

CENTRAL SARCOMA OF BONE.

By W. I. WHEELER, M.D., F.R.C.S. ;
Surgeon to the City of Dublin Hospital.

[Read in the Section of Pathology, May 5, 1899.]

THE specimen I am about to show is a left lower limb of a female, aged twenty-five years, by avocation a domestic, who was admitted into the City of Dublin Hospital upon the 28th of February of this year. She was a spare and delicate-looking woman, of nervous temperament, and suffered from an enlargement directly below and inferior to her left knee-joint; there was no effusion into her knee-joint, nor was this joint enlarged. Her history did not detail any injury, and the existence of the swelling was only noticed in November of last year, when her attention was attracted to the enlargement by the fact of being unable to bend her knee without pain. She was not anxious at the time, and did not think that the enlargement was of much consequence, and worked as usual, walking without any pain, provided her leg and knee-joint were in the extended position. In December last the swelling was noticeable on the external aspect of the limb below the knee. At this period she sought medical advice; the treatment consisted of plasters and blisters. She did not derive benefit; the enlargement gradually increased, but there was not increase of pain—in fact, not at any time was much pain experienced. Occasionally, what she describes as a throbbing pain occurred when her limb was at rest, but never until her admission was the discomfort and pain excessive.

In January last, by advice, she kept her limb in the extended position, and did not walk scarcely at all; when she did, she had considerable pain, and also after walking, no matter what position she kept her limb in. She assigns no cause for the affection, and there would appear to be no heredity, as both her parents are alive and healthy, also one sister and five brothers; there was only one death in her immediate family—one sister, a child, who died of measles.

Although I have had three very similar cases to the one above described I did not record a definite diagnosis for some time, for this case differed in several particulars from the other cases in the absence of pain, in absence of thickening of the tissues, and increased density. In this case on examination one's finger would sink into a sulcus about three inches in length. In the other cases there was considerable pain almost from the inception of the disease; there was thickening of the parts in two of the cases.

In March last I operated upon this patient by making a longitudinal incision over the enlargement; it was then quite evident that the anterior surface of the tibia to the extent of three inches in length and three and a half circumferentially had been destroyed, and this accounted for the depression or sulcus. The cavity was filled with broken-down material, which I scraped carefully away, and finally douched out the cavity formed in the bone. Not a particle of tissue remained as far as could be ascertained, and assisted by artificial light, the patient's knee-joint was intact. The treatment that followed is not within the province of this communication; suffice it to say that consequent upon some enlargement of the knee-joint and for very considerable pain I amputated her leg above her knee-joint.

The specimen examined proved to be a myeloid sarcoma

(the least malignant of the sarcomata); progress arrested by articular cartilage. The growth most likely in this case was from the medulla causing the great local expansion of the bony wall. The specimen is rich in giant cells. These tumours are seldom or ever composed wholly of giant cells, but the giant cells are usually embedded in a matrix of spindles, and it is often a question whether the tumour is to be ranked as a spindle-cell sarcoma with giant cells added, from the fact of its having grown in connection with bone, or as a distinct variety of sarcoma. In cases such as malignant epulis the tumour appears to be simply a spindle-cell sarcoma invading bone, destroying it, and liberating the bone corpuscles, which develop into giant cells.

Of the four cases which came under my notice, all in the same situation—all described after careful examination to be myeloid sarcomata—two recovered by the minor operation, scraping out the growth; two had to be amputated. The question naturally arises is it possible when there is so much spindle-celled element to say positively that it was not a spindle-celled sarcoma, but a myeloid? are the pathological myeloplaxes different from the normal giant cells of the marrow, which some look on as osteoclasts? There was no tendency to the formation of bone in the specimen shown which is often formed in myeloid sarcoma.

DR. E. J. MCWEENEY said that the two microscopical sections which he had prepared for Mr. Wheeler showed an enormous number of giant cells or myeloplaxes. The tissue resembled normal bone marrow, with an extreme multiplication of the myeloplaxes. The cells were of positively gigantic proportions, and some possessed about a hundred nuclei. The nuclei of many of the smaller round cells showed the mitotic figures,

but there was no evidence of the mitosis in the nuclei of the myeloplaxes. Concerning the origin of the myeloplaxes, Schäfer's picture represented the nuclei lobulated as though undergoing direct division, but he (Dr. McWeeney) thought this very improbable. Mr. Wheeler's suggestion that such tumours should be removed out of the class of sarcoma and called myelomata was impossible, because the term myeloma was already appropriated to a kind of tumour which is not identical with Mr. Wheeler's. Weichselbaum's book described myeloma as a variety of small round-celled tumours growing from the marrow of bones, but not reproducing the giant-celled structure of marrow. It was multiple, and originated either from skull bones or the bones of the vertebral column, occurring in elderly people, and was often associated with blood abnormality, so that Weichselbaum looked upon it as a part of leukæmia or pseudo-leukæmia rather than a distinct tumour. Regarding the tissue from which they originate, Mr. Bland Sutton laid stress on the fact that periosteal sarcoma never contains giant cells. Mr. Jackson Clarke states that some periosteal sarcomata have a giant-cell character, and this was also the speaker's opinion, based on experience of a good many such growths. As for the proposition of removing such tumours out of the sarcomata, he thought it impossible, for the simple reason that there was an unbroken chain of intermediate links between a round or spindle-celled sarcoma, with a very few giant cells, on the one hand, and a sarcoma crowded with such cells on the other hand. In Mr. Wheeler's specimen there was no tendency whatever to the formation of spicula of bone often characteristically formed in myeloid sarcomata.

DR. J. M. PURSER said that in the marrow of normal bones the cells resembling the myeloplaxes are most commonly met with in young bones, and are very rare in the marrow of adult animals. Large cells were exceedingly common, but had not multiple nuclei, but generally one nucleus of very irregular shape, and extremely lobed and bossy, many of the lobes often connected together by small threads or processes, but they were not nuclei dividing. He thought that the pathological myeloplaxes were something different from the normal giant cells of the marrow, which he looked on as osteoclasts. These cells showed multiple nuclei, and very rarely karyokinetic figures. How the nuclei divided in giant-celled sarcomata he did not know. He lately saw a tumour which grew from a goat's jaw which proved to be a

fibrous sarcoma, in which there were enormous numbers of giant cells often arranged around bone undergoing absorption, while in other places the bone had entirely disappeared, and there was nothing but giant cells.

MR. WHEELER, in reply, said there were no bony growths thrown out in the tumour. He would like to know if material like that occurring in the tumour shown by him was taken out of a similar case, could it be possible, seeing that there was so much spindle-celled element, to say positively that it was not a spindle-celled sarcoma, but a myeloid sarcoma.