MESODERMAL MIXED TUMOURS OF THE FEMALE GENITAL TRACT

(2 Case Reports)

by

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Mesodermal mixed tumours of the female genital tract are very rare. In Chittaranjan Cancer Hospital, Calcutta, during the period of 1951 to 1962, there were only two such cases of mesodermal tumour out of 5881 cases of malignancy occurring in the female genital tract, one of which was found in an infant of two years old and the other in a post-menopausal woman. Very little on this subject has been published in Indian literature. In view of its rarity it was considered worth while to add these two cases to the literature.

Case Reports

Case No. 1. Baby K.C. (Reg. No. 56/369), aged 2 years, was admitted on 7-2-56 with the following complaints:—

(1) Protrusion of a fleshy mass through the vagina, on straining, for two weeks.

(2) Serosanguinous discharge per vaginam for two weeks.

On Examination. General condition: fair. Heart and lungs: nil abnormal.

Per abdomen: a mass was seen in the lower abdomen, due to full bladder, which on passing a catheter disappeared completely.

Per vaginam: Serous discharge was present. There was slight excoriation of labia. A small polypoidal growth was seen protruding through the vagina.

A provisional diagnosis of sarcoma botryoides was made. It was decided to examine her under anaesthesia.

Examination under anaesthesia was done on the next day. The growth was found to be arising from the vagina and filling almost, the whole of it; a portion was removed for histological examination. Cervix was found to be free from the growth on speculum examination. Uterus normal, both fornices — nil felt.

Microscopical Examination

Tissue received in the laboratory was 8 m.m. x 6 m.m. — slightly translucent. On paraffin section and staining it showed cartilagenous tissue having cells of both immature and mature types (Fig. 1 — shown by arrow), covered by an area of myxomatous tissue, lined by a thin layer of squamous cells. Blood vessels were found to be dilated and congested in the cartilagenous tissue here and there.

In view of the prognosis, operation was advised but the parents refused. On enquiry by the follow-up department of the hospital, it was learnt that the baby died about a month afterwards at home.

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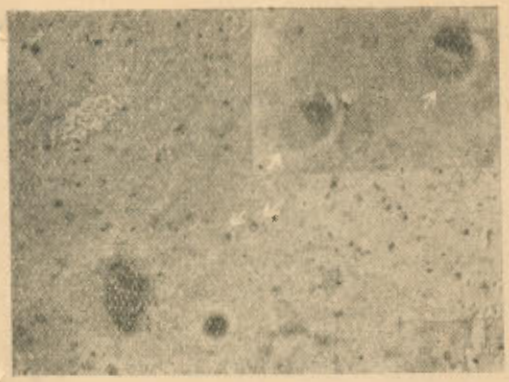

Fig. 1
Shows cartilagenous area with immature cells. Two mature cells are shown by arrow. x 10. The inset at the lower left corner cells shows the picture of a more mature cartilage cells in high power. x 40.

Case No. 2. Mrs. A.D. (Reg. No. 62/4131), aged 46 years, was admitted on 29-8-62 with the following complaints:—

(1) Offensive serosanguineous discharge per vaginam for 2 months.
(2) Pain in the lower abdomen.
(3) Rise of temperature up to 102°F. for 1 week.

Menstrual history — menopause for 4 years.

Obstetric history — pregnancies 2, last child-birth — 20 years ago.

Past h'story — nothing relevant.

On Examination: General condition — anaemic, temperature — 100.4 F.

Heart and lungs — nil abnormal. Blood pressure — 110/72 mm. Hg.

Per abdomen — nil felt.

Per Vag'nam — The discharge was very offensive. There was a huge polypoidal growth occupying the whole of the vagina. Cervix was difficult to locate. Uterus — bulky.

Per rectum — both parametria felt soft.

Special Investigations

Blood — Hb. — 36%. R.B.C. — 2,700,000. W.B.C. — 20,000.

Neutroph'ls — 88%, lymphocyte — 11%, eosinophil — 1%. Urine and stool examinations revealed no abnormality.

Antianaemic treatment, along with a course of antibiotics, was started. Temperature as well as the leucocyte count came down to normal.

As the origin of the growth was in doubt, the patient was examined under anaethesia on 12-9-62. A portion of the growth had to be removed in order to visual'se the cervix. It was then found that the growth was arising from the cervix. Uterus — bulky, of about 10 weeks' size. Both fornices — clear. Parametria, base of bladder and recto-vaginal septum — found to be soft.

The tissue was sent for histological examination. A tight pack was put inside the vagina in order to stop the bleeding; 500 cc. blood was transfused.

Histological Examination

The bit of tissue received in the laboratory was cystic 1 mm. x 8 mm. On section it showed striated muscle cells of mal'gnant character mixed up with pleomorphic cells of dark stained nuclei. The diagnosis of mesodermal mixed tumour was made.

Considering the histological report, it was decided to do total hysterectomy, with bilateral salpingo-oophorectomy. Another 500 cc. blood was transfused preoperatively. The operation was done on 4-10-62, 600 cc. blood was transfused dur'ng the operation.

Postoperative period was uneventful and the patient was discharged on 16-10-62.

Macroscopical examination of operated specimen

Uterus — bulky of about 12 weeks' size, firm in feel. Outer surface — smooth. No adhes'ons.

Cervix — ballooned out due to polypoidal growth filling up almost the whole of it and protruding through the external os. On sectioning the uterus, it was found that the growth extended upwards for about 1 inch and involved the lower part of the body of the uterus. The growth was soft and grey'sh white at places and pinkish at other places.

Tubes and ovaries — found to be normal.

Microscopical Examination

On paraffin section, and staining of the tissues from different parts, showed at

places loose myxomatous tissue, and at places islands of immature cartilagenous cells. In most other areas pleomorphic cells with dark-stained nuclei and big tapering cells with eosinophilic granular cytoplasm and big nuclei suggesting rhabdomyoblasts were found (Fig. 2). The latter

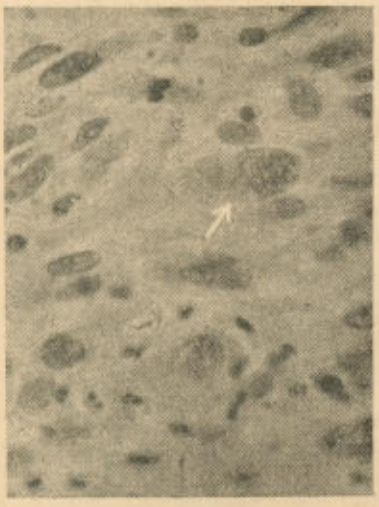

Fig. 2
Shows rhabdomyoblasts marked by arrow. High power. x 40.

picture was more or less identical to the picture obtained by the biopsies done beforehand.

Follow up:—

The patient was first followed up on 10-11-62. She complained of blood-stained vaginal discharge for 11 days. On examination the general condition of the patient had not improved much. Abdominal scar — healthy. Per vaginam — The polypoidal growth had recurred and found to be arising from the vault of the vagina. The growth was not very friable but necrotic and haemorrhagic at places.

A portion of the growth was removed for histological examination. 21-11-62 — The growth had increased in size.

It was decided to apply radium after excising the growth. Under general anaesthesia the growth was excised and 50 mg. of radium put in the vagina against the vault on 22-12-62 for 24 hours (the reason for delay was that the patient did not turn up in due time).

The patient was followed up again on 5-1-63 and 25-1-63. She complained of very offensive vaginal discharge, dysuria and temperature for few days. The general condition of the patient had deteriorated considerably. Both legs were oedematus. On vaginal examination it was found that the growth had again recurred and filled up almost the whole of the vagina, with sloughing at places.

She was readmitted. A course of antibiotics was started along with antianaemic treatment. The growth was excised as far as possible and another application of 50 mg. radium was put in the vagina for 24 hours on 1-2-63. The patient was discharged after few days.

The patient did not turn up for further follow up and died at home on 5-3-63.

Discussion

Mesodermal mixed tumours of the female genital tract arise almost exclusively from the mucosa of the body of the uterus, cervix and vagina. They are called mixed tumours because they contain a variety of mesodermal elements such as cartilage or mucoid tissue, but are characterized especially by the presence of striated muscle fibres which is generally considered to be heterotopic. These tumours are monodermal in origin and the constant component is some variety of sarcoma. They are named variously according to their site of origin, macroscopical and microscopical features such as sarcoma botryoides, rhabdomyosarcoma, chondrosarcoma, carcinosarcoma etc.

Frequency

Sternberg et al. (1954) reported 21 cases of mixed mesodermal tumour among 26,114 patients, admitted to

Charity Hospital of Louisiana, during a period of 6 years (0.08 per cent). Taylor (1958) found 20 such cases within 10 years at the Women's Hospital, Birmingham. In our hospital there were only 2 such cases during the last 12 years out of 5881 cases. This shows that the incidence of such disease is rare but not so extreme.

Age

Mesodermal mixed tumours may occur at all ages. Taylor (1958) had shown that vaginal tumours are more common in children, corporeal tumours in postmenopausal women, and cervical growths are seen in all age groups. Sternberg et al. (1954) found that the average age incidence was 51.5 years. In their series 3 cases were found in children — out of which in 2 cases, the growth was in the vagina.

In our 2 cases, the vaginal tumour was found in an infant of 2 years old and the cervical and corporeal tumour in a postmenopausal woman. The cases in the present series tally with others in this respect.

Symptomatology

The two cases in this series were diagnosed within two and half months of their onset. Bleeding and discharge were present in both. In the second case sepsis was present as the tumour was necrotic.

In Sternberg et al.'s series, three and one-third months was the average interval between the onset of symptoms and the diagnosis of the disease. Abnormal vaginal bleeding was the predominating symptom and encountered in all cases of their series.

Aetiology

Like other malignant neoplasms, the etiology of mesodermal tumours is not known. Hill and Miller (1951) suggested that previous pelvic irradiation may be one of the aetiological factors. In Taylor's series of 40 cases (1958), 3 cases had artificial menopause by intrauterine radium therapy, but in Sternberg et al.'s series, none had previous pelvic irradiation which agrees with our findings also.

Gross Appearance

Both our cases presented as a polypoidal growth. Simple polypus in children is very rare. Duncan and Fahmy (1953) were of the opinion that any polypus protruding from the vulva or lying in the vagina in children, should be diagnosed as sarcoma botryoides.

Histological Examination

Taylor (1958) has stated that cartilage is probably never seen in the grape-like tumours of infancy. But in our first case who was aged only 2 years, cartilagenous cells of both mature and immature types were found and the sarcoma was myxomatous in type.

The presence of rhabdomyomatous components in a neoplasm is very interesting. In our second case rhabdomyoblasts were found characterized by large rounded or elongated cells with acidophilic granular cytoplasm. The nuclei were big, usually eccentric in site and containing clumps of chromatin with sharply defined

border. At places islands of immature cartilagenous cells were also found.

Histogenesis

The histogenesis of these tumours is not definitely known. About 80 years ago Cohnheim suggested that these tumours develop from superfluous embryonic rests which failed to mature and persisted as such after birth. A modification of this theory was put forward by Wilm who suggested that the rests originate from the lumbar region which are carried down along with the descent of Wolffian ducts. As these tumours are not found in the broad ligaments but away from it, this theory is not accepted now-a-days.

Pfannenstiel (1892) suggested that these tumours arose by metaplasia of the mesodermal tissue of the uterus. Macfarland (1935) put forward the theory of dysontogenesis and suggested that both the stromal and epithelial elements of the tumours arose from the embryonal tissues of the urogenital ridge.

Meyer (1949) suggested that these tumours may arise form the illegal connections between the Wolffian and Mullerian ducts as they are found very close to each other. Macfarlane and Pritchard (1954) suggested that in these tumours there is a variable degree of differentiation towards the endometrial stroma and glands. Sternberg *et al.* suggested that these tumours originate from the endometrial stroma and explained the occurrence of such tumours in children due to the presence of these tumour cells in endocervix and even beneath the vaginal epithelium. Taylor (1958) agrees with that of Sternberg about the Mullerian origin but is of opinion that these tumours originate from the Mullerian mesoderm. Williams *et al.* (1962), reviewing this subject, came to the conclusion that these tumours do not arise from the embryonal rests of undifferentiated mesenchyme but from the endometrium at situ.

From this it can be concluded that these tumours are possibly of Mullerian origin.

Spread. The mesodermal mixed tumours usually spread locally which may extend to the pelvis and abdominal cavity. Distant metastases to lungs, liver, pericardium, bones and eyelids, are not rare. They may also spread through the lymphatic routes which may involve the pelvic, paraaortic and mediastinal group of glands. As autopsy could not be done in our cases, opinion could not be given regarding this respect.

Following surgery vaginal recurrence is common as found in our second case.

Treatment and Prognosis. It is difficult to decide the best line of treatment for this disease. Surgery, radiotherapy or a combination of the two, have been tried by different workers, but the results are very disappointing and fatal outcome is the rule. Because of low metastases and high incidence of local recurrence, radical surgical operation was carried out by many operators. In our second case total hysterectomy with bilateral salpingo-oophorectomy was done instead of Wertheim's hysterectomy, which was considered unsuitable as the general condition of the patient was

poor. The vaginal metastases which occurred within a month following surgery in this case, were treated by radium with the hope of beneficial result. But it was found to be disappointing.

The average duration of life after diagnosis is estimated to be one year by Glass and Goldsmith (1941). According to Hardy and Moragues (1952), majority die within six months. In Sternberg *et al.*'s series the average survival rate following diagnosis was 8.4 months and the longest survival was 27 months. In Taylor's series (1958), only six cases survived more than four years. In our series both cases died within six months of diagnosis. In children there is only one case on record who survived more than six years. This case, a 26 month old child, was operated by Meigs by abdominal hysterectomy and perineal vaginectomy. (Ulfelder, H. and Quen, S. H., 1947).

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References

1. Cohnheim, J.: Virchows Arch. **65:** 64, 1875.
2. Duncan, A. S., and Fahmy, E. C.: (1953): Jour. Obstet. Gynae. Brit. Emp. **60, 87.**
3. Glass, M. and Goldsmith, J. W.: Am. J. Obst. & Gynec. **41:** 309, 1941.
4. Hardy, T. A. and Moragues, V.: Am. J. Obst. & Gynec. **63:** 307, 1952.
5. Hill, R. P. and Miller, F. R. J.: Cancer. **4:** 803, 1951.
6. Macfarland, J.: Surg. Gynec. & Obst. **61:** 42, 1935.
7. Macfarlane, K. T. and Pritchard, J. E.: Am. J. Obst. & Gynec. **68:** 652, 1954.
8. Meyer, R.: Autobiography of Dr. Robert Meyer (1864-1947), Hermy Shuman.
9. Pfannenstiel, J.: Virchows Arch. **127:** 305, 1892.
10. Sternberg, W. H., Clark, W. H. and Smith, R. C.: Cancer. **7:** 704, 1954.
11. Taylor, C. W.: J. Obst. & Gynec. Brit. Emp. **65:** 177, 1958.
12. Ulfelder, H. and Quan, S. H.: Surg. Clin. N. Am. **27:** 1241, 1947.
13. Williams, T. J. and Woodraff, J. D.: Obst. & Gynec. Surg. **17:** 1, 1962.