

The operative measures adopted in this case were perfectly consonant with the improvements of modern surgery, and the issue of the case, so far as it has been revealed, is most instructive and encouraging.

ART. X.—*On Cartilaginous Tumours of the Upper Jaw*. By DR. OSCAR HEYFELDER, Private Lecturer on Surgery and Ophthalmic Medicine in the University of Munich; Member of the Academy of Naturalists at Breslau, and the Academy of Surgery at Madrid; of the Medical Societies at Vienna, Paris, Leipzig, Munich, Strasburgh, Brussels, Erlangen, Valencia; of Legal Medicine in Baden; and of the Surgical and Anatomical Society at Paris.

MALIGNANT and benign tumours of the jaws are very frequent, and often require operation. One of the less frequent, though not so rare as Mr. Paget<sup>a</sup> seems inclined to think it, is the *cartilaginous tumour*, or *enchondroma*.

Among 450 cases of diseases of the superior maxillary bone I found 74 cases of carcinoma; 48 of sarcoma, &c., and only 8 cases of enchondroma.

This tumour originates either within the maxillary sinus, or within the substance of the bone. Usually it increases slowly, seldom very quickly, and it sometimes remains stationary. If removed, it commonly very soon returns.

Cartilaginous tumours are usually of a spherical or broadly oval form, with smooth and even surfaces, though presenting more or less knobbed, or uneven hill-like elevations and lobes. If cut through, they crepitate under the knife; the interior is white, bright, hard, and consists of a homogeneous mass, or is formed of an aggregate of little tumours of different sizes, held together and surrounded by strings of hard, white, fibro-cellular tissue. The cartilaginous mass is not always homogeneous, but sometimes contains soft, or else osseous or calcareous grumous parts. The cartilage of the enchondroma simulates all sorts of physiological cartilage, and, like all enchondromata, those of the upper jaw are simple or mixed<sup>b</sup>. The former exhibit cartilaginous cells and a homogeneous or striped substance; the mixed enchondroma is combined with different

<sup>a</sup> Paget's Lectures on Pathological Anatomy, vol. ii. On the jaws these tumours are, I believe, very rare.

<sup>b</sup> A. Foerster: Handbuch der allg. pathol. Anatomie, Bd. ii. p. 122.

elements, especially with fibrous tissue, with cancer, with vascular growth, &c.

If enchondromata originate in the antrum, the periosteum, rich with glands<sup>a</sup>, is usually their point of departure. They may have existed there long before the patient becomes aware of their presence, and it is not until they touch the walls of the antrum that they will produce morbid symptoms, as other tumours in the same situation will do. The anterior wall forms a protuberance in the face; the median wall produces a narrowing of the cavity of the nose, and by-and-by a dislocation of the nose itself; the upper wall of the antrum, which is at the same time the floor of the orbit, is pushed upwards, diminishing the orbit, pressing the eye forwards, and rendering its movements difficult; the faculty of seeing is impaired or abolished; the hard palate of the affected side swells also in consequence of the tumour; the teeth become painful, loose, carious, and occasionally fall out, a symptom which is described by M. Gosselin<sup>b</sup> as pathognomonic of cancer of the antrum. But every one who considers that the roots of the molar teeth often project into the antrum, and that their nerves and vessels go through very thin canals, or even half canals, on the inner side of the walls, and that in the latter case they are covered only by the mucous membrane and the periosteum, will understand that a tumour, of whatever nature it may be, developing itself towards the under part of the antrum, must produce pain by causing pressure on the nerves, and caries by preventing nutrition through the vessels, and by this means, and by compression of the roots themselves, it will occasion looseness and loss of the teeth.

When the enchondroma increases still more, the deformity augments a great deal; the posterior nares are destroyed, the septum nasi is perforated, and the tumours appear through the nostrils, and may enter the opposite antrum; in consequence of the compression of the lachrymal duct, the tears run over the cheek; in consequence of the obstruction of the Eustachian tube, deafness arises: and if the tumour increases towards the fauces, mastication, deglutition, and respiration, are impeded. By surrounding the articulation of the jaws, the opening of the mouth may be rendered difficult. The tumour may perforate the base of the skull, and the patient may die by suffocation, or compression of the brain, or with sanguineous apoplexy.

The osseous walls may be destroyed and perforated by pressure, but there is never infiltration of their substance (the point

<sup>a</sup> Luschka: Virchow's Archiv.

<sup>b</sup> Gazette des Hôpitaux, p. 250. 1852.

of connexion between the enchondroma and the bone being usually circumscribed); neither is there a tendency to suppuration within the adjacent bone or soft parts, nor infiltration of the neighbouring lymphatic glands, nor of any distant organ; neither is there any implication of the system at large.

#### CASES OF ENCHONDROMA OF THE UPPER JAW.

CASE I.—I have before me a morbid specimen taken from a woman, aged fifty-six years. In the notes of the case it is recorded that a tumour began, twenty-four months previously, to develop itself in the left antrum, but very probably it existed long before without producing any remarkable symptom, and, therefore, without being observed.

The growth is of the size of a man's head, and consists of three lobes, divided by superficial indentations. Two of these belong to the left side of the face, which is extended a great deal more than the right. The nose appears almost totally flattened, the nostrils are reduced to oblique slits; the left bulbus is covered by the tumour and by folds of the skin; the right one is intact. The skin is distended, unaltered in texture, without any trace of inflammation, and is fixed by tense cellular tissue to the surface of the tumour. The enchondroma originating from the left antrum has distended, the interior especially, and the upper and the lower walls. In the centre it presents as a residue of the maxillary sinus a hollow of the size of a small nut, communicating with the nose. The posterior part of the cavity of the nose and the posterior nares are preserved; the anterior part of the nose is compressed, so that its walls come laterally into contact. The upper parts of the tumours occupy on each side, the frontal process of the maxillary bone and the nasal bone, and extend themselves upon the surface of the frontal bone, leaving intact its sinuses.

The hard palate and alveolar process are transformed into a shapeless, irregular, knobby mass. The antrum of the right side is greatly distended. The section of the tumour made through the left side appeared partially ossified, especially round the antrum, and in the parts adherent to the nasal bones. The periphery of the tumour shows traces of pure cartilage. There is no osseous shell on the outside of the tumour; it therefore belongs to the enchondromata without osseous shell<sup>a</sup>. With the microscope I found it to be composed of an amorphous, here and there fibrous, fundamental tissue, with large

<sup>a</sup> Rokitsansky, *Pathologische Anatomie*, Bd. ii. p. 175. Second Edition.

cartilaginous cells, with ossifying cartilaginous cells of different degrees, and with complete osseous corpuscles.

CASE II.—Partridge removed an ossifying cartilaginous tumour, with a part of the nasal process of the superior maxilla, to which it adhered. The tumour had developed itself within twenty months, had been removed eight months before, and very soon formed again in the same place.

CASE III.—Stanley, in his *Illustrations of Diseases of the Bones*<sup>a</sup>, gives the drawing of an enchondroma of the size of a goose-egg, which grew out of the left antrum of a lad of fourteen years; it increased slowly, extended the walls of the antrum, especially in the direction of the face and upwards; perforated the orbit, protruded both eyes, and extended through the base of the skull into its cavities. On section it was found to present isolated patches of ossification. Posteriorly there was a smaller, soft, vascular tumour, of a reddish colour, adherent to the first.

CASE IV.—Gensoul<sup>b</sup> removed the upper jaw-bone with a fibro-cartilaginous tumour, of the size of a man's fist. It had grown in the sinus; presented a globular form, an even surface, a well-defined outline, and loose cellular connexion with the adjacent parts.

CASE V.—Langenbeck<sup>c</sup> performed two partial resections of the upper jaw-bone with enchondroma, once upon a lad of fourteen years, in good health, and of blooming appearance. The first symptoms which the patient observed were filling of the left nostril and protrusion of the left eyeball, without any pain; the septum nasi was dislocated towards the right side; the hard palate was pressed downwards, was soft and compressible; all the space behind the velum palati was filled with the same hard, elastic growth. Langenbeck removed the nasal process of the maxillary bone by means of the pannel-saw, and separated the tumour from the spina nasalis posterior, where it was attached. The specimen is preserved in Langenbeck's museum, and presents an example of an exquisite enchondroma, of homogeneous consistence, ossified at the base; its colour is bluish-white; the tissue poor in fibre; the cells are large, with concentric rings, and for the most part with radiated nucleoli; the intercellular substance is clear and very transparent.

<sup>a</sup> Plate xvii. Fig. 3.

<sup>b</sup> The Lancet, vol. ii. p. 176. 1852.

<sup>c</sup> Lettre Chirurgicale sur quelques Maladies graves du Sinus Maxillaire, page 9. Paris: 1853.

CASE VI.—In the second case Langenbeck removed the nasal process, and the anterior wall of the antrum, by means of the pannel-saw, chisel, and hammer, from a man twenty-six years old. Both operations were successful.

CASE VII.—Of another enchondroma, I got but this notice in Paget's work, above mentioned:—"I know but one specimen of the upper jaw alone; a great tumour, portions of which are preserved in the Museum of Guy's Hospital, and of which the history, by Mr. Morgan, is in the Hospital Reports."

CASE VIII.—Another case, mentioned by the same author, belongs only conditionally to this place, the enchondroma having originated from the ethmoid bone, and invaded only secondarily both the upper jaw-bones.

Of these eight cases four were males, one was a female, and in three the sex is not stated. The youth of the patients is worthy of note, the eldest being fifty-six, the next twenty-six, one nineteen, and two fourteen years old. In three instances the tumours grew from the antrum; in two from the nasal bone; in two from the jaw-bone in general, and in one from the ethmoid bone. One tumour, of the size of a man's head, is reported to have grown in twelve months, while the growth of one of the size of a hen's egg extended over twenty months.

In five cases we have before us pure cartilaginous growths, with or without partial ossification; in one case the enchondroma was combined with a soft vascular tumour. The size of the tumours varies between that of a hen's egg and that of a man's head. In three cases the nasal process of the superior maxillary bone was resected, once together with the anterior wall of the antrum; in one case an extirpation of the tumour took place, probably with a partial resection of the bone; in another case with total removal of the upper jaw. In three cases no operation was performed, the growth having increased too much, and penetrated even into the cavity of the skull.

One of the operations was performed in consequence of a relapse, after a removal of the growth eight months previously; two of the other operations were permanently successful; whether the other two were also successful, or whether they relapsed, does not appear from the published reports of the cases.