MESENCHYMOMA (ANGIOLIPOSARCOMA) OF THE THIGH

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The term mesenchymoma was first applied by Gilmour (1943) to an unusual recurring tumour composed of embryonic connective tissue. The tumour he reported appeared histologically benign, but recurrences developed after every attempt at local removal. Since then, three more cases of a similar character have been collected and described by Symmers and Nangle (1951), who also recorded the fatal termination of Gilmour’s case.

We now report two cases of mesenchymoma each occurring in the thigh of a female patient. They are compared with the four previously described.

CASE REPORTS

Case 1—A woman aged forty-seven noticed pain and swelling of the right thigh just above the knee. The swelling gradually increased and became more painful and interfered with movement of the knee and with walking. She did not attend for advice until two and a half years after the onset of symptoms. On examination, the patient’s general health was satisfactory and she had recently gained weight. Temperature and pulse were normal. The front of the right thigh was greatly enlarged by an ovoid, smooth, tender swelling extending from the upper border of the patella into the upper third of the thigh (Fig. 1). The skin was tightly stretched over the tumour and many dilated veins could be seen; the swollen limb felt warmer than the unaffected thigh. The tumour did not involve the skin but was fixed to the deeper structures. Fluctuation was not elicited. There was an effusion into the right knee joint. Flexion of the knee was limited to 40 degrees. No palpable lymph nodes were discovered in the groin or abdomen. The liver and spleen were not palpably enlarged. Radiographs of the thigh showed a large soft-tissue shadow, extending mainly in the long axis of the limb and occupying the quadriceps compartment of the thigh. There were no areas of calcification. The femur itself appeared normal. Radiographs of the chest were normal. The erythrocyte sedimentation rate was 32 millimetres in one hour (Wintrobe). Haemoglobin was 75 per cent. The Wassermann and Kahn reactions were negative.

A fibrosarcoma involving the quadriceps muscle was suspected. Biopsy was undertaken. A thinned-out layer of apparently normal muscle was first encountered and deep to this a greyish glistening capsule. The swelling was aspirated and a grey jelly obtained; a specimen of this material was then taken with a spoon. Culture of a swab taken from the wound was sterile. Sections of the material obtained were reported as fragments of a mesenchymoma.

Treatment—Because of the known tendency of this tumour to recur after incomplete removal and to grow more rapidly, amputation was advised. Since the tumour had already extended well up the thigh, and was diffusely involving the quadriceps muscle, the limb was removed by disarticulation at the hip joint, all the muscles being divided as high as possible. One year after the operation the patient was in good health and there was no sign of recurrence of the tumour.

Histology of the specimen—Macroscopically, the tumour was ovoid and soft, and measured 19 centimetres by 6 centimetres by 15 centimetres. It was partly surrounded by a thin diaphanous capsule. On gross section the tumour was found to be separated into lobules by fibrous septa. The cut surface was glistening and greyish white (Fig. 2). The tumour, which encircled the femur for almost three-quarters of its circumference, extended upwards from the knee joint as far as the uppermost limits of the vastus intermedius. Although it was mainly confined to the quadriceps group, it involved also the insertion of the adductor muscles into the shaft of the femur.

Microscopically, the tumour was similar to those described by Symmers and Nangle, and consisted of three main varieties of tissue: angioloblastic, fibroblastic and lipoblastic. The vascular and fibrous components were blended and formed lobules of varying size. The adipose tissue varied from immature lipoblasts to adult fat cells and was mainly found between the vasculo-fibrous lobules. The cells were seen to be spreading along and invading the capsule and fibrous septa. Mitoses were not numerous (Figs. 3, 4 and 5).

Case 2—A woman aged fifty noticed a swelling along the lower postero-medial aspect of the right thigh which grew slowly for two years before she sought advice on account of a more rapid
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Fig. 1
Case 1—Clinical photograph of affected limb after biopsy.

Fig. 2
Case 1—The tumour in situ and bisected in the long axis of the limb. The capsule, lobules and septa are shown.

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Case 1 - Sections showing an area of many mucinous cysts interspersed with lipoblasts (H. and E. × 68).

Case 1. Figure 4—Tumour tissue showing a mixture of angioblastic and lipoblastic tissue. Some primitive vascular channels are seen (H. and E. × 74). Figure 5—Section showing groups of cells resembling nucleated red blood cells in the midst of characteristic mesenchymatous tissue (H. and E. × 112).
increase in size. There was no sharp pain but an ache was complained of after use. On examination, an oval swelling occupied the postero-medial aspect of the right thigh just above the knee. It was well circumscribed, but it was attached to deeper tissues. It was not tender. Radiographs showed a soft tissue swelling in the thigh without any bone changes; there was no evidence of secondary deposits in the chest.

Treatment—The mass was treated at another hospital by an extensive local excision. The tumour was found lying deeply in the adductor canal; there was no obvious capsule. It did not appear to arise from any particular structure. Microscopically, the tumour was found to be a mesenchymoma. Sections of the specimen removed resembled closely the histological appearance in Case 1.

Progress and further treatment—The immediate post-operative course was uneventful, but one year later a recurrence of the tumour was observed. A lump four centimetres in diameter appeared in the centre of the old scar. The mass was removed together with the fascia of the surrounding muscles. There was a further recurrence one year later; local excision was again undertaken. There was yet another local recurrence nine months later, again treated by excision.

![Image](image.jpg)

**Fig. 6**

Case 2—Sections from a second recurrence removed two years after the first local excision. A central cellular area of sarcomatous appearance is seen surrounded by original tumour tissue (H. and E. × 89).

The specimen removed at the third operation showed the tumour to be involving the sartorius muscle, and histologically it presented a more primitive and active picture than before (Fig. 6). At the fourth operation it was obvious that the tumour was infiltrating the surrounding tissues. Amputation was therefore undertaken four years after the onset of symptoms and three years after the first local excision. The limb was severed well above the site of the highest recurrence. One year after operation there was no evidence of a return of the lesion.

**DISCUSSION**

Ewing (1940) described a "foetal or embryonal myxoid liposarcoma." The term "mesenchymoma" was first applied to this type of tumour by Gilmour (1943). The term mesenchymoma as applied to this particular tumour is thought to be appropriate because of the resemblance of the primitive fibroblastic component of the tumour to mesenchymal tissue. Angiomatous and lipomatous elements are also present and the tumour is at least locally malignant.

Confusion in terminology may arise because the term mesenchymoma has also been applied to other tumours such as myxomas, mixed malignant tumours of mesodermal origin.
TABLE I
SIX CASES OF MESENCHYMOA

<table>
<thead>
<tr>
<th>Case number</th>
<th>Author</th>
<th>Age at first occurrence (years)</th>
<th>Duration of symptoms before treatment</th>
<th>Sex</th>
<th>Site of tumour</th>
<th>Treatment and results so far as known</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pemberton and Cromack (1953)</td>
<td>44</td>
<td>2½ years</td>
<td>F</td>
<td>Thigh</td>
<td>Disarticulation at hip, which included the origins of quadriceps and adductor muscles. No recurrence to date (one year)</td>
</tr>
<tr>
<td>2</td>
<td>Pemberton and Cromack (1953)</td>
<td>48</td>
<td>2 years</td>
<td>F</td>
<td>Thigh</td>
<td>Three local excisions with recurrence after each at shorter intervals. Amputation through mid-thigh. No recurrence to date (one year)</td>
</tr>
<tr>
<td>3</td>
<td>Symmers and Nangle (1951)</td>
<td>34</td>
<td>1½ years</td>
<td>M</td>
<td>Thigh</td>
<td>Local removal. Recurrence in 1 year. High amputation. Malignant ascites and death. No necropsy</td>
</tr>
<tr>
<td>4</td>
<td>Symmers and Nangle (1951)</td>
<td>39</td>
<td>3 years</td>
<td>F</td>
<td>Thigh</td>
<td>Local removal. Recurrence in 14 months. High amputation. No known recurrence</td>
</tr>
<tr>
<td>5</td>
<td>Symmers and Nangle (1951)</td>
<td>23</td>
<td>1 year</td>
<td>F</td>
<td>Lumbar muscles</td>
<td>Local removal. Multiple recurrences. Excision and radiotherapy. Death 23 years after first excision</td>
</tr>
<tr>
<td>6</td>
<td>Symmers and Nangle (1951)</td>
<td>47</td>
<td>2 months</td>
<td>M</td>
<td>Buttock</td>
<td>Local removal and radiotherapy. Three subsequent recurrences. Hind-quarter amputation. Recurrence. Death 4 years after original excision</td>
</tr>
</tbody>
</table>

(Stout 1948), and even to undifferentiated sarcomata (Klein 1932). There is no doubt that the two cases presented here conform to the pattern of Gilmour's case to which he applied the description mesenchymoma.

The clinical picture is that of a locally malignant recurring tumour and in three of the cases (Table I) so far recorded death eventually resulted, although there was no firm evidence of metastatic deposits in any of these three fatal cases. It is felt that since recurrence seems invariably to follow local removal a relatively drastic surgical policy is justifiable and indeed necessary in the treatment of this type of tumour. If the locally invasive properties of the tumour are confirmed at biopsy and the histological picture conforms to that of "mesenchymoma" the proper treatment is an amputation or disarticulation without any attempt at local excision.

For details of Case 2 we are indebted to Mr A. G. Young of Hitchin. We wish particularly to thank Dr J. T. Prendiville, Consultant Pathologist at Chase Farm Hospital, for his help in both cases.

REFERENCES


Symmers, W. St C., and Nangle, E. J. (1951): An Unusual Recurring Tumour Formed of Connective Tissues of Embryonic Type (So-called Mesenchymoma). Journal of Pathology and Bacteriology, 63, 417.