

**Enormous mixed tumor of the parotid region : reaching to the clavicle and weighing about seven pounds : operation, recovery / W.W. Keen.**

**Contributors**

Keen, William W. 1837-1932.  
Royal College of Surgeons of England

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Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
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# Enormous Mixed Tumor of the Parotid Region : : : :

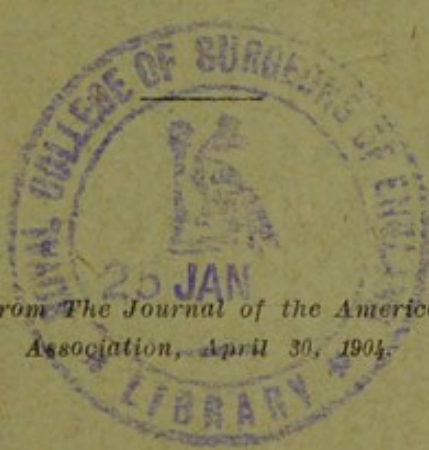
REACHING TO THE CLAVICLE AND WEIGHING  
ABOUT SEVEN POUNDS; OPERATION; RECOVERY.

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W. W. KEEN, M.D., LL.D.

Professor of the Principles of Surgery and of Clinical Surgery,  
Jefferson Medical College.

Philadelphia

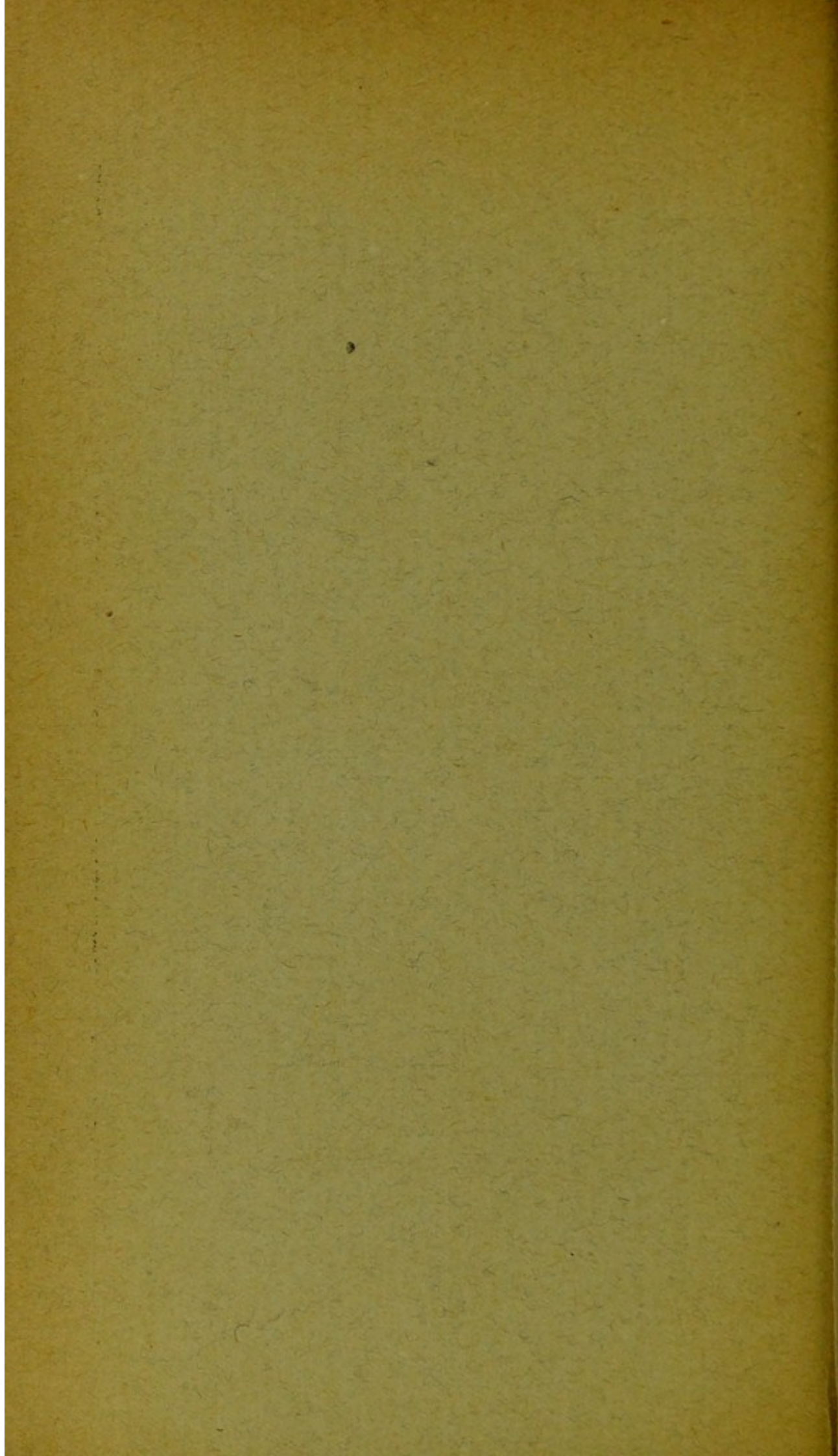
  
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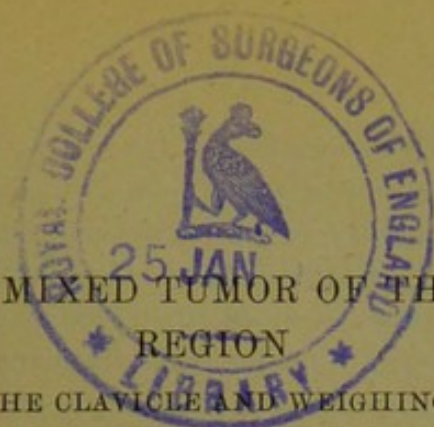
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CHICAGO :

PRESS OF AMERICAN MEDICAL ASSOCIATION  
ONE HUNDRED AND THREE DEARBORN AVENUE  
1904.







ENORMOUS MIXED TUMOR OF THE PAROTID  
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*The Patient.*—E. M. B., aged 65, was admitted to the Jefferson Medical College Hospital, Jan. 2, 1904, at the request of Dr. H. M. Richter. Height 5.7 feet, present weight 152 pounds weight in 1890, 250 pounds.

*History.*—His father died at 49 of "dropsy of the brain"; his mother at 56 from pulmonary tuberculosis. One sister also died of the same disease and another after some gynecologic operation; one brother died from accident; one sister is living and well. Tuberculosis exists both in his father's and in his mother's families, but he does not know the precise individuals who have suffered from it. He is married and has five children, all of whom are living. He had varioloid when he was 22 years old. He has suffered from hemorrhoids and from neuralgia of the face. He was discharged from the Army in 1863 on account of "dropsy of the kidney." He drinks beer moderately; smokes a pipe almost constantly.

*Development of the Tumor.*—In November 1880, when shaving, he noticed a small lump in the right parotid region. It did not cause him any pain, nor was it tender at first. By 1883 the tumor was large enough to attract the attention of others. By 1892 it had grown to the size of a large walnut. At this time it was manipulated considerably by a physician, and from this he dates its rapid growth. He states that it



has doubled in size during the last two years; has never noticed any effect on the flow of saliva. On Dec. 7, 1903, at the inferior border, the tumor opened and there was a forcible discharge of a fluid containing blood. He states that it broke with such force as to cause a hissing sound at first. About two pints of fluid escaped. For two years he has not left his house on account of the annoyance he experiences from everybody's looking at him.

*Examination.*—On admission there is noticed on the right side of the face and neck an irregular nodular tumor (Figs. 1 and 2) starting just in front of the ear, passing over the lower jaw, under the chin, and extending about 5 cm. to the left of the median line. It extends a little below the level of the clavicle and passes up the back of the neck not far from the median line. The circumference of the tumor horizontally is 63 cm. and vertically 67 cm. The horizontal diameter is 21 cm. and the vertical diameter 27 cm. The present size of the tumor, when the photographs were taken, is markedly less than it was before it broke.

The tumor does not seem to be deeply attached to the larynx or to any of the bones in its neighborhood, the jaw, the mastoid, or the transverse processes of the vertebræ. It is most firmly attached in the parotid region, but below this it can be swung through a considerable arc in all directions. The skin is movable over the tumor; its blood vessels are dilated, and its surface is rough, and at points ulcerated. At the lower border is an opening about the size of a lead pencil. Considerable fluid discharge constantly escapes from this opening. The fluid is brownish yellow, thin and watery. The tumor is composed of nodular masses of greater or less size, many of the larger ones have smaller nodules arising from them. They are elastic, yet firm. Portions of the tumor are evidently cystic; others are either fibrous or cartilaginous. There are certain areas of tenderness over it. He has rarely had any pain excepting when it was distended by fluid before its rupture. The tumor is very heavy and drags on the face and neck so much that both for support and also to retain dressings over the sinus at the lower portion, he slings it by a bandage over his head.

*Examination of the Body Fluids.*—The urine is of amber color, turbid in appearance, specific gravity 1,026; acid reac-



tion, urea 2.6 per cent. By the microscope a few squamous and columnar epithelial cells and a few leucocytes are found.

Examination of the blood showed hemoglobin 78 per cent., erythrocytes 4,830,000, leucocytes 7,800, color index 0.81.

The examination by Dr. Stelwagon of 55 c.c. of the fluid discharged from the tumor showed it to be a cloudy, yellowish-pink fluid which, on standing, separated into two distinct layers, an upper clear and a lower cloudy stratum. The reaction was neutral to both litmus and phenolphthalein, specific gravity 1,008, that of the normal saliva being 1,002 to 1,006. Sulphocyanid is absent. It is highly albuminous as shown by Tanret's reagent, heat and nitric acid. There was also a small amount of mucinoid substance. A very faint trace of the nitrites was present. Neither sugar nor other reducing agent was found either in the solution or the sediment. The specimen was tested for the presence of ptyalin or other amylolytic enzymes by the admixture of the solution with soluble starch; the resulting mixture was then digested for one hour at 40 C. and tested. The test for erythrodextrin and sugar proved negative. Microscopic examination showed the sediment to consist of many polymorphonuclear leucocytes and a few erythrocytes; no epithelium nor salivary elements were found.

*Operation.*—Jan. 6, 1904. Drs. Hearn and Stewart, together with the house surgeon, Dr. Gillette, kindly assisted me. I first made an incision from the ear to the collar bone, a little internal to its vertical axis, thus passing over the tumor in such a direction as to give me a considerable anterior flap. This was dissected from the front and the inner side of the tumor; then dragging the tumor outward with retractors, I was able gradually to separate it from all the deeper tissues of the neck, including the jugular vein and carotid artery. The tumor was very adherent to the vessels, the sterno-cleido-mastoid and the auricularis magnus; a number of branches of the facial were unavoidably divided, though I did not recognize any of them. A number of large veins emptying into the jugular were found on the surface of the tumor. Each one of these was double ligated and divided. By the weight of the tumor the submaxillary gland was drawn down over the anterior surface of the tumor to the level of the upper border of the thyroid cartilage. This was dissected off the tumor and the



facial artery, which passed through it, was double ligated and divided. I then formed a posterior flap of skin similar to the anterior and finally removed the entire tumor. At probably a dozen or fifteen places the fascia between the lobules was spread out in dense fibrous layers, which had to be divided one after another, the division of each one enabling me to roll



Fig. 1.—Tumor seen from the front.

the tumor outward with greater ease. In the parotid region, in dissecting it out, a moderate amount of the parotid gland was removed. As there was considerable oozing over the entire surface, I placed two layers of iodoform gauze on the surface, inside of this two layers of plain sterile gauze, and closed the entire wound, leaving gauze protruding at lower end.

During the operation he was given four pints of salt solu-

tion and two drams of adrenalin (1 to 1,000) gradually administered. The operation lasted an hour and ten minutes.

*Blood Pressure.*—The blood pressure the day before the operation by the Riva-Rocci apparatus, was 164. mm. When the etherization was begun the blood pressure was 210 mm. It

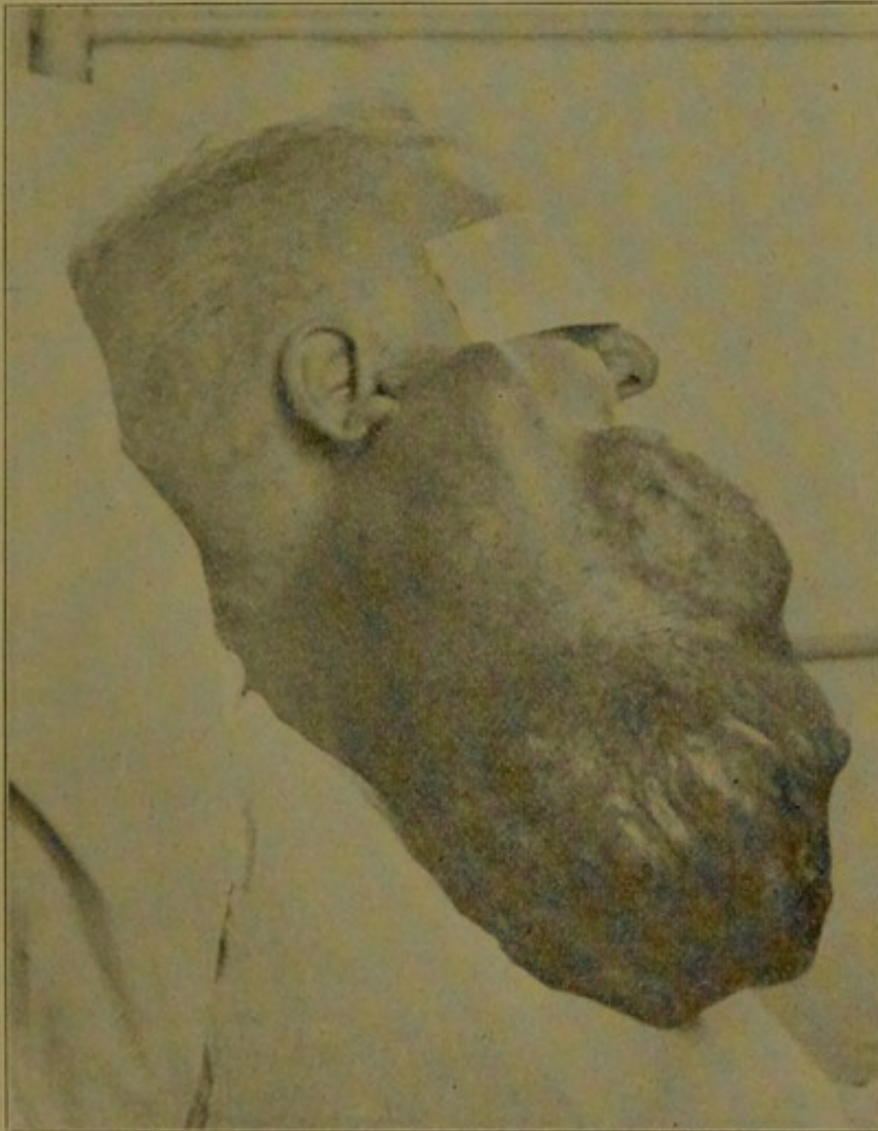


Fig. 2.—Tumor seen from the side.

rose within ten minutes to 230, but when the first incision was made it fell to 205. At the same time the pulse, which before etherization stood at 80, gradually rose during the etherization to 125, where it stood at the time of the first incision. The blood pressure rose slightly after the operation was begun and then, as it was continued, fell to 185 at the end of the first



half hour. The infusion of adrenalin and salt solution was then begun and the observations on the blood pressure necessarily were interrupted by this procedure, as it was necessary to use the left arm for both these observations and the infusion, since I was standing on the right side, and could not allow the right arm to be used. After the operation the pulse remained at the same level, 125, but the blood pressure had fallen to 110 mm.

*Convalescence.*—His highest temperature after the operation only reached once a little above 99 until one week after the operation, when it rose once to 101. The cause for this was perfectly clear. The incision was close to the corner of the mouth on the right side. The operation necessarily paralyzed the seventh nerve, which was involved in the tumor, and in



Fig. 3.—The tumor after removal, showing the large cavity.

consequence of this, there was a constant dribbling of saliva. This produced a slight infection at the middle of the wound, and delayed the final healing for a considerable time. Other than this he made a perfectly smooth recovery.

*Examination of the Tumor.*—At the time of the operation, a culture was taken from the discharge through the open sinus. Prof. W. M. L. Coplin reported that after 48 hours a pure culture of *Staphylococcus pyogenes albus* was present. Specimen (Fig. 3) shows the tumor and the large cavity in the center. The size of the tumor was 25 cm. long and 17.5 cm. in diameter. The weight was 2,440 grams, over 4¾ pounds, to which, before the rupture, should be added over two pounds of liquid, which escaped, making the tumor originally about seven pounds in



weight. I give the remainder of the report by Professor Coplin and Dr. Ellis in full:

*Gross Anatomy.*—"A long incision which has been made into the specimen, on the surface opposite the area of skin, shows it to contain an enormous cavity that forms a large part of the

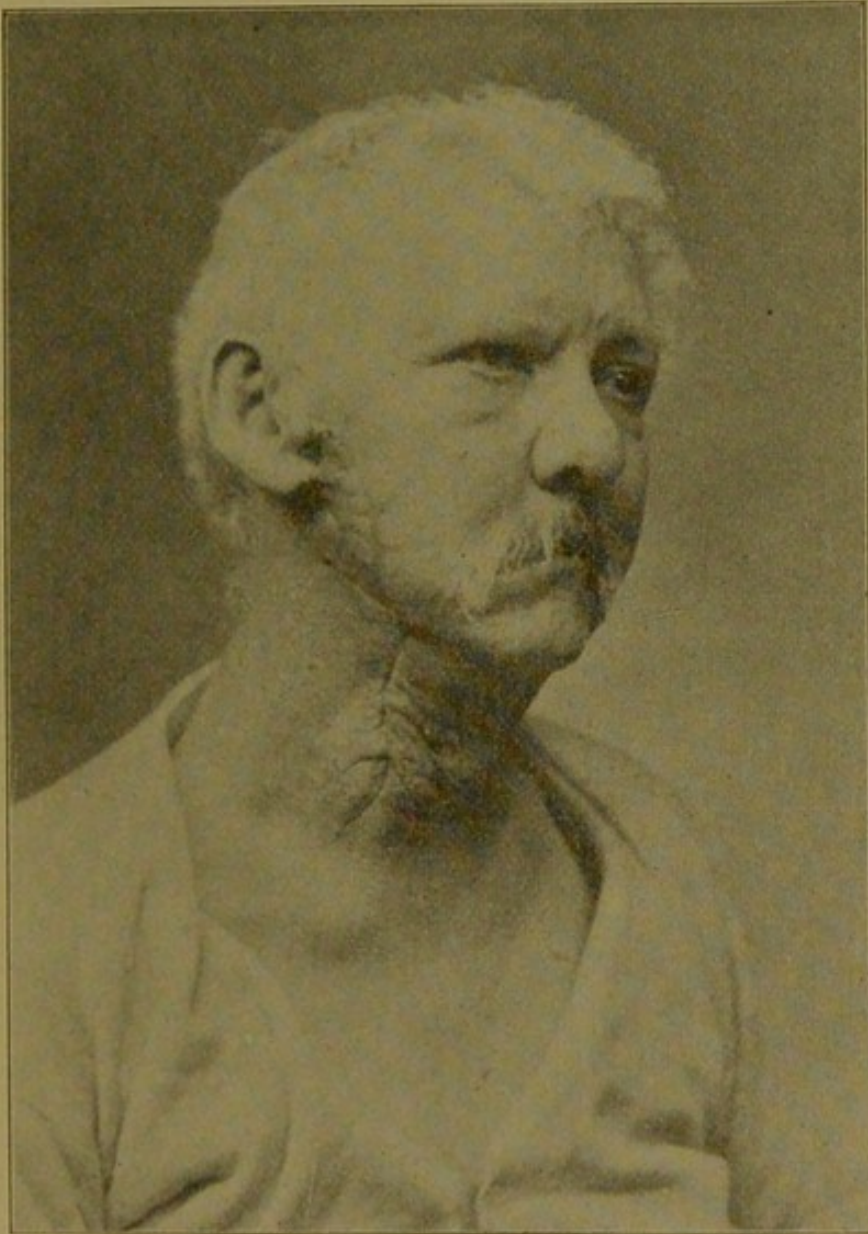


Fig. 4.—The patient three months after operation.

bulk of the mass, the tissues described being in the form of a shell that varies from 1 to 8 cm. in thickness. The cavity is entirely devoid of contents. The limiting wall is grey in color, with pinkish markings, and is made exceedingly rough by pro-



jecting ridges of tissue. These ridges traverse the wall in every direction, and are from 1 to 3 cm. in width at their bases, narrowing outward until in many instances they become very thin at their most prominent parts. Owing to the curvature of the wall of the cavity the external margins of two of these ridges are, in some sites, brought in close proximity, the spaces between them leading into pocket-like recesses which closely approach the external surface of the specimen. The ridges are formed of tissue similar to that making up the exterior of the mass. The incised surfaces are grey in color and have a cartilage-like consistency. At several points the density of bone is almost or quite attained.

*Microscopic Examination.*—"Small portions of the specimen were fixed in Bensley's and Zenker's fluids and in 10 per cent. formalin. The gross specimen was preserved in Kaiserling. Blocks of tissue from the former were dehydrated, cleared and infiltrated with celloidin. Sections from these blocks were stained with hematoxylin plus eosin of Van Gieson, toluidin blue, thionin, Mallory's reticulum stain, and Weigert's stain for elastic tissue.

"Histologic study of the sections shows them to be composed of very diverse structures. Those including a part of the external surface of the tumor show a thick fibrous capsule. The external portion throughout, and at some points nearly the entire substance of this capsule is extremely dense and practically a vascular fibrous tissue. The inner portion is less dense, contains distinct blood vessels, and in some areas is quite cellular in type. At certain points are small areas of adipose tissue, adjoining which are variously shaped small open spaces in the dense outer portion of the capsule that appear to be included fat. Within the capsule are areas of the tumor composed of cells within a matrix of either fibrous or myxomatous tissue or areas of cartilage. The cells are mainly round or oval, with here and there a few that are spindle shaped. In some areas they form distinct masses, with but scanty intercellular substance, while in others they line spaces, presumably lymph spaces, being here from one to many layers thick. As previously stated, the supporting structure in some of these areas is fibrous tissue, which in some instances forms distinct trabeculae. In other areas the matrix is myxomatous.



In certain of these areas the cells are numerous, forming quite distinct masses; in others they are comparatively scanty, being arranged in narrow bands that cross each other in such a way as to give a distinct plexiform appearance. Here the cells are oval or flattened in shape and the nuclei stain poorly, contrasting markedly with the masses of larger, round, deeply staining cells, which in many instances are separated from them only by a moderately wide band of fibrous tissue. The former present the appearance of true sarcoma cells, and have among them numerous thin-walled blood vessels, while the latter are undoubtedly derived from the endothelial lining of the spaces which they enclose.

"Many of the sections are composed partially, in some instances almost wholly, of cartilage. This is usually fibrous in type, though areas of the hyaline variety are to be noted. The capsules of many of the cartilage cells are wrinkled and contracted. In a few areas bone formation has been attempted as shown by the presence of osteoid tissue containing lacunæ and distinct cells, but lacking true lamellæ. At some points the stroma between masses of the tumor cells has undergone hyaline change, giving such areas a very close resemblance to the so-called cylindromas.

"Sections which include the inner surface of the tumor, the wall of the large cavity, show it to be bordered by softened, fragmented and slightly necrotic tumor tissue. A few polymorphonuclear leucocytes are also present.

"Sections stained for elastic tissue show an abundance of that structure in the stroma of the tumor, especially in the less dense areas where the cells are least numerous.

"Sections stained by carbol-thionin show in some areas an exceedingly fine network that stains a distinct reddish tinge.

"*Diagnosis.* — Myxo-chondro-lymphangio-endothelioma. Although no salivary gland structure has been found in the sections studied, the specimen conforms in every particular to the mixed tumors which occasionally originate in those organs, particularly the parotid."

#### REMARKS.

The diagnosis and structure of these mixed tumors of the parotid region have been so thoroughly considered



by Dr. O. A. J. Kelly<sup>1</sup> and Francis Carter Wood,<sup>2</sup> that I do not consider it necessary to consider them here anew, as I could add nothing of importance.

From the surgical point of view, the slow and later the rapid growth, the enormous size (certainly the largest tumor of the neck I have ever operated on), his age and the fact that I was able to dissect it away from the important structures, especially the blood vessels of the neck, and the very happy recovery of the patient, justify the report of such a case.

I may add that not only is he well, but, having been practically imprisoned in his house for over two years by reason of his annoyance when people observed him, he now once more freely goes out and mingles with his fellow-creatures. The operation has given him a new lease of life. The only price that he pays for it is a long visible scar and paralysis of the right seventh nerve, a small price for such a delightful relief. Figure 4 shows the result three months after operation.

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1. Philadelphia Monthly Medical Journal, February, 1899.

2. Annals of Surgery, Jan. and Feb., 1904, pp. 57 and 207.

