OSTEOGENIC SARCOMA OF SOFT TISSUES

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In 1956, Fine and Stout extracted from the literature 31 authentic cases of osteogenic sarcoma of soft tissues and added 12 of their own to this list. In 1963, Kauffman & Stout added another new case, making it a total of 44 cases of osteogenic sarcomas in soft tissues. These do not include extraskeletal osteogenic sarcomas in organs, which according to Fine and Stout, numbered 72 in 1956.

Considering the rarity of this condition, we thought it fit to report another such case in the soft tissues, and this is the first case reported in Singapore.

CASE REPORT

This male, Chinese patient, 60 years old, was seen in the General Hospital, Singapore, on 11th June 1964, with a history of a painful lump over the left wrist of 4 months duration. There was no history of trauma. The lump was situated over the anterolateral border of the wrist and measured $2\frac{1}{2}$" $\times$ $1\frac{1}{2}$". It was hard in consistency, not tender, and was not attached on its deep surface. It was mobile from side to side. The skin was adherent to the tumour and was red and angry looking with some telangiectasis. The movements of the wrist and fingers were normal and there was no paraesthesia. There were no constitutional symptoms and the serum biochemistry was within normal limits. X-ray of the chest was clear and the lymph nodes were not palpable.

The X-ray showed that the tumour was calcified and that it was in the soft tissues, and not arising from the lower third of the radius (Fig.1).

At operation it was noted that the radial nerve was enclosed in the tumour mass. The tumour was easily dissected on its deep surface and there was no involvement of the tendons or the periosteum. The tumour was widely excised and the raw area grafted with split thickness skin. The patient refused amputation and when seen on 3rd August 1964 there was recurrence and this was again widely excised and grafted. He still refused amputation and on follow up on 18th January 1965 there was an another early nodule. The chest and lymph nodes were clear. Excision and grafting was repeated and he is now having local deep X-ray therapy.

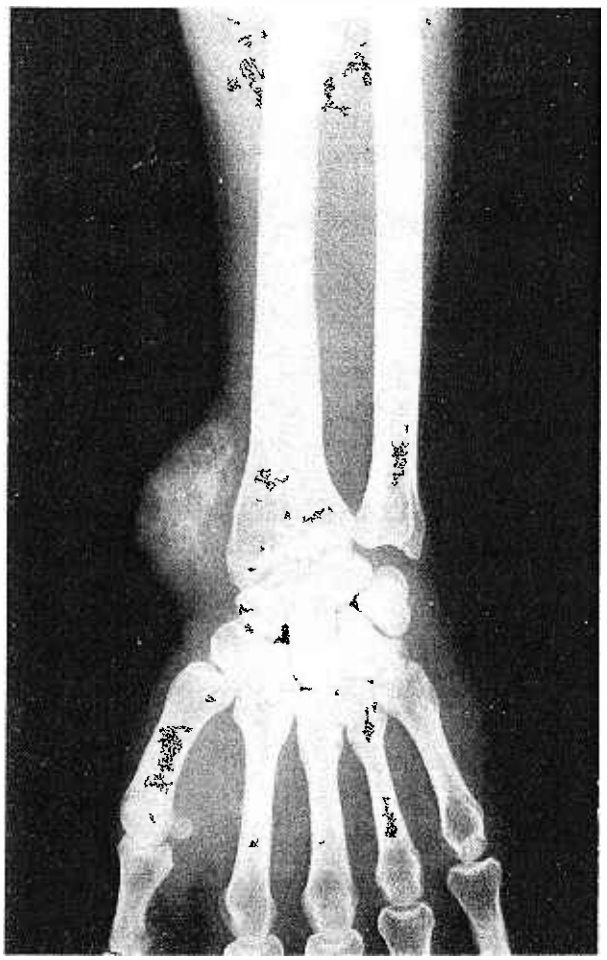

Fig. 1. Calcified tumour in soft tissues and quite distinct from the lateral aspect of the left radius.

PATHOLOGY

The specimen measures 5 cm. long, 4 cm. wide and 2 cm. deep. It is covered by skin which is quite adherent to the tumour. The cut surface shows a very firm fibro-osseous tumour with good bone formation centrally (Fig. 2). There is no encapsulation or circumscription, and in fact the entire specimen appears to be

tumour except for the attached skin. The texture of the tumour is greyish white. The radial nerve is seen sticking out from one side.

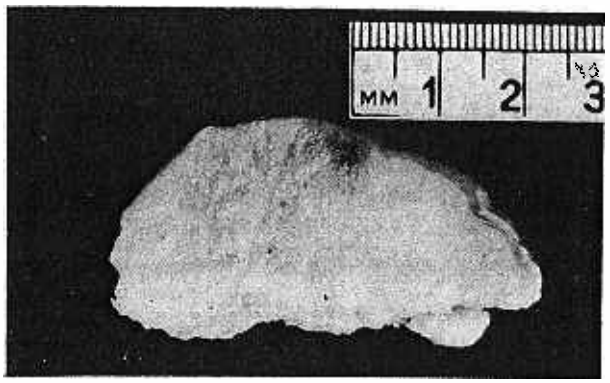

Fig. 2. Primary tumour showing firm white texture with gritty feel and almost visible bony spicules.

The first recurrence measures 1 cm. in maximum diameter with a widely excised area of normal skin. The cut surface of the nodule is firm and glistening, and has a fritty feel.

HISTOLOGY

The tumour is not at all circumscribed but merges imperceptibly as well as occasional infiltration of the surrounding fibrous tissue. It has infiltrated into the overlying skin with only a very thin strip of normal dermis between the tumour and epidermis (Fig. 3). The radial nerve is caught up in the more peripheral portion of the tumour and the nerve is otherwise quite normal (Fig. 4).

The tumour is composed of a very cellular and malignant fibroblastic tissue with numerous mitoses. The cells are mainly spindle in shape but pleomorphism is the key note. Spicules of calcified and uncalcified osteod are strewn indiscriminately throughout this pleomorphic stroma of malignant, fibroblastic tissue (Figs. 5 & 6). Ossification is mainly of the intramembranous type (Fig. 7), whilst only very occasionally does one see cartilage (Fig. 8) in the midst of bone (endochondral osteogenesis). Bland calcification without prior osteod formation is not seen.

An admixture of mature fibrous tissue is not infrequent especially in the deeper reaches of the tumour. Giant cells are not conspicuous and only few groups of them are seen here and there.

The recurrences show essentially the same picture except that there is much more ossification (Fig. 7).

Diagnosis Osteogenic sarcoma of soft tissue of the sclerotic type.

DISCUSSION

The differential diagnoses of this case are (1) Pseudomalignant osseous tumour of soft tissue, (2) parosteal sarcoma and (3) ossification in a neurofibrosarcoma. In the first instance, there is no differentiation of this tumour towards the periphery, and the malignant recurrences tend to discount it further. The second possibility is excluded by the X-ray appearances and dissection at surgery, where the tumour was found to be quite a distance away from the intact periosteum. Furthermore, the main tumour and the recurrences have been growing outwards into skin rather than inwards towards bone. The histology of the present tumour has been very malignant and aggressive from the start and the recurrences are if anything, a little more differentiated, than the original tumour. This mode of development is in contrast to that of parosteal sarcoma. The last differential diagnosis can be excluded from the fact that the radial nerve is intact and normal at the periphery of the tumour. The histology also does not suggest any pre-existing neurofibromatous areas.

The histological appearances and the rapid recurrences at short intervals tend to conform to the malignant nature of the hitherto reported cases. Fine and Stout, after reluctantly accepting two doubtful cases of cures, pointed out that the 5-year survival rate is only 8·8% —a figure which is no better than osteogenic sarcoma of bone.

The age and sex of our patient fit in quite well with the older age group and male sex of the reported cases. 75% of the tumours reported were located at the extremities: our present tumour occurred in the wrist. A history of trauma cannot be illicited in our patient, whilst Fine and Stout mentioned 7 cases which had histories long enough for them to have arisen from benign growths, such as myositis ossificans.

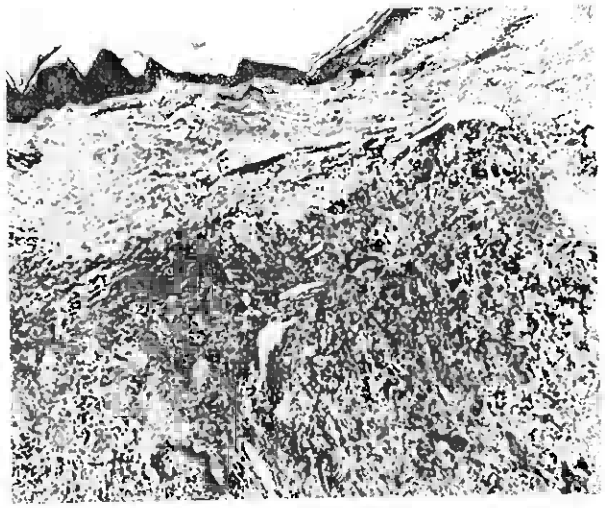

Fig. 3 Soft tissue osteogenic sarcoma separated from epidermis by thin layer of dermis. Haematoxylin & eosin x 45.

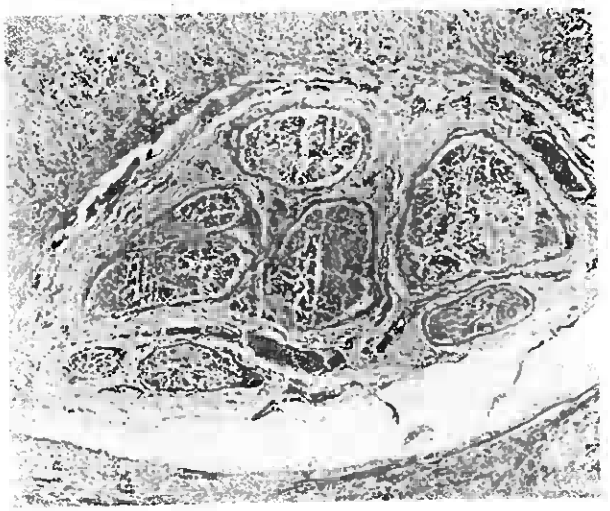

Fig. 4. Intact and normal radial nerve caught up at periphery of tumour. Haematoxylin & eosin x 45.

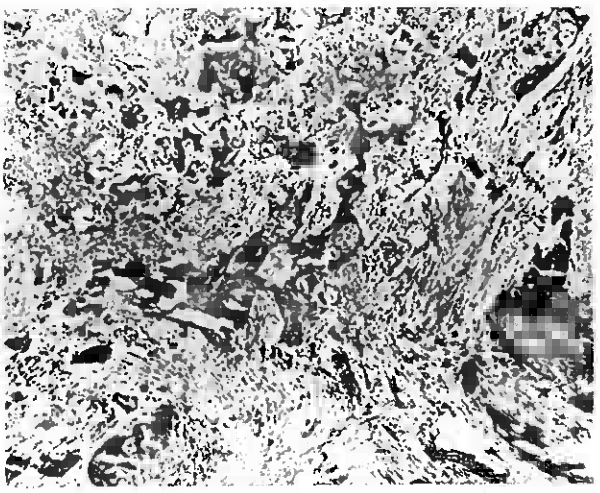

Fig. 5. Intramembranous ossification in a malignant fibroblastic stroma. Haematoxylin & eosin x 45.

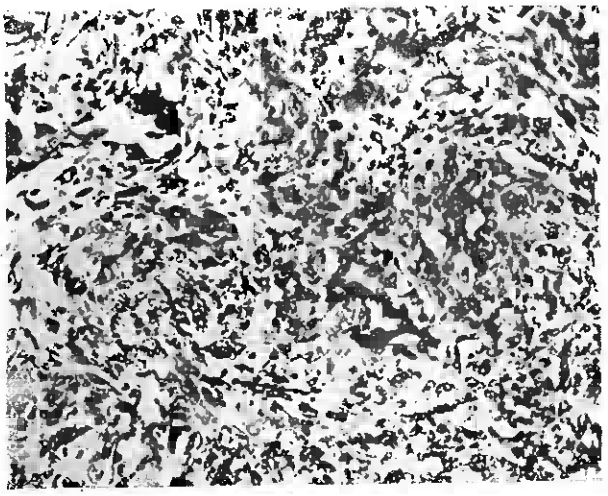

Fig. 6. High power showing malignant cells with spicules of bone. Haematoxylin & eosin x 150.

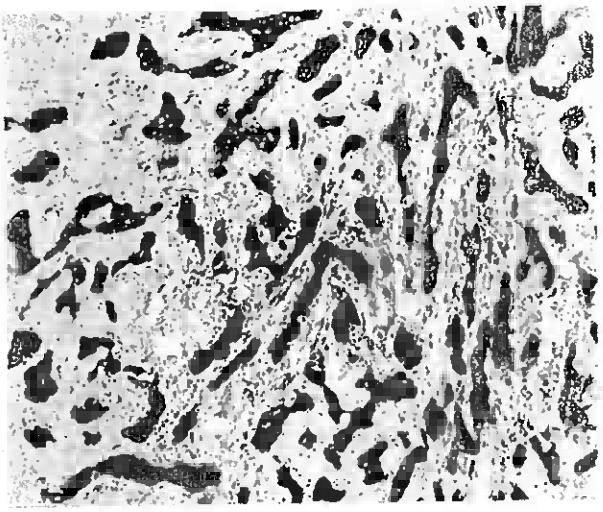

Fig. 7. Fairly mature, calcified bone in recurrence. Ossification is mainly intramembranous in type. Haematoxylin & eosin x 45.

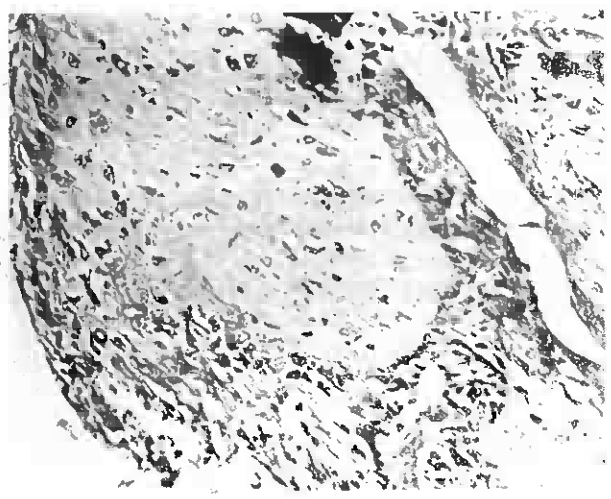

Fig. 8. Cartilaginous areas are seen only very occasionally in this tumour. Haematoxylin & eosin x 150.

SUMMARY

A case of extraskeletal osteogenic sarcoma of soft tissues at the wrist is reported in a middle-aged male Chinese. It recurred twice in six months. The differential diagnosis of pseudo-malignant osseous tumour, parosteal sarcoma and neurofibrosarcoma are discussed. This tumour is just as malignant as its counterpart in bone except it occurs in the older age groups.

We wish to thank Professor A. P. Stout for histological confirmation of this case. We also wish to thank Mr. T. C. Tan for the photographs.

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