OSTEOGENIC SARCOMA IN A RABBIT

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No case of spontaneous osteogenic sarcoma has been reported in the rabbit, so far as the writer is aware. Four tumours in rabbits obviously arising in bony structures have been described: two by Katase and one by Schultze, referred to by Polson (1), and one recently by Orr (2). Of these, three are described as round-cell tumours, probably of periosteal origin, and the fourth

as an adamantinoma. It is interesting to note that all of these arose in the jaw, and the tumour described below also appears to have arisen in the same region. Osteogenic sarcomata have been induced in rabbits by the injection of radium and mesothorium (Sabin, Doan, and Forkner, 3).

The tumour to be described here occurred in a grey rabbit received through the courtesy of Dr. G. F. Petrie of the Lister Institute, Elstree. It was a female, believed to be about three years old, and had been injected with Shiga dysentery polysaccharide intravenously. The animal was received two days after death, having been kept on ice. A mass on the right jaw had been observed some weeks before death.

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Examination showed a large tumour in the region of the right mandible extending into the neck, which had been partly dissected away. This tumour measured $8 \times 5.5 \times 6.5$ cm. and was bony in consistency, with a small necrotic area in the centre. On the right chest wall anteriorly was a tumour somewhat softer in consistency, but with firm areas, measuring $4 \times 5 \times 2$ cm., lying largely outside the ribs and involving two of them. On the left chest wall were two tumours of about half this size. In the omentum were several masses up to 2.5 cm. in diameter, and in the retroperitoneal region on both sides nodules were found up to 4 cm. In the region of each ovary was a mass 3 to 4 cm. in diameter; one of these was umbilicated and fixed to the upper end of the fallopian tube. The last-mentioned mass was bony in consistency and the others were of all degrees of firmness down to that of a soft-tissue tumour. None of them was fluctuant or contained any fluid. On the pleural surface of the left lung were two small bony nodules 1 and 1.5 mm. in diameter, and two others were found on the pericardium. The liver, spleen, aorta, kidneys, lymph nodes (where found) and thyroid were grossly and microscopically normal.

Microscopic examination of the mandibular tumour, which was probably the original lesion, showed a sclerosing type of growth, with massive bone formation, containing areas of closely packed cells showing numerous mitoses (Fig. 1). The tumours in the ovarian region were similar to this (Fig. 2). The tumour on the right chest wall was more cellular in type, with occasional spicules of newly formed bone (Fig. 3). The tumour in the omentum was still more cellular in type and contained in places numerous giant cells having

![Fig. 2. Bony Tumour in Left Ovarian Region. × 550](image-url)
FIG. 3. Soft tumour from chest wall, involving ribs. × 550

FIG. 4. Metastasis in omentum with giant cells. × 550
from five to fifteen nuclei (Fig. 4). This metastasis resembles more closely the osteoclastic type of growth. The pleural and pericardial metastases were of the type of the mandibular tumour (Fig. 5).

The tumour is considered to be an osteogenic sarcoma of the mandible, with metastases to the chest wall, retroperitoneal and ovarian regions, omentum, pleura and pericardium, which show variously the sclerosing and the osteoclastic types of growth. Dr. L. M. Hawksley of the Royal Cancer Hospital has kindly examined the slides and agrees in this diagnosis. Chemical examination of the original tumour was done by Mr. E. Downing of the Lister Institute, London, through the courtesy of Professor R. Robison. The inorganic salt estimations gave figures almost identical with those found in a control rabbit femur, while the phosphatase content, in spite of the long period elapsing after death, was several times greater than that of bone.

REFERENCES