ATYPICAL GRANULOSA CELL TUMOUR WITH FEATURES SUGGESTIVE OF GYNANDROBLASTOMA

by

KOSHU MUNSI,* F.R.C.S.E., D. (Obst.), R.C.O.G.

and

AMMU NAYAR,** M.D., Pathology

This is a case report of an unusual granulosa cell tumour. It was diagnosed initially as a gynandroblastoma, but review of world literature revealed a similar ovarian tumour reported by Stut (1967) as a pleomorphic granulosa cell tumour. The purpose of this paper is to emphasize the histological variations that can occur in a granulosa cell tumour and the difficulties in differentiating mixed ovarian tumours.

Case Report

On 18th August 1969, a 16 year old unmarried female was admitted with the complaint of painless swelling of lower abdomen for the past six months and continuous vaginal bleeding for one month. Prior to this episode of continuous vaginal bleeding, her menstrual periods had been lasting for seven days, the flow being scanty to moderate and the interval between the menstrual periods being 40-45 days. She did not take any hormones for this bleeding

Her menarche had been at the age of 14 and the menstrual cycles were regular upto seven months ago. She had no pain. She had lost a little weight over the past six months. Her appetite remained good. There was no history of fever nor cough. She had diarrhoea with abdominal pain six months ago, at which time she felt a tumour on the right side of lower abdomen. She related her menstrual irregularity to this episode of diarrhoea. An x-ray of the abdomen was taken on 13th August 1969 elsewhere and she was told that she probably had a tumour of the bowel or uterus.

Physical examination showed a thin anaemic girl with a normal female habitus. There was no evidence of hirsutism. Abdominal examination revealed a non-tender, mobile, smooth mass, the size of a 30 weeks' pregnancy, with a varied consistency, partly solid and cystic. There was no ascites. The flanks were resonant. The external genitalia were normal. The nulliparous uterus was pushed to the left by a mass which felt mainly cystic and occupied all the fornices, extending into the abdomen. Other systems were normal. A provisional diagnosis of granulosa cell tumour was made.

After a unit of blood transfusion, a laparotomy was performed on 21st August 1969. A football sized tumour arising from the left ovary was found. It had solid as well as cystic areas, and a smooth, intact white capsule. Uterus and right adnexa were normal. Liver was normal. No omental or peritoneal deposits were seen. Left ovariotomy was done. On section, the cystic areas, (some of which were quite large) contained clear fluid and some blood-stained fluid and the solid areas had a yellowish appearance. The tumour was sent for frozen section biopsy. It was reported as granulosa cell tumour. In view of her young age, it was decided to leave the uterus, right tube and ovary alone and to keep a careful watch on her. The post-operative period was uneventful apart from persistence of slight vaginal bleeding upto the 7th post-operative day. Curettage was done which stopped the bleeding. The curettings revealed endometrium in proliferative phase. At the time

*Reader in Obst. & Gynec.

**Junior Lecturer,

Christian Medical College Hospital, Vellore, S. India.

Received for publication on 25-1-1971.

of discharge on 14th day, pelvic examination did not reveal anything abnormal. She was in good condition.

The tumour measured 26 x 17 x 7 cm. and weighed 1822 gms. It had an intact thick white smooth capsule. On the cut surface there were many cystic spaces separated by solid white and yellow tissue. The spaces contained clear and blood-stained fluid (Fig. 1).

Two growth patterns were observed on microscopic examination. Large parts of the tumour consisted of masses of cells with pale, eosinophilic cytoplasm and uniform, prominent ovoid nuclei. (Fig. 3). There were foci of cystic change which gave the tumour a folliculoid appearance (Fig. 2) Hyalinized tissue and bands of theca cells separated these masses of granulosa cells. In other fields were seen small nests and cords of cells with abundant clear cytoplasm and dark staining round to oval nuclei (Fig. 4). These resembled abortive tubules lined by Sertoli cells. Leydig cells were not identified.

Discussion

Gynandroblastomas are rare ovarian neoplasms which consist of histologic elements suggestive of both testicular and ovarian origin. They have cords and tubules of Sertoli cells as well as masses of granulosa cells. The presence of Leydig cells appears to be a variable feature. The term gynandroblastoma was first used by Robert Meyer in 1930 for an ovarian tumour which had the morphological features of both granulosa cell tumour and arrhenoblastoma. Of the cases reported in world literature so far, a good percentage have not been accepted as such, partly due to the inclusion of granulosa cell tumours which were associated with clinical features suggestive of masculinization. The masculinizing aspects were not causally related to the tumour (Dockerty 1945). The total number of well authenticated cases of gynandroblastoma so far is 24 (Novak 1967).

The mesoderm of the urogenital ridge gives rise to specialised gonadal stroma, the components of which are granulosa, theca, Sertoli, ovarian stromal and Leydig cells. It is therefore easy to understand that tumours arising from the gonadal stroma could possess mixtures of these elements. Some of the cases labelled as gynandroblastomas have had granulosa-theca, Sertoli and Leydig cells while other were combinations of granulosa-theca and Sertoli elements. Our case falls into the latter category and bears a striking resemblance to the pleomorphic granulosa cell tumour reported by Stut (1967). The presence of structures resembling, but not typical of testicular tubules and the absence of interstitial cells in a granulosa cell tumour are features common to both of these tumours. Emig and Hertig (1959) and Scully (1953) concurred that Stut's case was not a gynandroblastoma but a pleomorphic granulosa cell tumour that showed areas of differentiation towards the male edge of the spectrum. Furthermore Neubecker and Breen (1962) have demonstrated in the ovaries of dogs and pigs, the presence of granulosa cells, arranged in atubular pattern, that satisfy the morphologic criteria of Sertoli cells. This indicates that granulosa cells are sometimes indistinguishable from Sertoli cells and it would be unwise to rely entirely on the morphology of these cells, especially where the cells are not absolutely typical.

Diagnosis of gynadroblastoma depends solely on the histologic examination rather than on clinical and laboratory findings which may not reveal the corresponding rise in the urinary hormonal levels. The masculinizing effect of these tumours appears to have been generally the dominant one but in some cases oestrogen induced manifestation, as excessive vaginal bleeding has also been noted.

Age of the patients in reported cases has ranged from 15—76 years. None of the gynandroblastomas except one Hobbs (1949) has so far manifested evidence of malignant behaviour, nor did any of them appear to be histologically malignant. Conservative therapy would therefore seem to be justified in the treatment of these tumours, specially in the young age group.

Follow Up

She has come for follow up five times over the past year and 4 months. She has remained well and free from any symptoms. Her menstrual periods have been regular. Clinical examination has not revealed any abnormal findings in the pelvis. She was married in June 1970 and is now three months' pregnant.

References

1. Dockerty, M. B.: Ovarian neoplasms. A collective review of the recent literature. Internat. Obst. Surg. **81**: 179, 1945.
2. Emig, O. R., Hertig, A. T. and Rowe, F. J.: Gynandroblastoma of the ovary. Obst. & Gynec. **13**: 135, 1959.
3. Hobbs, J. E.: Gynandroblastoma of the ovary. Am. J. Obst. & Gynec. **57**: 85, 1949.
4. Meyer, R. and Beitr. Z.: Path. Anat. **84**: 485, 1930.
5. Neubecker, R. D. and Breen, J. L.: Gynandroblastoma. A report of 5 cases, with a discussion of the histogenesis and classification of ovarian tumours. Am. J. Clin. Path. **38**: 60, 1962.
6. Novak, E. R.: Gynandroblastoma of the ovary. Review of 8 cases from the ovarian tumour registry Obst. & Gynec. **30**: 709, 1967.
7. Scully, R. E.: An unusual ovarian tumour containing Leydig cells but associated with endometrial hyperplasia in a post menopausal woman. J. Clin. Endocrinol, **13**: 1254, 1953.
8. Stut, J. C. C.: Pleomorphic granulosa cell tumour. A borderline case of gynandroblastoma. Obst. & Gynec. **29**: 108, 1967.

See Figs. on Art paper V