

FRÄNKEL (E.)

ANATOMICAL AND CLINICAL CONTRIBUTIONS  
TO THE KNOWLEDGE OF THE DISEASES  
OF THE NASO-PHARYNGEAL REGION AND  
THE EAR IN CONSUMPTION

BY

DR. EUGENE FRÄNKEL

HAMBURG

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George Johnson Esq.

with the author's

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ANATOMICAL AND CLINICAL CONTRIBUTIONS TO  
THE KNOWLEDGE OF THE DISEASES OF THE  
NASO-PHARYNGEAL REGION AND THE  
EAR IN CONSUMPTION.

BY DR. EUGENE FRÄNKEL, OF HAMBURG.

Translated by Dr. F. E. D' OENCH, of St. Louis, Mo.

**A**LTHOUGH our knowledge of the pulmonary diseases leading to consumption, and of the organs generally affected by them, may now be considered almost complete, it is still defective in regard to some organs, and parts of the body. This may be accounted for partly by the difficulty attending the examination of these organs, partly by the lack of attention bestowed upon them, though Wendt (*v. Ziemssen's Handbuch der Krankheiten des chylopoëtischen Apparates*, Bd. i, 1, 2te aufl., 1878, p. 246) and, later, Schalle (*Virchow's Archiv*, vol. lxxii, 2) described a method of greatly reducing these difficulties; nevertheless, this method was not taken advantage of, and to cast some additional light on the diseases of this region is, therefore, the object of this paper. The title I have chosen may need some explanation. In studying the morbid changes in this locality, I confined myself to consumptives, noting every morbid change, even those which undoubtedly cannot be ascribed to phthisis; the title chosen may, therefore, not seem entirely justifiable, but it is my belief that at least one-half of the morbid changes to be described are due to phthisis.

The results described are based upon the *post-mortem ex-*

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aminations of 50 consumptives, selected without regard to age, sex, or duration of the disease, from the whole number of those who had died of phthisis within a period of about four months.

The anatomical changes in the lungs were due, in by far the greatest number of cases, to disseminated, fibrous, or caseous peribronchitis; in a few instances to tuberculous peribronchitis, caseous broncho-pneumonia, or desquamative pneumonia; sometimes to cirrhosis, or caverns of varying size and age (combinations of these different forms were, of course, not infrequent); obliterations of the pleura, sometimes partial, sometimes total, on one or both sides, often gave rise to complications. Most cases had taken a chronic course; there were only a few of acute disseminated peribronchitis, and none of acute miliary tuberculosis. Death had been caused in some instances by recent pleuritis, pneumothorax or perforating peritonitis, due to tuberculous ulcers of the intestines; every body was highly emaciated. In 8 cases the larynx was affected, in 21 the intestines, in 14 both larynx and intestines, in 7 the destructive processes were confined entirely to the lungs.

Of the whole number of cases 36 were men, 14 women; there were none under 10, 2 between 10 and 20, 14 between 20 and 30, 17 between 30 and 40, 15 between 40 and 50, 1 between 50 and 60, and 1 between 60 and 70.

The method of examination was as follows: After removing the parts of the base of the skull in question, according to Schalle's method, they were sawed through in a sagittal direction on both sides of the septum narium, then the cavity of the tympanum was opened, the semicircular canals were examined, and, finally, the cochlea and vestibule were *exposed*. In this manner all the parts in question can be carefully examined, and, owing to the small number of sections, can easily be reunited and used for demonstrations; sometimes it is advisable to remove the floor of the nasal cavity by a horizontal section, leaving only a narrow bridge to connect it with the neighboring parts.

Of the specimens obtained in this way, morbid changes were found in 29 of them in the naso-pharyngeal region or

the auditory organs; the nasal cavity and inner ear, however, did not share in them. Tuberculous affections of the nasal cavity, as is well known, are rare, only a few cases having been described so far, by B. Fränkel (*v. Ziemssen's Handbuch*, 1, p. 137), who published the case observed by Willigk, by Laveran (*Union Méd.*, 1877, No. 35), by Riedel (*Deutsche Zeitschrift für Chirurgie*), and by Tornwald (*Deutsches Archiv f. Klin. Medicin*, Bd. xxvii, H. 5 and 6, p. 588). In none of my 50 cases did I find any tuberculous affections, and, therefore, in opposition to Tornwald, believe that they are very rare in the nasal cavity. On some other occasion, however, I shall describe the case of a boy, five years old, who had died of tuberculous pleuritis and amyloid degeneration, following resection of the head of the right femur, where I found miliary tubercles on the mucous membrane of the septum narium; caseous otitis, accompanied by the formation of several sequestra, had set in, and a number of tubercles had formed on the mucous membrane of the septum, on a line with the left middle meatus, every one of which was surrounded by a delicate wreath of blood-vessels; there was a strong fetid odor.

Of these 29 cases 10 were confined to the naso-pharyngeal region exclusively, all of them being ulcers, frequently involving the *pharyngeal ostium of the Eustachian tube*, and sometimes penetrating to the rough surface of the basilar process of the occipital bone. Men and women were equally often affected; 6 were between 20 and 30, 1 between 30 and 40, 2 between 40 and 50, and 1 between 50 and 60; only once neither the larynx nor the intestines were affected; in 5 cases there were ulcers in both, in 4 in the intestines, and in 1 in the larynx alone. This confirms the observation of Wendt and Wagner (*l. c.*, p. 302), who frequently found ulcerations in the naso-pharyngeal region, associated with ulcers in the intestines.

As regards the location of the ulcerations, it is notable that in eight of the ten cases the tonsil was affected; in the other two they were confined to the *region of the orifice of the Eustachian tube*; in four cases the mucous membrane of the latter region, on both sides, as well as of the tonsil,

had ulcerated, once only on the left side; in three of these eight cases, *the orifice of the Eustachian tube* was not affected. The auditory organs remained intact in every case, even when ulcerations had formed at the entrance to the Eustachian tube; this is the more remarkable, because in other diseases of the naso-pharyngeal region secondary changes in the auditory organs are not rare, for instance when otitis media has resulted from adenoid growths in the pharynx.

These observations agree with those of the investigators mentioned above, Wagner and Wendt, who found that in several cases of large ulcers of the tonsil the middle ear remained either entirely intact or was affected only on one side.

The form of the ulcers varied; in general those extending to the Eustachian tubes or the posterior wall of the pharynx were confined to the upper strata of the mucous membrane, while the more circumscribed ulcers near the tonsils presented a crater-like appearance, and in two cases had laid bare the bone. Tuberculous eruptions, either with or without exudation, were entirely wanting. Nevertheless, I would invite clinicists and anatomists to search for ulcerations in the roof of the pharynx in those cases of phthisis in the course of which symptoms of tuberculous meningitis have developed, in order to determine whether or not any connection can be established between them.

In the great majority of cases the ulcers appeared more or less unclean, uneven, partly covered with disintegrating growths resembling granulations, partly with yellowish-brown nodules of the size of a pin-head, here and there also with punctiform ecchymoses, while a dirty, puriform, greenish-yellow viscous secretion overspread their surface; the edges of the ulcers frequently presented a ragged appearance; in some cases they were lined with the grayish-yellow nodules just mentioned, which sometimes, when the ulcers themselves were free from them, appeared in the surrounding tissue; frequently the ulcers were undermined to a considerable extent.

Besides the ulcers just described lesions of the mucous

membrane at or near the mouth of the Eustachian tube were sometimes found, which, on account of their shallow, circular shape and sharp edges, very much resembled the laryngeal ulcers of consumptives.

Besides the nodules mentioned above, hemorrhages were observed in the neighborhood of the ulcers, and also, though very seldom, cicatricial cords, presenting a very curious appearance, due to the net-like manner in which they interlaced. In two cases, the mucous membrane looked as though it were worm-eaten, an appearance due to the pores of the distended ducts of the numerous racemose glands. Here and there a few small cysts were noticed.

In order to gain an insight into the development of these ulcerations, I examined a few where tubercles could be suspected, with the microscope, without, however, being able to find any, though Wendt saw them in two cases on the border and in the neighborhood of the ulcers. Though the formation of ulcers from the disintegration of tubercles must therefore be granted in a few cases, it is certainly a very rare occurrence, and so I would give for many of them the following explanation:

The changes found consisted in a very dense infiltration of cells and nuclei, sometimes diffuse, sometimes more circumscribed, and of about the size of two or three glandular acini; sometimes it was confined to the layers nearest the epithelium, sometimes it extended in between the glands, surrounding the numerous small blood-vessels of the sub-epithelial layer and the distended ducts of the glands.

In some places the epithelium of the ducts still remains, in others it is missing, while dense masses of cells and nuclei fill the duct; the glands themselves appear intact, only here and there an interlobular infiltration is visible. The calibre of the blood-vessels within this zone is partly very much reduced, partly obliterated by compression. Beyond the layer of the glands there is no sign of this infiltration. Judging from this condition it, therefore, seems probable to me that in consequence of the compression of the blood-vessels necrobiotic processes are brought about, the emigrated blood-corpuscles disintegrate, the epithelium is de-

stroyed, and finally ulcers are formed, the depth of which depends upon the extent and character of the infiltration. As regards the development of these shallow lesions which sometimes occur on the mucous membrane of the orifice of the Eustachian tube, I have not arrived at any definite explanation. It is not quite clear what Wendt and Wagner (*l. c.*, p. 303) mean by the follicular origin of some of the ulcers examined by them, whether they are due to the caseous degeneration of the numerous lymph-follicles of the mucous membrane, or whether they have an origin similar to that of the follicular ulcers developing in the larynx and trachea of consumptives out of the ducts of the mucous glands of these organs.

That these ulcerations can heal has already been stated by Wendt and Wagner and is proved by the cicatricial tissue in their neighborhood, a fact which cannot seem strange when we take into consideration that we find cicatrices associated with fresh ulcers in organs which, like the larynx and intestines, are the favorite seat of tuberculous affections. I cannot, therefore, agree with Michel ("Die Krankheiten der Nasenhöhle und des Nasenrachenraumes," Berlin, 1876), who attributes all more extensive ulcerations of the nasopharyngeal region to syphilis.

Before entering on the discussion of my clinical observations, I wish to refer briefly to the origin of the small cysts mentioned above, which I found not only in the nasopharyngeal region, but also in the antrum of Highmore, of varying size and number, and frequently unattended by any ulcerations; while I agree with the explanation given by Wendt and Wagner (*l. c.*, p. 268 ff.) of their development, I will only add that in the cases which I examined they were retention-cysts, due to compression of the ducts of the racemose glands by the cellular infiltration of the subepithelial layer, thus preventing the discharge of their secretion; in a few cases the contents had suppurated and the membrane had become so thin that even a slight pressure was sufficient to burst the cyst. Of course, the same result might take place spontaneously, for instance, from very rapid growth, thus giving rise to a lesion which, in turn, might develop into an ulcer.

In regard to the time of appearance and subsequent course of these ulcerations, I can say the following: 1. They are sometimes found when only slight changes can be detected in the lungs, although they generally accompany the later stages of phthisis; or 2, they may remain latent and are only discovered by the *post-mortem* examination, though sometimes the painful sensations caused by their presence constitute the chief grounds for complaint. I remember, for instance, the case of a young book-keeper, 24 years old, where, in addition to tuberculous ulcerations of the epiglottis, there was a deep, crater-like ulcer near the tonsil, which was the cause of constant complaint. He continually had the sensation of mucus adhering to this spot, causing him to *hawk* violently; a crust formed at night, which could only be removed with great difficulty. Months later caseous degeneration and ulceration of the solitary follicles of the posterior wall of the pharynx set in, considerably intensifying the sufferings of the patient, and rendering the last months of his existence particularly painful. He frequently complained of a pricking pain in both ears, a symptom which I consider to be due, in many cases, to ulcerations in the naso-pharyngeal region, and not, as is generally assumed, to tuberculous ulcers of the pharynx, or lesions of the larynx, especially the posterior wall; in this I agree with Traube, who, in his "symptoms of the diseases of the respiratory organs," ascribes the pain often felt in the ear by consumptives, to ulcerations in the neighborhood of the orifice of the Eustachian tube. This is proved by those cases in which, although no ulcerations can be found in the larynx or pharynx, the patients complain of pain in the ears, and an examination with the rhinoscope reveals ulcers in the naso-pharyngeal region, especially at the *ostium tubæ*; yet I will not deny that cases occur, in which just the reverse of the morbid changes mentioned exists, to which the explanation of Fränkel, given in his paper "on tuberculosis of the pharynx" must be applied (*Berl. Klin. Wochenschr.*, Nos. 46 and 47, 1876). He ascribes the pain to perverse sensations conducted through Jacobson's and the glosso-pharyngeal nerve. In a third series of cases the ex-

amination of the auditory organs themselves gives a sufficient explanation, (to which I shall recur later,) at the same time it indicates the treatment to be resorted to.

In regard to the differential diagnosis of these ulcers I agree with Fränkel, "that the appearance of the ulcers is sufficiently characteristic to make a diagnosis," he states this to be true of the ulcers found in the pharynx of tuberculous persons, while I claim that it is also true of those of the naso-pharyngeal region, not only in the living, but also in the dead subject.

In treating these ulcers I would recommend a 1-per-cent. solution of creosote dissolved in equal parts of alcohol and glycerine. It is a preparation frequently used in Dr. Bülow's wards in cases of painful tuberculous ulcers of the larynx and pharynx, which often afforded at least temporary relief; I sometimes also applied absolute alcohol, or made use of hypodermic injections of a 2½-per-cent. solution of carbolic acid, which, applied at the angle of the jaw, caused the pain to disappear rapidly.

I shall now proceed to describe those changes which had taken place in the auditory organs. They were found diseased in 16 cases: 8 of which were complicated with affections of the naso-pharyngeal region. The other eight were confined to the auditory organs alone. Beginning with the latter, it is a curious fact that all were men, the youngest being 26, the oldest 68 years old; while three were between 40 and 50, one a little over 30, and two almost 30. In the great majority of cases, a *direct* connection can hardly be found between these morbid changes and the phthisis itself; in only two cases I consider it *possible* to speak of such a connection, though even for them I would not make any positive statements, because it remained uncertain whether phthisis had developed sooner than the morbid processes in the ear, or *vice versa*. In both cases extensive changes in the mucous membrane of the cavity of the tympanum, combined with caries of the walls, had taken place, especially in the case of a young man of 26. The drum-head of the right ear, which was the one affected, was entirely destroyed, while beyond it a bowl-shaped cavity ex-

tended, reaching from the mastoid cells to the orifice of the Eustachian tube; the ossicles were gone. A narrow strip of mucous membrane still existed on the floor of this cavity; in the remainder of it the roughened bone lay exposed; near the orifice of the Eustachian tube a sequestrum projected, still firmly attached. The whole vestibule was destroyed, the bone converted into a sandy mass, the facial nerve gone from its first inflection to its point of emergence at the stylo-mastoid foramen, and the cochlea was exposed with all its turns. The case of phthisis had been a very severe one, the pulmonary tissue had been destroyed to a great extent, cavities had formed, and there were ulcerations in the larynx and intestines.

Such extensive morbid changes in otherwise healthy persons being but very rarely caused by a purulent otitis media not dependent upon a dycrasia, it seems very probable to me, that, as this was not a primary tuberculous ostitis of the petrous portion of the temporal bone, although the existence of such an affection was put beyond doubt by Zaufal and others, it was a caseous inflammation of the mucous membrane of the tympanic cavity, "speedily followed by ulceration and degeneration of the mucous membrane. . . and sometimes by caries of the bone" (Schwartz, *Pathol. Anatomie des Ohres*, 1878, p. 80). In the second case also, that of a young man of 24, the right ear was the one affected; the drumhead, with the exception of a narrow crescent on the roof of the auditory canal, had been destroyed, caries of the wall of the labyrinth below and behind the promontory had begun to the extent of a pin's head, and all the ossicles were gone, while the vestibule and cochlea had remained intact. The destructive process in the lungs was mainly confined to the right side; the larynx and intestines were normal.

Such extensive destructive changes as in the first case just described, could only be wrought in the course of months, so that both the ear and lungs may have become affected at the same time, or the former may even have been the starting-point for the phthisis which afterward developed in the lungs. See also v. Troltsch (3d ed., 1867, p. 337, note),

and Urbantschitsch (*Lehrbuch der Ohrenheilkunde*, 1880, p. 370), who discuss the possibility of tuberculosis developing in connection with chronic purulent otitis media. I also observed a case of this kind about three years ago.

The case was one of a young merchant without any hereditary taint, who, in the fall of 1877, became affected with purulent otitis media, which would yield to no treatment, and greatly reduced the patient, especially through the great pain which he suffered at night. Nothing abnormal could be detected at the time in any other organ, especially the lungs; the otorrhœa was more or less profuse, and never ceased entirely; in the spring of 1878, a periproctal abscess formed, after the incision of which an incomplete external fistula of the rectum remained, which, however, after being operated, healed, though very slowly; in the meantime a cough began to trouble him, morbid changes in the apex of the lungs were discovered, tuberculosis of the intestines and ulcers of the larynx followed, and in the spring of 1879 the patient died.

Undoubtedly the phthisis of this case, was in direct connection with the purulent otitis media, and it would be of interest to know how frequent such an occurrence may be. Of course this would involve the examination of the auditory organs of every consumptive, and, when a purulent otitis media exists or has existed, the determination of its duration and its connection with the general disease.

Of the remaining six cases, four were due to a mucous (left-side) and (once) a muco-purulent (right-side) catarrh of the middle ear; twice sclerosis had begun in the tympanic cavity, which had given rise to the formation of thread-like pseudo-ligaments, partly between the ossicles themselves, partly between them and the wall of the labyrinth; the drumhead had remained uninjured, but appeared somewhat opaque; whether or not the hearing was impaired I do not know, as no tests were made, which, besides, would have no bearing on this question.

I have already stated that I do not think that any direct connection exists between these local affections and the primary disease, still, I wish to define my position more accurately, in so far as I am in complete accord with v.

Troltsch (*l. c.*, p. 242) in thinking that *phthisis predisposes to the development both of an otitis media sicca and mucipara*. In proof of this I can cite the results of my examination of the auditory organs of non-consumptive persons, where sclerosis of the middle ear was rarely found.

It now but remains to consider the last category of cases, in which both the naso-pharyngeal region and the auditory organs were affected. Here, also, most of the cases were those of men, only one of the whole number (eight) being a woman. One was between 10 and 20, two between 20 and 30, one between 30 and 40, and four between 40 and 50 (a woman among the last). Three were cases of otitis media with sclerosis, four of catarrh, and only one of purulent otitis media.

The last-mentioned case was one of a man 42 years old, who had died of caseous peribronchitis of both lungs, combined with cavities in the right upper lobe and tuberculous ulcers of the intestines, and who, during life, had complained of pain in the right ear when swallowing. Larynx and pharynx were found normal; there were no ulcerations in the naso-pharyngeal region, the mucous membrane of which was of a scarlet-red and infiltrated with numerous ecchymomata. The drumhead in the right ear was entirely destroyed, the floor and inner wall of the tympanic cavity covered with creamy pus, below which lay the rough bone of the wall of the labyrinth; the circulation between the hammer and anvil was imbedded in a jelly-like, viscous exudation; of the malleus there remained only the head and short process, and a piece of the handle about 1-2 *mm.* long; of the incus, the body and a piece of the short process; while the stapes was gone entirely.

In regard to the connection in this case between these morbid changes in the ear and the general disease, I hold the same opinion as in the case of purulent otitis media, complicated with caries of the wall of the labyrinth, which I described above, although in the absence of a history I have no sufficient proofs for this.

In the three cases of dry otitis media combined with the formation of numerous synechiæ (twice in the left ear, once

in both), the changes in the naso-pharyngeal region consisted twice in the presence of cysts in Rosenmüller's fossa or the tonsil respectively, and once in spotted extravasations of the roof of the pharynx; in the first two cases the general disease was confined to the lungs, in the last the larynx and intestines were also affected.

The remaining four cases were catarrhs of the middle ear; twice affecting both ears, and once the right, and once the left alone; in only one case (where both ears were involved) the drumhead had been destroyed. The morbid changes in the naso-pharyngeal region consisted in two cases in cicatricial bands: once in Rosenmüller's fossa, and once at the roof of the pharynx, between which the mucous membrane had sunken in; while in the two other cases ulcers had formed, one of which, of crater-like shape and situated near the tonsil, had penetrated to the bone, while the other extended as far as the orifice of the Eustachian tube on both sides. It is not improbable, therefore, that, judging from these conditions, these processes are directly connected with the coexistent changes in the auditory organs.

Aside from the functional changes, which very probably existed in every one of the 16 cases, subjective symptoms in form of pain were manifested in only one case, so that there were no indications for treatment of the aural affection; the nature of the treatment would be regulated by general principles, and need not be enlarged upon.

In conclusion, three cases remain to be reported, which were confined to the naso-pharyngeal region; retention-cysts of about the size of a bean had formed, twice in the neighborhood of the tonsil, and once near Rosenmüller's fossa, and although I do not think that any connection existed between them and the primary disease, still they may be of importance in deciding the question in regard to the frequency and nature of the idiopathic as well as secondary morbid changes of the naso-pharyngeal region, which sometimes are associated with certain general diseases. In two of these cases (men of 23 and 31) ulcerations of the larynx and intestines had formed in addition to the destructive

processes in the lungs; in the third (a woman of 43) there were also ulcers of the intestines.

The total number of specimens examined was 50, of these

36	were from men ;	of these there were diseased	22
14	“ women ;	“ “ “	7
			<hr/>
	Total,		29

The morbid changes affect

the naso-pharyngeal region alone,	13 times.
the auditory organs alone,	8 “
“ “ “ and naso-pharyngeal region,	8 “
	<hr/>
Total,	29

The respective ages were

between 10 and 20,	1
“ 20 “ 30,	10
“ 30 “ 40,	5
“ 40 “ 50,	12
“ 50 “ 60,	0
“ 60 “ 70,	1
	<hr/>
Total,	29

Sex.	Age	KIND OF AFFECTION.	KIND OF PHTHISIS.	Complications in the	
				Larynx	Intes- tines
		<i>Affections of the naso-pharyngeal region alone.</i>			
♂	41	Ulceration of the tonsilla pharyngele.	Peribronchit. dissem., vomicæ lob. super. destr.	♂	♂
♂	50	Ulcerations of the roof of the pharynx extending to the orifice of the Eustachian tubes; erosions on the mucous membrane of the orifice.	Peribronchit. dissem., vomicæ inveterat. lob. super. utr.	♂	♂
♂	32	Bowl-shaped ulcer of the roof of the pharynx extending over the mucous membrane of the posterior wall of the pharynx.	Peribronchit. et bronchopneum. dissem. caseos.; vomicæ lob. super. d.; pleurit. adhæs. dextr.	♂	♂
♂	30	Ulceration of the orifice of the left Eustachian tube, covered with nodules.	Pneum. desquam., vom. lob. sup. utr.	♂	♂
♂	26	Ulceration of the mouths of the tubes; the mucous membrane of the roof of the pharynx appears honey-combed.	Peribronchit. dissem. caseos. bilat.	♂	♂
♂	26	Ulcer of the pharyngeal tonsil.	Peribronchit. dissem., caverns especially in the left upper lobe.	♂	♂
♂	25	Ulcerations of the naso-pharyngeal region, including the posterior wall of the pharynx and the mouths of the tubes.	Peribronchit. dissem.	♂	♂
♂	25	Crater-shaped ulcer of the pharynx lined with nodules.	Peribronchit. tuberc., pleuroobliterat. and caverns r.	♂	♂
♂	46	Two deep, bowl-shaped ulcers of the roof of the pharynx.	Empyema sin.; peribronchit. caseos. bilateral.	♂	♂
♂	27	Two ulcerations of the roof of the pharynx, one of which, situated near the tonsil, exposes the bone.	Peribronchit. dissem., vomicæ lob. super. utr.	♂	♂
♂	31	Colloid cyst in Rosenmüller's fossa (right).	Peribronchit.; cavities.	♂	♂
♂	23	Cyst, of the size of a bean, at the roof of the pharynx.	Peribronchit.; cavities, especially in r. upper lobe.	♂	♂
♂	43	Retention-cyst, near the tonsil, about half the size of a cherry-stone.	Peribronchit. dissem. caseos.; caverns in r. upper lobe.	♂	♂
		<i>Affections of the auditory organs alone.</i>			
♂	33	Otitis media sicca bilateral.	Bronchopneum. caseos. bilat.; caverns in r. upper lobe	♂	♂
♂	49	Otitis media sicca bilateral.	Peribronchit. dissem. acut.	♂	♂
♂	29	Otitis med. suppur. dextr. car. creser. pariet. labyrinth (cyst. in antrum of Highmore of r. side).	Bronchopneum. caseos. d.; peribronchit. apic. sin.; bronchiectasiæ.	intact	intact
♂	68	Otitis med. exsudat. mucosa sin. sine perfor. mbr. tymp.	Peribronchit. dissem. tuberc. ex epididymit. caseos.	intact	intact
♂	28	Otitis med. exsudat. mucosa sin. sine perfor. mbr. tymp.	Cirrhos. et peribronchit. bilatéral.	♂	♂
♂	26	Otitis med. suppur. dextr., defect. mbr. tymp.; carries pariet. tympan.	Caveitis on both sides.	♂	♂
♂	47	Otitis med. dextr. suppurat. sine perforat. mbr. tymp.	Empyema sin., peribronchit. caseos.; caverns.	intact	intact
♂	47	Otitis med. mucosa sin. sine perforat. mbr. tymp.	Peribronchit. et bronchopneumon. caseosa; caverns on left side.	♂	♂







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