Malignant granular cell myoblastoma

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SYNOPSIS A case of granular cell myoblastoma which metastasized with fatal results is described. The literature relating to similar cases is reviewed and a total of 13 acceptable cases is listed.

The precise nature of the lesions which have been called granular cell myoblastomas for 40 years is still uncertain. There is no doubt, however, that innocence of behaviour is a very constant feature and the great rarity of metastasizing lesions seems to justify the present case report. Those who are interested in discussions on histogenesis are referred to the excellent paper of Fisher and Wechsler (1962). These writers concluded that the lesions were granular cell 'Schwannomas', not necessarily neoplastic.

It is unfortunate that Abrikossoff (1926) in his original description included in his fourth group tumours which were either rhabdomyosarcomas or sarcomas of uncertain nature whose histology differed widely from the typical granular cell pattern. Since then there has been a recurring tendency to include under the title 'myoblastoma' a number of tumours of differing histogenesis which happen to include occasional cells with a granular appearance. For example, the cases reported by Hartz (1944), Ackerman and Phelps (1946), Meredith, Kay, and Bosher (1958) and others, appear to the writer to be alveolar soft part sarcomas and there seems little justification for labelling these 'granular cell myoblastomas with an organoid pattern'. Thus, any case which is claimed to represent a true malignant granular cell myoblastoma needs very careful examination (Gamboa, 1955).

The following case appears to have all the necessary qualifications for inclusion.

CASE REPORT

The patient, a woman of 82, presented with a mobile, slightly tender lump about 6 cm. in diameter in the left lumbar region. No other abnormalities were discovered at that time. The lump was excised and showed the typical histology of a granular cell myoblastoma with no features of malignancy. She remained well for two years and was then referred to Westminster Hospital with a local recurrence 7 cm. in diameter; a mass 6 cm. in diameter in

the left axilla and a mass 4 cm. in diameter in the left groin. All these lesions were treated by supervoltage radiotherapy to a total of 5,700 r. with partial regression. Six months later the three tumours began to increase in size and further lesions appeared in the left breast and right groin. Her health steadily deteriorated and she died after a total illness of three years and three months.

NECROPSY FINDINGS The body was that of a wasted elderly woman. There were visible tumour masses in both groins and in the left lumbar region. A left bloodstained pleural effusion was present and there were multiple metastases in both lungs, one of which was invading the pericardium. The peritoneal cavity was free of growth. There was a large local recurrence at the primary site involving surrounding muscles, and invaded lymph nodes were found in the left axilla and both inguinal regions. There was also a tumour deposit in the left breast.

HISTOLOGY All the main tumour deposits were examined. Sections were stained with haematoxylin and eosin; P.A.S. (with and without diastase treatment); P.T.A.H.; Best's carmine; Masson's trichrome and Gomori's method for reticulin. Herxheimer's stain for fat was done on frozen sections. The histology was remarkably constant and every section showed appearances typical of granular cell myoblastoma. Mitotic figures were not observed. In some sections tumour cells were seen in lymphatics and invasion of pulmonary veins was also noted. There were no appearances suggestive of any other type of tumour.

The staining reactions of these tumours are known to be variable. In this case the cytoplasmic granules were P.A.S. positive with and without diastase treatment. With Masson's trichrome they stained a reddish brown colour. Fat stains were negative. The histological appearances are shown in Figures 1-4.

DISCUSSION

Gamboa (1955) stated that there were 10 acceptable cases of malignant granular cell myoblastomas and added one of his own. He rejected 21 cases on the grounds that, judging from descriptions and photomicrographs, they were or could have been rhabdomyosarcomas or alveolar soft part sarcomas. The

FIG. 1. The primary tumour showing clumps of granular cells. H. and E. $\times 100$.

FIG. 3. Metastasis in inguinal node. H. and E. $\times 50$.

FIG. 2. Recurrence at primary site showing P.A.S.-positive granules. P.A.S. $\times 125$.

FIG. 4. Pulmonary metastasis showing tumour cells in and around a pulmonary vein. H. and E. $\times 38$.

writer has re-examined these reports and agrees with his findings with two exceptions. The case described by Schwidde, Meyers, and Sweeney (1951) looks like an alveolar soft part sarcoma and is excluded. Case 8 is substituted for case 9 in the cases of Howe and Warren (1944) excluded by Gamboa. There was no suggestion of malignancy in case 9. Case 2 of Crawford and de Bakey (1953) is a follow up of that of Powell (1946).

Since 1955 we have been able to find seven further reports of malignant granular cell myoblastomas. Svejda and Horn (1958) described a case of a 48-year-old female who had a small tumour removed from the right groin. Three years later she died with disease in the intestines, peritoneum, lymph nodes, heart, and lungs. This case is acceptable although the authors considered that this was not a true tumour but a generalized mesenchymal degeneration attacking particularly muscle cells, fibrocytes, and histiocytes. In the same year Meredith *et al.* described a metastasizing

granular cell tumour of organoid type but, in the writer's view, this was an alveolar soft part sarcoma. Hunter and Dewar (1960) described a tumour of the colon in a 75-year-old woman which in some areas was histologically malignant. However, there was no record of recurrence or distant spread. In 1962 Caby, Duperrat, and Ecochard described a case of a 40-year-old woman with a tumour of the right groin which metastasized. The quality of the photomicrographs make this case difficult to assess and it has been excluded. The case of Krieg (1962) also appears doubtful. The photomicrographs are unconvincing and his ribbon-like and 'elongate' cells suggest a possible rhabdomyoblastic origin. Kirschner (1962) described a myoblastoma of the breast which he regarded as malignant on histological grounds. There was no evidence, however, of metastatic spread. We have been unable to study the case reported by Pulsoni (1963). Since that time the writer has been unable to find any other reports of metastasizing granular cell

TABLE I

CASES WITH METASTASES

Case No.	Year Author Case No.	Age	Sex	Site of Primary	Signs and Symptoms	Therapy	Subsequent History	Duration of Illness (mth.)
1	1945 Ravich <i>et al.</i>	31	Male	Urinary bladder	Haematuria and frequency	Excision and radiotherapy	Died 17 months after excision with metastases to nodes, bones, lung, pericardium, peritoneum, liver, spleen, prostate	17
2	1953 Crawford and De Bakey Case 1	50	Female	Breast	Lump in breast	Supportive	Metastases to left lung, liver, and coeliac nodes; died after 12 months	12
3	1953 Crawford and De Bakey (Powell, 1946)	31	Female	Subcutaneous nodules over trunk and extremities	Skin nodules	Excision and radiotherapy	Metastases to uterus and ovaries after 14 years; to tongue, lip, vulva, oesophagus and neck after 20 years	240
4	1955 Gamboa	30	Female	Thigh	Painful lump	Excision and radiotherapy	Metastases to inguinal lymph nodes and left lung after 3 years	60
5	1948 Dunnington Case 2	40	Male	Eyelid	Swelling of eyelid	Excision	Generalized metastases after 2 years	24
6	1949 Ceelen	45	Female	Arm	Multiple tumours of left arm	Excision	Metastases to axillary nodes, breast, and lungs after 1 year	54
7	1952 Ross <i>et al.</i> Case 1	60	Male	Lumbosacral area	Swelling in lumbosacral area	Excision	Metastases to inguinal nodes and lungs after 3 years	36
8	1952 Ross <i>et al.</i> Case 2	58	Female	Skin of left ankle	Swelling over left ankle	Excision and radiotherapy	Metastases to inguinal nodes; died after 8 years	96
9	1958 Svejda and Horn	48	Female	Right groin	Lump in groin	Excision and radiotherapy	Metastases to intestines, liver, lymph nodes, peritoneum, pleura, myocardium, lungs, abdominal wall	42
10	1967 Mackenzie	82	Female	Left loin	Lump in loin	Excision and radiotherapy	Metastases to lungs, lymph nodes, and breast	39

TABLE II

CASES WITH SUCCESSFUL RESULT								
Case No.	Year Author Case No.	Age	Sex	Site of Primary	Signs and Symptoms	Therapy	Subsequent History	Duration of Illness
11	1952 Ross <i>et al.</i> Case 3	33	Female	Left thigh	Asympto- matic lump	Excision	Recurred 5 months after initial excision; no further trouble after second excision	Alive and well 170 months
12	1960 Hunter and Dewar	75	Female	Colon	Abdominal pain	Excision	No recurrence or metastases after 15 months	No recent follow-up available
13	1962 Krischner	67	Female	Breast	Lump in breast	Excision	No recurrence or metastases	No recent follow-up available

myoblastomas. It is worth mentioning, however, that there have been reports of multiple tumours of this type with no sign of malignancy (Baraf and Bender, 1964; Ullman and Dacro, 1965).

In a review like this dependence upon written descriptions and photomicrographs can mean that some cases are included or excluded wrongly. There is the added difficulty here that acceptance or rejection may depend on the assessor's view of histogenesis. For example, if these tumours are regarded as malignant schwannomas then only schwannomatous tissue is permissible in addition to the granular cells. On the other hand, if the granularity is regarded as a degenerative or metabolic change which may affect a variety of mesenchymal cells, as suggested by Svejda and Horn (1958) and Sobel and Churg (1964), then the number of acceptable cases must increase. In the present uncertainty only those cases where the typical granular cells predominated in the primary tumour and in the metastases and where there was no evidence of any other type of malignant neoplasm, have been accepted.

These cases are shown in Tables I and II. Table I includes those where the tumour gave rise to definite metastases. Table II includes three cases where the tumour appeared histologically malignant but where, apart from one recurrence, excision resulted in apparent cure. The total number of cases is 13. The writer believes that these are malignant neoplasms. However, the possibility that the granular cell appearances may result from some degenerative or metabolic

change is not excluded. In malignant cases such a change would be associated with true neoplasia.

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