MULTILOCULAR CYSTIC GRANULOSA CELL TUMOUR

by

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Neoplasms of the ovary form an extremely complicated array of tumours. Out of functioning tumours of the ovary granulosa cell tumour constitutes an interesting form of feminising functioning mesenchymoma. According to Hughesdone (1958) the first unequivocal granuloma cell tumour was described by Vonkahlden (1895) and the name conferred by Von Werdt (1914). The origin of this mesenchymoma is a matter of debate to the clinician and to the pathologist. Mayer (1931) postulated that these tumours originated in the vestiges of the embroymal "granulosaballen", which remains dormant for years to produce the tumour in later life following some unknown stimulation. They are quite uncommon though not very rare. According to Evans (1966) granulosa cell tumour constitutes about 5 to 7% and according to Novak they form 10% of all solid ovarian tumours and constitutes about 1.7% of all ovarian neoplasm. Malkasion *et al* (1914) granuloma cell accounts for 70% of all reminising mesenchymes, 28% of all solid ovarian malignant neoplasms, 10% of all solid ovarian tumours, 1.7% of all ovarian tumours and 0.6 to 4.6% of all malignant neoplasms. Nirmalaswamy and Patankar (1963) had an incidence of 4% of all solid ovarian tumours. Ramamurthy (1972) gave an incidence of 2%. Morris and Scully (1968) stated that more than a thousand of these tumours have been previously reported with an incidence of 3% of all ovarian tomours and 9% of all primary ovarian cancers.

True cystic granulosa cell tumour is a rare morphological variant of granulosa cell tumour. So far only 2 case reports (Sher and Marsh, 1963 and Palladino *et al*, 1965) are available in the literature. Fifteen cases of tumour collected earlier by Sher and Marsh (1963 and 2 by Palladino *et al* (1965), however, contained some solid areas of granulosa cell tumour.

The present communication is of rare variety of granulosa cell tumour i.e. multilocular cystic granuloma cell tumour and the second case report is of granuloma cell tumour.

Case Report 1:

Multilocular cystic granuloma cell tumour:

Mrs. Bhuri, 40 years old, was admitted to the Department of Gynaecology and Obstetrics, Dr. S. N. Medical College, Jodhpur on 13-12-77. She was complaining of bleeding per vaginam off and on since 8 years and gradual swelling of abdomen, 6 years. Her past menstrual cycles were normal. She had 8 F.T.N.D. Last

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delivery was 11 years back. Her past family and personal histories were not significant.

She was severely anaemic, had no cyanosis, no jaundice, no lymphadenopathy. On admission there were signs of C.H.F. respiratory system was normal.

Abdomen was markedly enlarged and distended with the evidence of free fluid in the peritoneal cavity. It was difficult to palpate the abdomen due to ascities but there was suggestion of a irregular surfaced soft cystic lump with ill defined margin in the lower abdomen of the size of about 22-24 weeks pregnant uterus.

On bimanual examination, the cervix felt hard, was pointing forwards. Uterus was deviated to left side, was retroverted about 6 weeks size and mobile. The lower pole of the cystic tumour was felt in the righ fornix.

Rectal examination revealed an irregular, soft, mobile mass of indefinite size high up and anteriorly more on the right side. Rectal mucosa was free.

The following investigations were done:
Blood—Hb—45% E.S.R.—26 mm fall in 1st hour, T.L.C.—4600 million/cm m.m. P—70%, L—30%, M—Nil, E—Nil. Blood urea 42 mg% Fasting blood sugar 88 mg% Urine—N.A.D.

Ascitic fluid—No malignant cells seen.

Screening chest—N.A.D., E.C.G.—normal X-Ray of abdomen showed plenty of fluid in the peritoneal cavity. Chest—N.A.D.

A provisional diagnosis of ovarian tumour was made.

Endometrium showed proliferative phase with marked cystic dilatated glands.

Operation findings:

At laparotomy there was free fluid in the peritoneal cavity. Uterus was bulky about 6 weeks size due to myohyperplasia. Left ovary and both the tubes were healthy. Right ovary was enlarged to a size of 6″ x 8″. The tumour was unilateral, cystic, almost spherical glistening and pale yellowish bossy surface, well encapsulated and not adherent. There were multiple dilated vossels on the surface alongwith bluish areas. No abdominal lymph glands were palpable. The dilated vessels were present in the uterovesical pouch also. Total abdominal hysterectomy with left sided salpingo-oophorectomy and right sided salpingectomy and ovariotomy was done. Post-operative period was uneventful.

Cut surface showed multiple small cavities, filled with straw colored fluid. Multiple soft necrotic areas were also present. Capsule was thin but intact. Larger cysts were present immediately underneath the capsule. The thicknees of the septa varied from 2 to 4 mm. The inner surface of these cysts were smooth. There was no solid portion in the whole of the tumour mass. Cheesy material in the cysts was present.

Histopathological Examination:

The tumour consisted of many follicular cysts lined by inner layer of granulosa cells and an outer layer of theca cells. The cells were multilayered with rosette—like arrangement and were of uniform size, cuboidal to low columnar with scanty cytoplasm and deeply staining nuclei. The cyst was confused with follicular cyst of the ovary and with pseudo-mucinous cyst. Call Exner-bodies were present. The centre of rosettle-like arrangement revealed a homogenous pink acellular material. At places there were no lining cells and only fibro-collagenous cyst wall was present, which was more marked in large cysts. At places below the granulosa cell layer there were fusiform cells having pale and scanty cytoplasm with deeply stained nuclei called theca cells. The large size and number of daughter cysts were in forms of neoplasia and helped to differentiate from the follicular cysts, which are usually small whereas neoplastic tumour may attain any size (Palladino et al, 1965).

Case 2:

Granulosa Cell Tumour

Mohini, 30 years old, came to the department of Obstetrics and Gynaecology of Dr. S. N. Medical College, Jodhpur with the complaints of gradual enlargement of the abdomen for last 3 years and profuse bleeding during periods from last 2 years. She had 1 F.T.N.D. 12 years back. Her past menstrual cycles were normal. The family and past histories were non-contributory.

On general examination, the patient was of good built and height. Her cardio-respiratory systems were normal. She had no jaundice, no cyanosis, no lymphadenopathy, no clubbing, but was severely anaemic.

There was distension of abdomen having a suprapubic lump which was extending up to

the epigastric region. It was oval, smooth, and mobile tumour.

On bimanual examination, the cervix was pointing forward and the uterus was slightly deviated towards the left side. It was retroverted and normal in size. The lower pole of the firm tumour was felt in the right fornices.

Endometrial biopsy done before operation revealed proliferative phase with marked cystic dilatation of the glands.

Laparotomy was done. The tumour was found to be arising from the right ovary. The surface was glistening pale and yellowish-grey alongwith areas of haemorrhage. There were no adhesions with the adjoining structures. It was thought to be a benign pseudomucinous cyst. The right ovary and tubes were normal. Left sided salpingo-oophorectomy was done. Post operative period was uneventful.

Gross appearance:

The size of the tumour was 20 x 20 x cm. The external surface was smooth, shining with focal areas of dark discoloration due to haemorrhage. Multiple prominent veins were seen on the surface.

Cut surface showed firm capsule with multilocular cysts varying from 5 to 10 cms. Out of these cysts few were having straw coloured fluid, few were the areas of haemorrhage, necrosis, scarring and few were solid areas.

Histopathological report:

The tumour showed multiple small cavities, lined by granulosa cell layers, below which there were few fusiform theca cells. Cavities were filled with haemorrhagic material, and acellular tissue. Call exner bodies were present.

Discussion

Various views have been put forward to formulate the etiology of the cystic changes in a granulosa cell tumour. Haemorrhage and necrosis have been found to be associated with it. Liquifacation of the solid areas is also considered to be one of the factors. Novak and Novak (1958) attributed this to "Secretory and degenerative liquifying process", also stated that they are generally believed to arise from unused granulosa cells, which can often be found specially in medullary portion. The process of cyst formation is said to be like the formation of Call-Exner-bodies (Haines and Jackson, 1950) or is formed by intrinsic growth pattern of a tumour by a microfollicular type (Mayer, 1931).

Ramamurthy (1972) stated 5% of granulosa cell tumour occur in prepubertal age group, 55% during menstrual year and 40% during postmenopausal age. Two third of the tumours arise from right ovary, are generally unilateral, only 5% are bilateral. Size varies from chance microscopic findings of Handerson and Helson (1942) and the largest.

There is still controversy regarding its malignant character and its estrogenic property. Forth and Butterworth (1936), Geist and Gaines (1936) and Gardner (1947) have experimentally produced granulosa cell tumours in mice by irradiations and suggested a relationship between X-ray irradiation and subsequent development of granulosa cell tumour. Biskind and Biskind (1944) experimentally produced granulosa cell tumour of ovary in rats by autogenous transplant of ovary to the spleen of castrated animals. According to Brewer and De'costa (1967) all patients do not have abnormal bleeding and this is consistent with the fact that all granulosa cell tumours do not secrete estrogens.

According to Morris and Scully (1968) all granulosa cell tumours are malignant or potentially malignant, recurrence rate varies from 7.5 to 75%, malignancy varies from 5 to 35%. According to Dockerty and Massey (1951) it is 5%, Traut and Butterworth (1937) 15%, Kanter (1953) 20%.

Associated endometrial cancer in

granulosa cell tumour varies from 6 to 26%. Fibromyoma with granulosa cell tumour has been reported by Nirmalaswamy 1 case (1963). Granulosa cell tumour in a cystic teratoma of ovary has been reported by Thompson *et al* (1966), reported an interesting case of co-existing granulosa cell tumour with ovarian teratoma with active thyroid tissue. Syam Sunder Rao and Reddy (1963) have reported spontaneous granulosa cell tumour in a mouse with pulmonary metastases in this experimental studies.

Summary and Conclusion

1. First case described is a very rare one i.e. multilocular cystic granulosa cell tumour, second one is the granulosa cell tumour.

2. The incidence of granulosa cell tumour is 1 to 3% of all ovarian tomours and 6 to 10% of all ovarian cancers.

3. The tumour is essentially unilateral is of low malignancy which varies from 5 to 30% common in the post-menopausal women.

4. Associated with endometrial cancer, fibromyoma and cystic teratoma of the ovary. Five year survival rate is as high as 75 to 90%.

5. An effort has been made to review the available literature on the cases reported in the past.

6. Inspite of so many studies done, its etiology and character remains obscure.

References

1. Brewer, J. I. and De'costa, E. J.: Text Book of Gynaecology, 2nd Ed. The Williams & Wilkins Company, Baltimore, 1967.
2. Biskind, M. S. and Biskid, G. S.: Proc. Soc. Exper. Biol. and Med. **55: 176, 1944.**
3. Dockerty, M. B. Massey, E.: Am. J. Obstet. & Gynec. **61: 147, 1951.**
4. Evans, R. W.: Histological appearances of tumours. 2nd Edn. E & S Livingstone Ltd. Edinburgh and London, **1966, p 675.**
5. Foth, J. and Butterworth, J. S.: Am. J. Cancer. **28: 66, 1936.**
6. Gardner, W. W.: Cancer Res. 7: 549, 1947.
7. Geist, S. H. and Gaines, J. A.: Am. J. Cancer. **28: 66, 1936.**
8. Haines, H., Jackson, I.: J. Obstet. & Gynec. Brit. Emp. 57: 737, 1950.
9. Handerson, W. and Helson, D.: Am. J. Obstet. & Gynec. **43: 194, 1942.**
10. Hughesdon, P. E.: J. Obstet. & Gynec. Brit. Emp. **65: 702, 1958.**
11. Kanter, A. E.: S. Clinic: North America. **33: 279, 1953.**
12. Malkasion, G. D. Jr., Pratt, J. H. and Dockerty, M. B.: J. Obstet. & Gynec. **23: 122, 1964.**
13. Mayer, R.: Am. J. Obstet. & Gynec. **22: 697, 1931.**
14. Morris, J. M. and Scully, R. E. Endocrinol Path. of ovary, Mosby, St. Louis, 1968.
15. Nirmal Swamy and Patankar, S. P.: J. Obstet. & Gynec. India. **13: 429, 1963.**
16. Novak, E. and Novak, E. R.: Gynecological and Obstetric Pathology, 4th ed. Philadelphia, W.B. Saunders Co. 1958, pp. 418-419.
17. Palladino, V. S., Duffy, J. L. and Bures, G. J.: Obstet. & Gynec. **25: 729, 1965.**
18. Ramamurthy, C. R.: J. Obstet. & Gynec. India. **22: 711, 1972.**
19. Sher, J. and Marsh, M.: Am. J. Clin. Path. **40: 72, 1963.**
20. Syama Sunder Rao, P. and Reddy, D. J.: J. Obstet. & Gynec. India. **13: No. 1, 1963.**
21. Traut, H. F. and Butterworth, J. S.: Am. J. Obstet. & Gynec. **34: 987, 1937.**
22. Thompson, J. P., Dockery, M. D. and Symmonds, R. E.: Obstet. & Gynec. **28: 549, 1966.**

See Fig. on Art Paper VI