BRENNER TUMOUR OF OVARY

(A case report)

by

A. V. MUTATKAR,* M.S.

P. GUPTA,** M.S.

and

R. L. NANDI,*** M.D.

The tumour was first reported by Brenner in 1907. Till 1960 Farrar, *et al* could find only 402 reported cases. This tumour was bilateral in 6 to 8% of cases. Two out of 31 tumours reported by Jondahl *et al* (1950) were bilateral. Patil *et al* (1967) reported two cases of Brenner Tumour out of 82 ovarian neoplasms in five years. It is a nonfunctioning tumour but Mackinley (1956) reported vaginal bleeding in one case. The object of this communication is to report a case of Brenner tumour because of its rare occurrence and controversial histogenesis.

CASE REPORT

A Hindu female aged sixty years was admitted to the Civil hospital, Sholapur, with the complaints of a lump in abdomen and occassional pain since the last 25 years. The swelling gradually increased in size to present dimensions. The swelling used to shift to right hypochondrium with the advancement of each pregnancy and again recede back to its original position after the delivery. Her previous menstrual history was normal. She had her menopause at the age of 48 years. She had ten full term deliveries, last about 20 years back. On abdominal examination there was a lump in the umbilical, right lumbar and right hypochondric regions measuring about 8″ x 6″, hard in consistency, freely mobile and could be shifted to any quadrant of the abdomen. Vaginal examination revealed a 3rd degree prolapse whith was reducible. Fornices were clear and no mass could be felt. Urine and blood examination were normal. Plain skiagram of abdomen and chest were normal.

Laparotomy was done on 10-9-1969. There was no free fluid in the abdomen. There were no adhesions. The tumour was solid and arising from the right ovary and had a long pedicle. The appearance was that of a malignant tumour. Other ovary was normal. The tumour was excised and pan hysterectomy was done. The patient made an uneventful recovery.

Microscopic appearance: The specimen (Fig. 1) weighed 1300 grams and measured 8″ x 6″, oval in shape and firm to feel with nodular external surface. Part of fallopian tube was on one side in a groove. The cut surface showed a well circumscribed solid homogenous mass with numerous small cystic spaces. The cut surface presented a fibrous and whitish-yellow appearance.

Microscopic appearance: (Fig. 2 & 3) Section (H. & E.) from the mass showed whorls of fibrous tissue with groups of epithelial cells which were irregular in size and shape and showing central cystic degeneration at places. Cells were fairly big in size with clear or vacuolated cytoplasm

Lecturer in Surgery.

**Reader in Obst. & Gynec.*

***Reader in Pathology.*

Dr. V. M. Medical College, Sholapur.

Received for publication on 25-1-1970.

mass was felt extending from the pubic symphysis to the umbilicus in the midline. It was irregular in shape and freely mobile.

Exploratory laparotomy was done. A left ovarian tumour which was highly vascular and adherent to the omentum and intestines was found. Mesentric glands were enlarged and hard. Right adenexa and uterus were normal. Total hysterectomy with bilateral salpingo-oophorectomy was done.

The patient though given a course of deep X-Rays following surgery expired 10 months after the operation.

Case 2

S., a 60 year old woman with an obstetric history of P_{12} + 0, was admitted on 2-6-67 with the complaint of a rapidly growing mass in the abdomen for the last 2 months.

On examination a well defined irregular cystic mass filling the lower abdomen was observed. It was mobile and tender. On vaginal examination the uterus was bulky and lying posteriorly to the cystic mass.

During the operation a left sided ovarian cyst of greyish pink colour and irregular surface was found. It measured roughly 20 cms. x 15 cms. Extensive adhesions with the surrounding organs and widespread omental metastases were present. As the tumour was found to be inoperable, a small piece of tumour tissue was taken out for histo-pathological examination. The patient expired within six months of the operation after receiving a course of deep x-Rays.

Gross

The tumour mass of case 1 was nodular, well capsulated, rubbery in consistency and measured 15.5 cms. x 9 cms. x 7 cms. in size. The cut surface showed a solid mass of greyish pink colour with areas of yellowish hue and variegated appearance (Fig. 1).

The specimen from the case 2 measured 6 cms. x 3 cms. x 3 cms. It was of greyish pink colour, soft consistency and covered at one end with a thin capsule.

Histological picture

The microsection of case 1 showed sheets of large, oval, round and polygonal cells with abundant pale-staining cytoplasm. The nuclei were round, large and hyperchromatic. Mitotic figures were seen in fair numbers. Occasional multi-nucleated giant cells were also observed. The cell nests were separated by thick fibrous bands infiltrated with lymphocytes (Fig. 2). More or less the same histological pattern was seen in the second case except for a fairly large number of multinucleated symplasmic giant cells and scanty fibrous stroma sparsely infiltrated with lymphocytes (Fig. 3).

Discussion

This tumour usually occurs in the younger age group. The average age, as reported by Willis (1948) was 30 years, Mueller *et al.* (1950) between 20-30 years, Novak (1938) 20 years, Tyagi *et al.* (1967) 27 years and by Kapas (1969) between 9 and 23 years. Krishna (1969) has reported a single case of 20 years of age. One of the cases under review was in the twenties while the other was 60 years old—an unusual age period for this tumour. Only three cases after the age of 50 years have been reported so far by Fauvet (1936), Mueller *et al.* (1950) and Weintraub (1951).

Mueller *et al.* (*loc. cit.*) reported that the tumour was present in the right ovary in 50.1%, in the left ovary in 35.1% and in both the ovaries in 14.8% cases. In both the cases reported here the tumour was present in the left ovary. Seagers (1938) explained the right sided occurrence of the tumour to be due to the slower development of the right ovary as compared to the left. Bilateral dysgerminomata are thought to be either primary tumours or metastasis from a primary tumour in the contralateral ovary.

Out of the 427 cases reviewed by Mueller *et al.* (*loc. cit.*) 176 were

found to be associated with pulmonary tuberculosis, but neither of the cases reported here showed any evidence of tubercular lesion.

The tumour is hormonally inactive, though there is a high association of these tumours with sexual underdevelopment and pseudohermaphroditism. Gough (1949) has suggested that the tumour is capable of inhibiting normal feminine development. Scully (1953) observes that the absence of hormonal effect is in keeping with the neutral character of the undifferentiated cells in its histogenetic formation. One of the cases reviewed here though 16 years of age, had not developed the secondary sex characters and suffered from primary amenorrhoea. However, the sex chromatin of the case was of female type.

In few instances precocius sexual development or masculinising manifestations (Saeger, 1938; Gough, 1949; Hain, 1949; Usizima, 1956 and Ginshi *et al.* 1962) have been reported. Potter (1946), Moreton (1947), Santeson (1947) and Burge (1949) have reported elevated gonadotrophin levels associated with the tumour which according to Melicome (1959) is due to the presence of chorion-epitheliomatous elements in these tumours.

Rarely the tumour is found associated with pregnancy. Mueller *et al.* (*loc. cit.*) reported 11 cases of dysgerminomata associated with pregnancy, while Watson (1956), Misra (1958), Libert and Stent (1960), Mary (1961), Chakravarty (1965) and Phillip and Gurcharan Kaur (1965) have reported one case each. Libert and Stent's (*loc. cit.*) case was also complicated by chorion-epithelioma. A case of dysgerminoma of ovary followed by pregnancy after unilateral oophorectomy has been reported by Krishna (1969). No such association was observed in either of the cases reported by the authors.

The gross pattern of the tumour varies between wide limits, some measuring only a few centimeters in diameter, others being so large as to fill the abdominal cavity. Characteristically, they are surrounded by a smooth and dense capsule. The contour may be smooth or nodular. The consistency of the tumour is generally 'doughy' or rubbery. The cut surface is greyish or grey pink with areas of yellowish hue. Necrosis, degeneration and haemorrhage are quite often present. Very rarely there is a tendency to cyst formation. The tumour masses in both the cases reported here were large. While one of them was solid the other was cystic in consistency.

The two cases studied by the authors presented a varied histological picture and died within 10 months of the operation. Thus, in the opinion of the authors no apparent correlation exists between the histological appearance and the degree of malignancy. Scully (1953) and Sirsat *et al.* (1965) have reported a type of tumour known as gonadoblastoma, showing a mixture of dysgerminoma cells and small cells resembling Sertoli or granulosa cells. No such association was noticed in the cases under review.

Muller *et al.* (*loc. cit.*) in their analysis of 427 cases reported that in 49 tumours which were confined to one ovary with intact capsule, there was 89.79% 5-year survival. Of 17

cases with bilateral tumour the 5-year survival rate was 29.4%, and in 79 cases with metastases or infiltration at operation it was 25.31%. The above authors tried to correlate the prognosis to the extent of the disease. The observations of the authors are in agreement with those of Mueller *et al. (loc. cit.)*

As regards malignancy, opinions differ. McLeod and Reed (1955) regard it as highly malignant. Novak (1938) reported a recurrence rate of 32%, whereas Pedowitz *et al.* (1951) observed a recurrence in 52.9% of apparently encapsulated tumours. The tumour is highly malignant with poor prognosis.

Summary

1. Two cases of dysgerminoma of the ovary are reported.

2. In both the cases the tumour arose from the left ovary.

3. Case 1 was that of 16 year old girl who had no secondary sex characters and suffered from primary amenorrhoea.

Case 2 was a 60 year old multigravida with a cystic tumour mass filling the abdominal cavity. Only three cases beyond the fifties have been reported in the current literature prior to this.

5. Both the cases died within a year of the operation.

6. No correlation could be established between the histological picture and the degree of malignancy.

7. The prognosis is related to the extent of the disease.

8. The literature on dysgerminoma of the ovary has been reviewed briefly.

References

1 Agarwal, V. and Saxena, B. P.: J.I.M.A. **38**: 158, 1962.
2. Abel (1961): Cited by Mary, A. M.: J. Obst. Gynec. Brit. Emp. **68**: 676, 1961.
3. Burge, E. S.: Am. J. Obst. & Gynec. **57**: 1014, 1949.
4. Chakravarty, B.: Ind. J. Obst. & Gynec. **15**: 204-207, 1965.
5. Chenot (1911): Cited by Chalmers, J. A.: J. Obst. & Gynec. Brit. Emp. **57**: 437, 1950.
6. Chevasu (1906): Cited in Gynaecologic and Obstetric Pathology P. N. 396 by Novak and Woodruff, J. D. 5th Ed., W. B. Saunders Company, Philadelphia and London, 1962.
7. Fauvet, E. (1936): Cited in Gynaecologic and Obstetric Pathology, P. N. 411 by Emil Novak and Edmund R. Novak. W. B. Saunders Co., Philadelphia and London, 1956.
8. Gault, E. W., Balsubramanyam, M., Thomas, E., Isaiah, P., Alleyamma, M. P. and Susheela, K. K.: Ind. J. Med. Sc. **8**: 522, 1954.
9. Ginshi, G., Borg, A., Brogozz, U., Negri, L. and Toccafondi, R.: Obst. and Gynec. **20**: 755, 1962.
10. Gough, A.: J. Obst. and Gynec. Brit. Emp. **45**: 1349, 1949.
11. Hain, A. M.: J. Clin. Endocrinol. **9**: 1349, 1949.
12. Hughesdon, P. E.: J. Obst. & Gynec. Brit. Emp. **67**: 566, 1959.
13. Kapas, M. M.: J. Obst. & Gynec. Ind. **19**: 507, 1969.
14. Krishna, K. K.: J. Obst. & Gynec. Ind. 19: 516, 1969.
15. Libert, K. I. and Stent, L.: J. Obst. & Gynec. Brit. Emp. **77**: 627, 1960.

16. Mary, H. M.: J. Obst. and Gynec. Brit. Emp. **68**: 676, 1961.
17. Mehta, R. C. and Purandare, B. M.: J. Obst. & Gynec. Ind. **14**: 535, 1964.
18. Melicome, M. M. and Uson, A. C.: Cancer, **12**: 552, 1959.
19. Meyer, R.: Am. J. Obst. Gynec. **22**: 697, 1931.
20. Misra, S.: J. Obst. & Gynec. Brit. Emp. **65**: 440, 1958.
21. Moreton (1947): Cited by Bannerjee, B. in J. Obst. & Gynec. Ind **15**: 195, 1965.
22. Mueller, C. W., Topkins, P. and Laff, W. A.: Am. J. Obst. & Gynec. **60**: 153, 1950.
23. Novak, E. and Gray, L. A.: Am. J. Obst. & Gynec. **35**: 925, 1938.
24. Pedowitz, P. and Greyzel, D. M.: Am. J. Obst. & Gynec. **61**: 1243, 1951.
25. Phillips, C. and Gurcharan Kaur.: J. Obst. & Gynec. Ind. **15**: 200, 1965.
26. Potter, E. B.: Am. J. Path. **22**: 551, 1946.
27. Santeson, L. (1947): Cited by Magnus Hains in Gynec. Pathology, P. N. 468, 1962.
28. Scully, R. E.: New Eng. J. Med. **245**: 905, 1951.
29. Scully, R. E.: Cancer, **6**: 455, 1953.
30. Seagers, G. E.: Arch. Surgery, **37**: 687, 1938.
31. Sirsat, M. V., Vatsala, V. Vakil, Nurgesh, D. Motshaw and Talwalkar, G. V.: Ind. J. Path. Bact. **8**: 77, 1965.
32. Teter: Gynaecologica, **150**: 84, 1960.
33. Tyagi, S. P., Tiagi, G. K. and Logani, K. B.: J. Obst. & Gynec. Ind. **17**: 11, 1967.
34. Watson, S. L.: Am. J. Obst. & Gynec. **72**: 1177, 1956.
35. Weintraub, L. R., Rosenblatt, P. and Bradman, L.: Am. J. Obst. & Gynec. **61**: 1167, 1951.
36. Usizima, H.: Cancer, **9**: 736, 1956.
37. Willis, R. A.: Pathology of Tumours, London, 1948, Butterworth & Co., p. 504.

See Figs. on Art Paper X