

DENCH (E.D.B.)

NEOPLASMS OF THE EAR.

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IN the present paper the author does not propose to give more than a brief history of those cases of neoplasms affecting the organ of hearing which have come under his observation within the past few years, and most of which have been seen during the last twelve months. For a more full account of neoplasms of the ear he begs to refer to his own previous contributions to medical literature upon this subject:¹

CASE I.—The patient was a male, about 35 years of age. About one and a half years before he presented himself at the New York Eye and Ear Infirmary, he had noticed a small swelling in front of the left ear just above the tragus. During the few months prior to his admission to the hospital this growth had rapidly increased in size, until at the time when I first saw him it was as large as an English walnut.

Examination revealed a tumor occupying the region before named; the surface of the growth was smooth; there was no superficial ulceration, and upon palpation the tumefaction appeared dense and hard. The integument covering it was dark, almost black. Upon manipulation the growth seemed to be firmly attached to the tragus and appeared to extend for a short distance into the external auditory canal, otherwise the growth was movable. The cervical glands were not enlarged and the general condition of the patient was excellent. Immediate operation was advised. The growth and the neighboring parts were thoroughly scrubbed with soap and water, then washed with ether, and subsequently with a solution of bichloride of mercury 1:1000. The external auditory meatus was syringed with a similar solution, after which the canal was

¹ *A System of Diseases of the Ear, Nose, and Throat*, edited by Charles H. Burnett, Philadelphia, 1893, vol. i., p. 156 *et seq.* *Archives of Otolgy*, vol. xxii., p. 166, Dench, *Diseases of the Ear*, D. Appleton & Co., New York, 1894, p. 206 *et seq.*, p. 285.

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plugged with a strip of iodoform gauze. A moist bichloride dressing was then applied over the field of operation.

Under anæsthesia the growth was circumscribed by two curved incisions; one being made below and the other above the tumor. The hemorrhage was free but was easily controlled by hemostatic forceps. The entire mass, together with the tragus to which it was attached, and a small portion of the anterior wall of the cartilaginous meatus, was dissected out. The skin was then dissected up along the lines of the elliptical incision and at the angle of junction anteriorly, so that the margins could be approximated by sutures throughout a considerable portion of their length. Considerable traction upon the sutures was necessary to effect this approximation, and after the parts had been adjusted a denuded area about the size of a ten-cent piece remained. This surface was allowed to heal by granulation. The subsequent history of the case was uneventful. Union by first intention took place where the edges of the wound had been approximated, and the granulating surface healed rapidly. The patient was under observation at intervals for a period of about eight or nine months, and when last seen there was no evidence of recurrence.

An examination of the growth showed it to be a round-cell sarcoma, richly supplied by blood-vessels.

The following cases have occurred during the last twelve months of my service at the Infirmary.

CASE II.—The patient was a male about 20 years of age. When first seen he complained of gradually increasing impairment of hearing in the left ear. He stated that during the past two or three years the ear seemed to be stopped up from time to time, but that by pressing two or three times upon the tragus, the hearing seemed to return and to remain as good as ever. For the last few months, however, the impairment in hearing had been steadily increasing, and he had been able to obtain no relief by manipulation of the auricle as on previous occasions.

The meatus was found to be almost completely occluded. Upon examining the occluding mass with a probe it was found to be hard and apparently attached to the anterior and superior walls of the canal. Even a very fine probe could not be passed between the growth and the posterior wall of the meatus, but still there was evidently a narrow channel between the obstruction and this aspect of the canal.

The patient was at once admitted to the hospital and prepared for operation in the usual way. There was no hesitation

in pronouncing the growth to be osseous in character. Under ether anaesthesia it was found that even the finest probe could not be passed between the obstruction and the posterior wall of the canal. A very narrow space, however, did exist in this region, and the growth was found to be attached to the anterior and superior walls of the canal. I first attempted to remove the mass by means of a chisel introduced through the external auditory meatus, the integument having been previously incised and the periosteum stripped from the surface of the neoplasm. A small portion was detached in this way but could not be extracted. I immediately, therefore, made an incision behind the ear, from the tip of the mastoid to a point just above the meatus, following closely the line of attachment of the auricle to the skull. By means of the periosteum elevator, the soft parts were separated from the bone, and the auricle turned forward and downward. The posterior wall of the fibro-cartilaginous meatus was then separated from the underlying bone and incised so as to expose the margin of the bony meatus. It was then possible to introduce the flat end of an ordinary surgical probe between the posterior wall of the canal and the exostosis. A gouge was then applied and the neoplasm easily detached from the antero-superior wall of the meatus by a few blows of the mallet, after which it was removed from the canal by strong forceps. The fragment separated when the chisel was used through the external auditory meatus, was found lying just within the fibrous canal. Inspection by means of the speculum showed that the obstruction had been completely removed, the drum membrane being visible through its entire extent. The margins of the incision were then brought together by means of interrupted catgut sutures and an antiseptic dressing was applied so as to cover the ear, the canal being loosely plugged with iodoform gauze.

The dressing was removed four days after the operation, and the wound was found to be entirely healed with the exception of a small sinus at about the middle of the line of incision. This sinus did not communicate with the external auditory canal.

The patient was discharged on the fifth day after operation, and since that time has been able to attend to his work in the usual manner, the post-auricular wound being dressed with iodoform gauze and collodion.

The patient was directed to irrigate the canal twice daily with a syringe, and after each irrigation to instil a few drops of an alcoholic solution of boric acid to keep the canal thoroughly aseptic.

CASE III.—A male, aged 60, presented at my clinic at the Infirmary with the following history: About two years before

he had noticed a small indurated spot upon the left helix, which he considered an ordinary "wart." It seemed to cause considerable irritation which he had attempted to relieve by scratching the surface. The growth had gradually increased in size, and attempts had been made by his family physician both to destroy it by means of caustics, or to relieve the discomfort by means of local applications. The patient also stated that internal medication had been employed for a considerable period on the supposition that the growth was of specific origin, although a specific history was positively denied.

When I first saw him there was an ulcerated area occupying the middle third of the helix and extending anteriorly to the antihelix. The superficial ulceration scarcely involved the posterior surface of the auricle. The ulcerated area was about one inch in length, and three-eighths of an inch in width. The margins were indurated, and the denuded surface slightly elevated above the surrounding borders. Over no portion had there been any attempt at cicatrization. Owing to the absence of specific history, the character of the ulceration, and the age of the patient, I had no hesitation in pronouncing the growth to be an epithelioma, and advised immediate operation.

This was performed a few days later under the ordinary aseptic precautions. The neoplasm was included between two convergent incisions which met just at the posterior margin of the concha. In this way a V-shaped piece was removed from the auricle, including the cartilaginous framework, and the integument covering it anteriorly and posteriorly. The incisions were made so as to lie entirely within healthy tissue and the excised portion included every vestige of the neoplasm. The integument was then loosened from the underlying cartilage along the line of these two incisions, and the cartilage itself was removed until the margins of the wound could be approximated without undue tension and in such a manner that the auricle was simply reduced in size, but not materially changed in contour as compared with the organ on the opposite side. The parts were then held in position by fine silk sutures, and an antiseptic dressing was applied. This was removed about seven days after the operation, and firm union was found to have taken place throughout. Unfortunately no microscopical examination was made of the growth owing to an accident to the specimen, but there is little doubt that it was carcinomatous in character. It is also interesting to note that there was a small indurated area upon the opposite helix which had appeared a few months before the patient came under observation. This was removed under cocaine anæsthesia and was submitted to microscopical examination. It was found to be papillomatous in structure and non-malignant.

The patient was seen about four months after the operation ; at that time there was no evidence of recurrence upon either side. Since this time the patient has not been seen.

CASE IV.—A man, 60 years of age, presented with the history of marked impairment of hearing in the right ear, amounting almost to total deafness, for about eighteen months. He stated that some four years previously the hearing had become impaired, and that upon application at a charitable institution the ear had been syringed, and that a mass of wax had been removed. He had been informed at that time that this constituted the sole cause of the impairment of function. He was also told at this time that the obstruction had not been entirely removed from the canal, and was asked to return at a subsequent date for further treatment. This he failed to do. About a year before he came to my clinic he noticed that the right side of the face had become paralyzed, the paralysis coming on slowly. There had been but little pain in the ear until a few weeks before he came under my observation, and at no time had this been severe.

An examination revealed facial paralysis upon the right side. The right external auditory meatus was occluded by a growth which filled the canal and protruded from the meatus. This mass was firm in consistency, bright red in color, and bled easily when touched with the probe. The external canal was so completely filled with the growth as to render any definite opinion as to the point of attachment impossible. There seemed, however, to be a small space between the posterior wall and the occluding mass. When a cotton-tipped probe was introduced as far as possible into the meatus and firm pressure was made so as to temporarily augment the size of the canal, there was a free discharge of pus—apparently from the deeper parts. According to the history given by the patient, this discharge appeared for the first time, after the removal of the obstruction four years previously. A small portion of the growth was removed by means of the snare and submitted to microscopical examination. According to the report of the pathologist it was fibro-myxomatous in character.

The patient was admitted to the hospital and after thoroughly disinfecting the field of operation, an attempt was made to remove the neoplasm under ether anæsthesia. On account of the size of the growth I decided to make no attempt at extirpation through the canal, but proceeded at once to detach the auricle posteriorly and to dissect out the membranous canal so as to expose the bony meatus. When this was done I found that the tumor filling the entrance of the meatus constituted but a small part of the neoplasm. After turning the auricle forward and downward and incising the posterior wall of

the fibrous canal so as to expose the margin of the bony meatus, the external portion was immediately shelled out. It was then found that the neoplasm was attached to the posterior wall of the bony canal and extended inward to the middle ear, the deeper attachment apparently being in the tympanic vault. The new growth lying in the canal was thoroughly scraped away by means of the curette, after which the superior and posterior walls of the bony meatus were removed with the chisel in order to obtain free access to the vault of the tympanum and to the channel leading from this to the mastoid antrum. By the free use of the sharp spoon a large amount of soft tissue resembling granulation tissue was removed from the tympanic vault. During this procedure considerable carious bone was removed. The softened bone removed evidently included the remains of the malleus and incus. As the operation proceeded the curette finally entered a cavity whose upper wall seemed soft and membranous to the touch. At the same time rather free hemorrhage occurred from the deeper portion of the wound, the blood being bright in color. The curette still continued to bring away portions of the neoplasm. Close examination revealed the fact that the growth had perforated the roof of the tympanum, and had already involved the overlying dura. After every vestige of the new growth had been scraped away the parts were thoroughly irrigated with a solution of bichloride of mercury 1 to 3000, and both the external auditory meatus and the wound behind the ear were plugged loosely with iodoform gauze.

An examination of the neoplasm showed that the growth was not a fibro-myxoma as previously reported, but that it was a fibro-sarcoma. The patient made a good recovery, although the convalescence was somewhat prolonged. At the present time, eight months after the operation, there is a slight discharge from the canal, and the mucous membrane lining the atrium and tympanic vault is of a deep red color, presenting the appearance of granulation tissue. At the same time there is no recurrence of the growth. The facial paralysis has not entirely disappeared, but is certainly not as pronounced as before the operation. The hearing has been materially improved according to the patient's statement, although naturally this is of comparatively little importance considering the nature of the disease.

CASE V.—A boy about ten years of age, was brought to my clinic by my colleague Dr. Weeks, under whose observation he had been for nearly a month. The patient was an Italian and as neither he nor his friends could speak English, I was obliged to depend upon the services of another patient to act as interpreter, and the history obtained was far from satisfac-

tory. As nearly as could be learned the patient had received a severe scratch at the hands of one of his playmates about three months before he came under my observation. The original wound was still visible and presented as a long vertical furrow about two inches in length just in front of the right tragus. From this time, according to the history, the right ear began to increase in size, and ulceration soon occurred upon the anterior surface of the auricle. At the time of the examination this entire region was occupied by a mass of granulation tissue which bled freely upon the impact of the probe, and over certain areas the tissue had undergone superficial necrosis. The external canal was completely blocked by this mass and the auricle was deformed to an extent that rendered it scarcely recognizable. Curiously enough the posterior surface of the auricle was not involved. Dr. Weeks had at first believed the condition to be due to hereditary specific disease, and had put the patient upon iodide of potassium in moderate doses. The effect of this medication had been, in the Doctor's opinion, to somewhat diminish the size of the growth. Locally nothing had been done with the exception of keeping the parts thoroughly cleansed. There was no history of specific disease obtainable on questioning, and the appearance of the parts did not at the time of my first examination seem to indicate hereditary specific disease. The possibility of a primary lesion appearing at this point was borne in mind, but as there were no secondary symptoms this view was hardly tenable. The age of the patient was decidedly against the growth being carcinomatous in nature although I was inclined to think that it was of this character. The diagnosis seemed to lie between sarcoma and carcinoma.

The general condition of the patient was decidedly poor; he was emaciated, and intensely anæmic; the cervical glands upon the right side were much enlarged, and glandular enlargement was also found to exist in both axillæ and in both inguinal regions. Owing to the patient's general condition there seemed to be but one course of treatment justifiable, and that was immediate removal of the neoplasm, whatever the nature of the growth might be. This was done two days after he first came under observation. As the posterior surface of the auricle was not involved, the integument covering this region was dissected up from the cartilage, and it was found that the cartilage had not been completely destroyed by the growth. This flap from the posterior surface was subsequently drawn forward, and used to close the large gap which was necessarily left anteriorly by the removal of the neoplasm. Two incisions were then made, one from the superior border of the auricle, the other from the attachment of the lobule below, these in-

cisions meeting upon the cheek, so as to include the entire neoplasm between them. By careful dissection, the new growth, which included the cartilaginous framework of the auricle and a portion of the fibrous meatus, was removed. The hemorrhage was exceedingly free, many large vessels requiring ligation. As the deep dissection was continued, it was found necessary to take away a considerable portion of the parotid gland. After the tumor had been extirpated, the lower incision was continued down along the anterior border of the sterno-mastoid muscle, and the enlarged cervical glands, together with the posterior lobe of the parotid, were taken away. The incision in the neck was closed by means of interrupted sutures, and the denuded surface which was left by the removal of the growth was covered as much as possible by the flap of integument taken from the posterior surface of the auricle, and by dissecting up the edges of the cutaneous flaps along the lines of the incisions which circumscribed the growth. An attempt was made to secure a patent external auditory meatus by approximating the edges of the periosteum lining the bony canal with the edges of the adjacent integument. It was found impossible to completely close the wound, a denuded area fully one and a half inches in length and an inch in width being left in front of the external auditory meatus. The ordinary antiseptic dressings were applied. For the first two days the temperature was very high, reaching at one time 104° F., and there was great œdema of both upper and lower lids of the right eye. This was undoubtedly due to the tension exerted by the sutures in approximating the margins of the incisions.

The first dressings were removed about forty-eight hours after operation, and the wound was found to be suppurating profusely. All the stitches were removed, the wound was irrigated, and a moist bichloride dressing applied. From this time on the patient did exceedingly well. About two weeks after the operation my assistant, Dr. McKernon, suggested the advisability of attempting to hasten the process of cicatrization by the application of skin grafts according to the method of Thiersch, and at my request he carried out this procedure. The operation was not successful, as none of the grafts became attached, but the healing process was undoubtedly more rapid than it had been before. The wound gradually healed by granulation, the meatus becoming completely occluded during this process.

The improvement in the general condition of the patient was very marked, after the immediate effect of the operation had passed away.

At the present time there is no evidence of recurrence, and the wound is entirely healed. All glandular enlargement has

disappeared, and the patient is in excellent general condition. I should state here that no specific treatment, or in fact any internal medication of any kind, has been employed since the operation.

A microscopical examination of the tissue removed at first seemed to indicate that it was of specific origin ; subsequently, however, repeated sections have been prepared, and all who have examined the specimens have agreed that the growth was undoubtedly a round-celled sarcoma.

When we turn to the literature of malignant neoplasms of the external ear, we are rather impressed by the fact that malignant disease in this region is scarcely as serious as when it occurs in other portions of the body. This subject has already been discussed in the articles alluded to in the beginning of this paper.

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