EWING'S TUMOUR AFFECTING THE MEDIAL CUNEIFORM BONE

Report of a Case

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The characteristic radiographic appearances of Ewing's tumour in a long bone are well known, but it is not so generally realised that the changes that occur when a short bone is affected are quite different and by no means typical. For this reason the following case is thought to be worth recording.

A boy of fourteen complained of pain in his left foot which developed after a kick and which had been present for about six months. There was no obvious deformity of the foot and all movements were full, but there was slight oedema and increased warmth on the medial aspect of the middle of the foot. The radiographic appearances are shown in Figure 1.

It was considered that the condition was probably a low grade infection of the medial cuneiform bone, but because the diagnosis was uncertain a biopsy was performed. The medial cuneiform bone was exposed and a small hole made in the cortex. The interior of the bone contained grey semi-solid material which was scooped out. The histological appearances were reported as being those of Ewing's tumour (Professor H. L. Sheehan and Professor S. L. Baker). Amputation below the knee was performed. Pathological examination of the specimen confirmed the previous histological findings (Figs. 2 and 3).

The patient remained well for two years, but at that time evidence of pulmonary metastases was found on radiographic examination. He died just over three years after the amputation. Permission for necropsy could not be obtained.

FIG. 1
Clinical radiograph of left foot.

DISCUSSION

The chief interest of this case centres round the interpretation of the histological appearances. Sections from the amputated specimen were submitted to Professor H. L. Sheehan, of the Department of Pathology, University of Liverpool; to Professor R. A. Willis, of the Department of Pathology, University of Leeds; and to Professor S. L. Baker, Professor of Pathology in the University of Manchester. Professor Sheehan, who had reported on the biopsy specimen, discussed the appearances of the amputated specimen as follows: "The amputation specimen slides support the diagnosis of sarcoma quite unequivocally.

But is it a Ewing's tumour? This brings up the question of what is meant by a Ewing's tumour. There is considerable doubt as to whether it is a pathological entity. It seems easier to take the three aspects: 1) Clinically a picture of subacute osteomyelitis, commonly following trauma; usually in adolescent boys. 2) Very great radiosensitivity. 3) A histological picture with the general appearance of round-celled sarcoma, lymphosarcoma, neuroblastoma, undifferentiated carcinoma of bronchus, and the remaining tumours of this type. The nuclei are usually rather larger than those of lymphocytes; there is little cytoplasm. The tumour does not produce bone, does not destroy it much, and extends a long way up the marrow. The present case shows in places a certain tendency to

slightly oat-cell shape but in others is a round-celled type. I should accept it as having the same appearance as the general group of Ewing's tumour (or of the other tumours mentioned above). I doubt whether there is any specific histological appearance of Ewing's tumours so I should not like to be any more definite than that."

Professor Willis reported: "I agree that this is the kind of tumour which is commonly described as 'Ewing's tumour.' My views on this subject are epitomised in my book *Pathology of Tumours*, page 686. 'Ewing's tumour' is *not* a single pathological entity, but rather a

FIG. 2
Cellular part of the tumour.

FIG. 3
Tumour invading muscle fibres.

clinical syndrome which can be produced by several different kinds of tumours. One of the most frequent of these in young subjects is metastatic neuroblastoma, from primary growths in the adrenals or sympathetic ganglia. These primary growths are often not discoverable clinically, and are to be found only by careful necropsy. In my opinion, the cytology of the tumour in Mr Roaf's case strongly suggests neuroblastoma, though rosette formation is not distinct enough to justify a dogmatic diagnosis. In Professor Baker's letter I see a footnote saying 'metastases now present.' If Mr Roaf can obtain a competent necropsy on the case, he may later be in a position to identify the tumour more precisely. Otherwise, its nature will remain uncertain."

Professor Baker reported as follows: "There is in my view no definite histological criterion by which a 'genuine Ewing' tumour can be recognised. Some pathologists are doubtful if Ewing's tumour is an entity at all. Personally, I report bone tumours of the kind seen here as 'Ewing type'—by which I mean an undifferentiated tumour composed of cells with little cytoplasm, and with fairly uniform oval or rounded nuclei, not bone-producing but apparently arising in bone. Tumours of this general histological type are radiosensitive whether they are primary in bone or arise elsewhere, so that this does not help in distinguishing a Ewing tumour from other tumours of similar histological type. Willis has reported several cases of neuroblastoma of the adrenal in which a bone deposit producing all the characters of a Ewing's tumour was the presenting feature clinically. In my collection of 'Ewing type' tumours, although they all conform to the general description given above, they have not identical histological appearances and probably represent a group with certain similarities and not a single definite entity. In Mr Roaf's case the tumour is certainly malignant and there seems a reasonable probability that it is a primary bone tumour belonging to this group. It would be an unusual site for a single secondary growth."

I wish to thank Professor Sheehan, Professor Willis and Professor Baker for their valuable assistance.

REFERENCE

WILLIS, R. A. (1948): *Pathology of Tumours*. London: Butterworth & Co. (Publishers) Ltd.