, 1978). The disease produces symptoms which are mostly related to the presence of an intrapelvic mass without any hormonal effect in general. Thus, a palpable mass in the abdomen is the most common presenting symptom which is encountered in

the majority of the cases (Jackson, 1967; Assadourian and Taylor, 1969; Talerman *et al*, 1973; Afridi *et al*, 1976). In the present series a mass in the abdomen was the commonest clinical presentation noted in 5 out of 6 cases (83.3%). The duration of symptoms of the cases in our series varied from 3 months to 1 year. The disease is mostly unilateral and a right sided involvement is more common as observed by various authors (Mueller *et al*, 1950, Assadourian and Taylor, 1969, Talerman *et al*, 1973, Afridi *et al*, 1976). In the present series we encountered 4 cases (66.6%) with right sided involvement, 1 with left sided involvement and another case with bilateral involvement each constituting 16.7% of the total cases. The predominance of dysgerminoma of ovary on the right side remains inexplicable, however it may represent a phylogenetic throwback (Williamson *et al*, 1976).

No apparent correlation exists between the histologic appearance of this neoplasm and its degree of malignancy and therefore it is not possible for the pathologist to determine the malignant potential of the tumour from its histologic picture (Mueller *et al*, 1950). A marked lymphocytic or granulomatous stromal infiltrate in dysgerminoma is said to have an excellent prognosis (Assadourian and Taylor, 1969).

Dysgerminoma is a highly radiosensitive tumour and modern radiotherapy equipments and techniques have contributed to a great extent towards the cure of these tumours. The usefulness of radiation therapy in the management of dysgerminoma have been appreciated by various authors (Mueller *et al*, 1950, Talerman *et al*, 1973, Afridi *et al*, 1975, Krepart *et al*, 1978). Patients with recurrence or metastatic tumours have shown an excellent response to radiation therapy which is equally useful in the treatment of inoperable lesions of dysgerminoma. The risk of recurrence and metastases is higher if radiation therapy is not administered in postoperative cases of dysgerminoma (Talerman *et al*, 1973). Gruss (1932) reported a case of dysgerminoma with metastases in the liver who was well and alive for 9 years after radiation therapy was given. Afridi *et al* (1976) reported about the disappearance of the lung metastases in a patient with dysgerminoma following irradiation of both lungs and the mediastinum. Since dysgerminoma is a highly radiosensitive tumour, adequate postoperative radiation therapy should be given routinely and should include the entire pelvis and the para-aortic nodes (Sachdeva and Heera, 1976).

Surgical removal of the primary tumour is the treatment of choice in all cases of dysgerminoma (Afridi *et al*, 1976) provided there is no capsular penetration of the growth and no evidence of local infiltration to the adjacent structures. Unilateral oophorectomy is recommended for the treatment of dysgerminoma involving only one ovary in absence of further spread and when preservation of ovarian function is considered useful. There is a natural tendency, considering the young age of the patients to limit surgery only to the removal of one ovary and to withhold radiation therapy to preserve the ovarian function wherever it is possible (Jackson, 1967). Surgery in all other cases should be a radical one including total hysterectomy and bilateral salpingo-oophorectomy. The extent of surgery and the use of postoperative radiation therapy in young patients with unilateral and encapsulated tumour without any evidence of spread

is controversial. Assadourian and Taylor (1969) recommended only unilateral salpingo-oophorectomy in such cases, whereas Kottmeier (1971) suggested unilateral salpingo-oophorectomy followed by radiation therapy to the involved site and to the retroperitoneal lymph-nodes. Brody (1961) advised salpingo-oophorectomy followed by postoperative radiation therapy to the para-aortic nodes in young patients with unilateral encapsulated tumours. However, the value of radiation therapy in cases of dysgerminoma beyond stage I with recurrence or metastases is not at all disputed.

Prognosis of the disease when confined to a single ovary with an intact capsule varies considerably with dysgerminomas having a bilateral involvement. Presence of haemorrhagic ascites in dysgerminoma is indicative of a hopeless prognosis (Mueller *et al*, 1950). Other bad prognostic factors linked with the dlsease are local spread to the adjacent organs and structures as well as to the presence metastases at the time of diagnosis of the dlsease (Talerman *et al*, 1973).

The overall survival results of dysgerminoma treated by various modalities of treatment are variable as observed by various authors. Mueller et al (1950) reported a 5 year survival rate of 27.3 per cent. Thoeny *et al* (1961) found the 5 year survival rate as 75 per cent and according to Assadourian and Taylor (1969) this rate was 86 per cent. Talerman *et al* (1973) and Afridi *et al* (1976) respectively reported the 5 year survival rates as 36.3 per cent and 57.1 per cent. Krepart *et al* (1978) reported an overall survival rate of 86 per cent. In the present series of 6 cases, we did not find encouraging results of the treatment even-though half the number of our cases were having an advanced degree of malignancy at the time of the initial diagnosis of the disease. From our experience, we are of the opinion that radiation therapy can certainly improve the treatment results and enhance the survival figures of patients with dysgerminoma, either alone or in combination wlth surgery wherever surgery is feasible.

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