THE

JOURNAL OF LARYNGOLOGY AND RHINOLOGY.

VOL. III. JANUARY, 1889. No. 1.

The Editors do not hold themselves responsible for opinions expressed by contributors.

ON LARYNGO-TRACHEAL OZŒNA.

By DR. LUC (Paris).

A WHOLE year has elapsed since I published my first observations on *Laryngo-tracheal Ozœna.* The essay I then published on the subject, and which was based on three cases, appeared in the February number of the *Archives de Laryngologie.* I have been enabled since then to follow the course of the disease on two of the patients whose symptoms had been described in the article alluded to, and, moreover, to observe new cases of the same affection. On the other hand, I was pleased to see my example followed by other practitioners, and I shall have to mention, in the course of this article, the contributions of some of my colleagues on the same subject, some anterior, some subsequent, to my own researches. At all events, I find myself to-day better enabled to take a critical review of the question, and to try to give a pathological description of this affection.

I have thought the subject of laryngo-tracheal ozœna, owing to its novelty, worthy of finding its place in the columns of the JOURNAL OF LARYNGOLOGY.

As already stated in my first essay, I make no claim for priority with regard to the discovery of the disease. B. Fraenkel is, as far as I am aware, the first author who mentioned the presence of fœtid crusts in the larynx and trachea. In fact, he says positively in his book on diseases of the nose[1]:—"I have been treating, for a long time, a lady evidently "affected with ozœna, in whom the same greenish and fœtid deposits "developed in the nose, are also to be seen in the pharynx and even in "the trachea." He alludes further on to the possibility of such crusts becoming formed in the larynx.

I sincerely regretted not to have been aware of the contribution of Professor Massei, of Naples, on the same subject, at the time when I

[1] B. Fraenkel: *Ziemssen's Handbuch der Speciellen Pathologie und Therapie. Diagnostic und Therapie der Krankheiten der Nase,* p. 150.

https://doi.org/10.1017/S1755145500151292 Published online by Cambridge University Press

published my first essay. I most willingly avail myself to-day of the opportunity that is offered to me to make amends for that involuntary omission on my part, and I am happy to record here that, in his remarkable lectures on diseases of the throat,[1] the clever professor of Naples had mentioned the existence of *laryngo-tracheal ozæna*, and noticed some peculiar symptomatic details that had escaped my own observation, viz. : the difficulty of expelling the tracheal crusts that results from their irritating the lower surface of the vocal cords and bringing them spasmodically into contact with one another.

Here is the exact translation of the passage of Professor Massei's lecture on the subject :—"In *laryngo-tracheal ozæna* we meet, on the "mucous membrane, the same lesions as in nasal ozœna, but the exuda- "tions generally accumulate under the vocal cords ; the latter form a real "obstacle to their expulsion, and, by coming into contact with each other, "render their expectoration very difficult, as they contract suddenly in "consequence of the irritation caused to their lower surface. You will, "therefore, find a considerable quantity of clotted deposits in the sub- "glottic region. Therefrom results a difficulty of breathing, a variety of "asthma similar to that caused by chronic inflammation of the bronchial "tubes. *Laryngo-tracheal ozæna* is, however, a very rare localisation of "the disease ; such cases, hitherto, have scarcely been reported and "described. I was enabled myself, two years ago, to show you, in my "private clinic, a case occurring in a pregnant lady who laboured, "especially at night, under severe asthmatic attacks, and relating to "whom it was impossible for me to make further observations. When "the exudations get interposed between the vocal cords, so as to prevent "their being brought into contact, the vocal function may be consequently "impaired, but the hoarseness or aphonia are only intermittent, being "liable to disappear as soon as the morbid products become detached. "You have also to notice the unpleasant smell and the results of the "laryngoscopic inspection showing this special demarcation of the in- "flamed tissues, which I have produced as an argument in favour of the "parasitic nature of the disease."

It appears from the above quotations that the development of ozœna in the trachea had been noticed and spoken of before the publication of my memoir ; but the fact had only been briefly mentioned, and, so far as I know, no precise observation had been published before mine. I think I may have contributed to a more precise knowledge of the question, by giving the detailed observation of three patients who happened to come under my care, and basing upon those facts an essay of a clinical description of the disease.

I will now shortly record those facts. The first concerned a lady about thirty, who had come to consult me for symptoms apparently due to common ozœna. After I had found the classical signs of that affection (abnormal enlargement of the nasal cavities, atrophy of the inferior turbinated bones, accumulation of greenish, fœtid crusts in those cavities and in the upper part of the pharynx), I proceeded to a complete cleaning

[1] B. Massei : *Lezioni Cliniche sulle Malattie della Gola*, p. 202.

https://doi.org/10.1017/S1755145500151292 Published online by Cambridge University Press

out of the nose, with a lukewarm solution of boric acid, by means of the English syringe generally employed in such cases, and ascertained, by a careful examination of the nasal cavities, that they had been thoroughly cleared from all morbid products. I was, however, not a little surprised on remarking that, contrary to what I had hitherto been accustomed to observe in similar circumstances, the unpleasant smell of the breath had not in the least been modified.

Suspecting a few crusts to have remained undetected in some anfractuosities, and so escaped my notice, I advised the patient to repeat the injections herself twice a day at home with a weak solution of sublimate, and asked her to come and see me again in a few days.

On the following visit of the patient, after finding that the bad smell of the breath persisted in spite of a perfect cleaning out of the nasal fossæ, and on the remark of the lady, that she used to cough every morning and expectorate green and fœtid crusts, analogous to those expelled through the nose, I proceeded to a careful examination of the chest, and after detecting no abnormal symptoms in the lungs, I proceeded to an inspection of the larynx. In this cavity I found nothing particular, but whilst the patient was breathing freely, I succeeded in seeing, in the interval of the vocal cords, the walls of the trachea studded with greenish crusts, similar to those first observed in the nasal cavities. I further remarked that the fœtor of the breath was exactly the same, when the air was expelled through the mouth, as when it passed through the nostrils, which confirmed me in the opinion, that the persistence of the bad smell was to be attributed to the presence of those morbid products in the trachea. In order to get a fuller confirmation on that point, I asked the lady to bring me a small portion of the sputa she used to expectorate every morning, which she did on the following day, and I was then enabled to ascertain the fact that, with regard to appearance and smell, they did not differ in the least from the mucosities and crusts of the nose.

My colleague and friend, Dr. Ledoux-Lebard, who kindly undertook to make an examination of those products, found in them, after colouring them with aniline, besides isolated *cocci* and *bacteriæ* of different sizes, a *diplococcus* similar to the one detected by Lœwenberg, and considered by him as the cause of the special fermentation that gives rise to the characteristic smell in ozœna.

I had, therefore, succeeded in determining the cause of that apparent derogation to the generally admitted opinion, according to which the fœtor in ozœna emanates from the morbid products of the mucous membrane, but not from that membrane itself. My discovery was even a manifest confirmation of that theory, since it established that those pathological secretions were liable to give rise to fœtor wherever they became developed.

I had now to determine whether the crusts observed in the trachea had descended from the hinder part of the nasal cavities or had primarily been developed in the trachea. This I ascertained easily, by keeping the nasal fossæ, by means of daily washings, in a state of uninterrupted cleanliness, and noticing that the crusts accumulated in the trachea varied in quantity from one day to another, according as some of them had been expelled by coughing or others had been formed anew.

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In order to relieve the patient from those crusts and from the unpleasant smell, I had recourse to several means (insufflation of iodoform through the larynx during inspiration, and inhalations with different antiseptic solutions); but she did not submit to the proposed treatment so regularly and perseveringly as to enable me to appreciate its efficacy, and in that particular case, I did not succeed a single day in seeing the trachea completely rid of crusts and mucosities; only, when those products were fewer, I noticed that the mucous membrane, visible in their intervals, appeared reddish, swollen, somewhat granular, and that its characteristic ring-streaked disposition was not to be seen as in normal conditions.

A few days after I had succeeded in determining the origin of the fœtor of the breath in the case above described, I had an opportunity of observing a similar fact in a girl of eighteen, who for a short time had been under treatment in my clinic for what I at first merely considered to be simple nasal ozœna. This patient used, according to my advice, to perform daily a complete cleaning out of the nasal fossœ. Notwithstanding, I remarked one morning that, in spite of the perfect cleanliness of these cavities, the expired air emitted the characteristic fœtor of ozœna as well through the mouth as through the nose. I entertained no doubt but that I had again to do with a case of tracheal ozœna, and was confirmed in my suspicion by the laryngoscopic mirror, which enabled me to notice, in the interval between the vocal cords, the mucous membrane red, swollen, and, here and there, covered with yellowish or greenish deposits. I endeavoured this time to try, under my own observation, the effect of the liquid inhalations that had not proved very efficacious in the former case, and for that purpose I had recourse to a solution of thymic acid (4/1000). The very first inhalation gave rise to fits of coughing, soon followed by the expectoration of a great quantity of fœtid sputa, and after a few minutes I had the satisfaction of noticing with the mirror that the trachea had been thoroughly cleared from the crusts, and I ascertained at the same time that the bad smell had totally disappeared.

I have been enabled to attentively follow this patient during this whole year, and to observe that the course of the disease was exactly the same in the nose as in the trachea. Both cavities are easily kept clean and free from disagreeable odour through regular washing and inhaling, but if the inhalations are omitted, only during a few days, the crusts reappear in the trachea exactly as they reappear in the nose after a somewhat prolonged interruption of the irrigation of its cavities. I have been enabled also to notice that the abundance of secretion in both cavities was submitted to certain general influences, increasing, for instance, during the menstrual period or under the influence of transitory fits of dyspepsia.

In the two cases above described it is remarkable that the lesions were limited to the trachea, whereas the larynx remained completely normal and free from pathological secretions. A different course was observed in the third case already published in my first memoir.

It concerned a young man of twenty, who, about thirteen years before, began to show manifest symptoms of nasal ozœna, and three

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years later became subject to frequent fits of laryngitis attended with expectoration of fœtid greenish crusts very similar to those expelled through the nose. I saw him for the first time on the 6th of January of this year, and, after I had recognised in him, by rhinoscopy, the existence of a typical ozœna, I was induced, by the hoarseness of the voice, to proceed to a laryngoscopic inspection, and noticed the following particulars: the laryngeal cavity was completely free from any morbid secretion, but its mucous membrane presented the appearance of an intense inflammation, offering a very marked redness, especially on the vocal cords. On the false cords were to be noticed hæmorrhagic streaks. The same colouration was distinct on the tracheal mucous membrane, but in this passage it was partially hidden by abundant greenish crusts. I succeeded, in this case, as in the former one, in obtaining a complete cleansing of the trachea, by means of inhalations performed with a solution of thymol, and could ascertain that its mucous membrane appeared red, swollen, and that its ring-streaked appearance was no longer visible.

Following my advice, the patient repeated at home the nasal irrigations and the inhalations, and succeeded in keeping himself from any further fœtor. I could even ascertain that after a few weeks of a regular continuation of that method of treatment the crusts showed less tendency to form anew, and that the young man could interrupt the inhalations during a few days without the bad smell reappearing.

After the publication of my first essay, based on the three cases just recorded, I had an opportunity of observing at my clinic three other patients affected with the same disease.

One of them, about twenty, presented, besides the classical symptoms of *rhinitis atrophicans*, an intense redness of the mucous membrane of the vocal cords, a marked tumefaction of the arytenoid region, and a few fœtid crusts in the trachea.

The second, a girl about twenty-four, began to notice, ten years ago, the first symptoms of nasal ozœna. From the same date she became subject to frequent fits of acute laryngitis, and used to expectorate greenish and fœtid crusts.

When I first saw her, about the end of January, I detected a great quantity of fœtid secretory products, not only in the nose and in the nasal and buccal portions of the pharynx, but also in the trachea, and even in the laryngeal cavity, where they formed a deposit on the arytenoid region of the mucous membrane. After clearing away all pathological products, I could ascertain that the subjacent mucous membrane appeared red, swollen, and presented the aspect generally observed in chronic inflammations.

My sixth and last case occurred quite recently. I was enabled to observe it in a woman of forty-five, whom I had been treating a few days for symptoms of nasal ozœna. She herself drew my attention to the state of her air passages by complaining of a persistence of the unpleasant smell of her breath, which, she said, she was unable to account for, as she performed the nasal injections prescribed to her with the utmost regularity. On noticing a certain amount of hoarseness, I inquired whether she was particularly subject to laryngitis, to which

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she answered affirmatively. I then proceeded to a careful inspection of the larynx, and detected the following details: the vocal cords, instead of their normal uniform whiteness, showed a thin vascularity of their surface; but the chief modifications appeared on the posterior wall, which presented such small warty excrescences (apparently due to limited fibrous hypertrophies) as are commonly met with in people affected with frequent attacks of laryngitis connected with chronic pharyngo-nasal catarrh. Those excrescences were partially covered and hidden by a muco-purulent deposit, which was later on expelled in a fit of coughing. The patient having then been prevailed upon to breathe freely, and without straining, I could see distinctly on the anterior wall of the trachea a greenish crust, the presence of which easily explained the persistence of the fœtor.

In order to complete the list of cases till now published of *laryngo-tracheal ozæna*, I must not omit to point out the fact recently observed by Dr. Tsakyrogboas, of Smyrna, and considered by that author as a case of primary *ozæna laryngis unconnected with ozæna nasalis.*

It was observed, in 1866, in a young lady about nineteen. She had complained for a month of an itching feeling in the throat; she observed at the same time that her breath emitted an unpleasant odour, and that she was liable to expectorate now and then fœtid crusts of a brownish colour and foul appearance. This expectoration freed her for a little while from the disagreeable symptoms above mentioned, and even from the hoarseness, which seemed connected with the accumulation of the morbid products in the laryngeal cavity. The laryngoscopic inspection showed the following details: the mucous membrane of the pharynx was pale, the epiglottis and true vocal cords red, as in chronic catarrh, on both faces of the cords, and in the ventricles of Morgagni there was accumulation of brownish masses. The latter having been expelled, the subjacent mucous membrane appeared highly injected, but not ulcerated. Nothing abnormal was found in the trachea, or in the nasal cavities.

This state persisted for about five months, but gave way after continual local and internal treatment, and did not appear anew.

The treatment consisted of inhalations with carbolic acid and resorcin, insufflations of iodoform, and brushing of the laryngeal cavity with glycerine and tincture of iodine. Internally the patient was put under the influence of creosote.

As results from what I have just said, the number of cases of *laryngo-tracheal ozæna* that came under my observation in the course of this last year amounts to six. All my patients were simultaneously affected with nasal ozœna, and, as those six cases have been derived from a total of thirty patients presenting symptoms of nasal ozœna, I am led to consider the proportion one-fifth as expressing the relative frequency of nasal as compared with *laryngo-tracheal ozæna.* I cannot, consequently, admit Professor Massei's view that *laryngo-tracheal ozæna* is a very rare clinical occurrence.

The silence of authors on the question is not, then, to be accounted for by supposed rarity of the condition. It seems to me more natural to remark that the lesions in *tracheal ozæna*, far from being obvious and

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such as to be noticed at once, cannot be detected, except by a careful examination. In short, the greater number of specialists have left this affection hitherto unobserved because they omitted to inspect the tracheas of their patients. My own example will supply the best proof of that interpretation, for whereas, during the first years of my practice, I had not met with a single case of the disease, after my attention had been struck by one fact, well observed, I succeeded in detecting, in the course of the same year, five new examples of the same disorder.

I have not the least doubt that, if my colleagues will also take the trouble to inspect the larynx and trachea of such of their patients as suffer from an unpleasant odour of the breath, which cannot be explained by the presence of lesions of other organs, *laryngo-tracheal ozæna* will soon cease to be a very rare occurrence.

I wrote textually in my former essay :—

"The primary cause of tracheal ozœna seems to be the previous "existence of a nasal ozœna—at least, so it was with my patients, whose "statements seemed to make it certain that, before they presented "the symptoms of fœtid tracheitis, they had offered those of *rhinitis* "*atrophicans*.

"It is impossible to foresee whether cases of tracheal ozœna un- "attended with nasal ozœna will ever be published . . . "

The above-mentioned fact, published by Tsakyrogboas, seems to complete that *desideratum*, but it is my opinion that, before we admit definitively the existence of a *laryngeal* or *tracheal ozæna* independently of nasal ozœna, it is prudent to wait for publication of new facts, in which the microscopic examination of the sputa will have settled that the microbes therein detected were exactly similar to those observed in the crusts of individuals affected with ordinary nasal ozœna. This is, according to my judgment, the only method of deciding the question, for it seems to me that the term *ozæna* ought not to be limited to a special localization, but to a particular fermentation liable to take place in the secretory products of the different portions of the respiratory channels.

Contrary to Tsakyrogboas' facts, in my six observations nasal ozœna co-existed with the tracheal form, and seemed even generally to have preceded it. On the other hand, it is quite certain that the crusts observed in the trachea were not nasal products, having accidentally reached this region, but that, on the contrary, they were products developed on the very spot where they were visible, as follows from my above statements. No doubt the primary infection was derived from the *nasal fossæ*, but, in consequence of this *auto-inoculation*, there had been created a new localization of ozœna—a specific catarrh of the trachea, attended or not with laryngitis of the same nature, and running its course quite independently of the disorder of the nasal cavities.

As regards the absence of crusts generally noticed in the larynges of my patients, this does not allow us to suppose that the latter organ was not implicated in the disease. For instance, in the cases where the laryngeal mucous membrane showed a high degree of redness and tumefaction, it seems logical to admit that fœtid products were also secreted in its glandular elements, but that they were immediately

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rejected, owing to the special sensitiveness and incessant mobility of this cavity. The trachea, on the contrary, taking into account its extent and the rigidity of its walls, which prevents their opposite points from coming into contact, offers, as regards the question of pathogeny of ozœna, the greatest analogy with the abnormally enlarged nasal cavities of patients labouring under *rhinitis atrophicans*. This would induce us to generalize the conception of ozœna, and to attempt to connect its pathology with that of fœtid bronchitis, attended with enlargement of the ærial passages. In both cases we have to do with a chronic catarrh, the products of which become fœtid, in consequence of their abnormal stagnation in dilated cavities, this dilatation originating in an atrophic degeneration of their walls, brought about by prolonged chronic inflammation. In both cases the fœtor appears to be due to the development of a special fermentation of the secretions of the mucous membrane. The peculiar and *sui generis* fœtor in ozœna leads us to suppose that the fermentation which gives rise to it is caused by a special microbe, and this supposition derives a very strong support from the experiments of Lœwenberg, who succeeded in isolating from the nasal crusts of his patients the *diplococcus* already alluded to, the culture of which reproduced the peculiar fœtor of the disease. In accordance with that view, ozœna ought no more to be considered as an affection inseparable from the nasal cavities, but as a specific catarrh attended with the presence of a special ferment, liable to develop on distinct points of the respiratory organs.[1] Therefore, as I already wrote in my former essay: "Let us hence-"forth speak no longer of *ozœna*, but of *ozœnas;* my opinion being "that it will now no more suffice to say that a patient is affected with "ozœna in order to point out his pathological condition, but it will be "necessary to add to that term an epithet specifying the exact seat of the "disease (nose, pharynx, larynx, trachea)."

The essential symptom in *tracheal ozœna* consists in the expectoration of fœtid sputa exactly analogous, as regards smell, consistence, and colour, to the products of nasal secretion in *nasal ozœna*. In all cases I observed that expectoration took place either exclusively, or chiefly in the morning, on awakening, a peculiarity that has been equally noticed in patients affected with enlargement of the bronchial tubes, and is easily accounted for by the accumulation of the products of secretion in the diseased organ during sleep. One of the most important characters of the sputa is their viscosity, which causes them to adhere to the tracheal walls and form crusts, in consequence of their becoming dry. In my third case, this tendency of the sputa to form dry deposits on the mucous membrane was chiefly marked during the acute exacerbations of laryngo-tracheitis, and the patient felt more difficulty than ever in getting rid of them. As above mentioned, the sputa exhibited, in all cases, a yellowish or greenish appearance, and emitted the unpleasant odour peculiar to ozœna.

The aspect of the laryngeal cavity was not the same in my different

[1] I have actually observed two patients affected with symptoms of ozœna, and in whom fœtid crusts are only to be found in the upper part of the pharynx, whilst the nasal cavities appear normal in every respect.

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patients. It appeared quite normal in my first case, whilst I noticed signs of simple congestion of the vocal cords in the second, and symptoms of catarrh predominating on the arytenoid portion of the mucous membrane, in the cases lastly observed. In one of them (No. 3) I could see distinctly some crusts adhering to the lower surface of the cords, and following their movements. In the two cases which last came under my observation, I was enabled to see, several times, a muco-purulent deposit adhering to the arytenoid mucous membrane. The fits of coughing, excited by those secreting products, were sometimes very severe; but I had never an opportunity of observing such dyspnœic fits, due to their presence, as have been described by Professor Massei in the passage from his lectures already alluded to.

The appearance of the trachea under laryngoscopic examination differs according as the inspection is preceded by the inhalation of a pulverized solution or not. In the latter case, if the patient be put under observation while breathing freely, we notice, through the interval of the cords, the walls of the trachea studded with yellowish or greenish deposits, so confluent sometimes as to completely hide the mucous membrane; in other cases, on the contrary, thinly scattered. If, on the other hand, the crusts have been expelled by means of protracted inhalation, we get a view of the mucous membrane, which appears either simply congested or granular, and so swollen and thickened as to hide the ring-streaked appearance due to the subjacent cartilaginous rings.

The prolonged observation of my patients has led me to the conclusion that the disease, if left to itself, shows no tendency to spontaneous cure. In fact, it is possible to conceal it by means of liquid inhalations, performed with perseverance and regularity; but the cessation of that mode of treatment is followed by a rapid reappearance of the crusts in the trachea, exactly as they form anew in the nasal cavities so soon as the nasal injections are suspended. On the other hand, I have noticed that (as has been observed in nasal ozœna, under influence of regular cleansing) after a protracted use of inhalations, the tracheal mucous membrane, being daily kept free from its pathological products, showed less tendency to abnormal secretion, and that the severity of the treatment might be somewhat relaxed.

I need not further mention some special conditions, such as dyspepsia, fatigue, menses, which are liable to increase at times the abundance and bad odour of the tracheal secretions.

The diagnosis of *tracheal ozœna* is to be founded on a group of signs, some of which can only lead us to suspicions or probabilities, whereas others are such as to afford us a complete certainty.

We shall be induced to *suspect* the existence of a fœtid tracheitis, on noticing a persistent fœtor of the breath in a patient affected with nasal ozœna, after a complete cleansing of the naso-pharyngeal cavities.

Such a diagnosis will become *probable* if, on one hand, the air is as fœtid expired through the mouth as through the nose; and if, on the other hand, the patient expectorates fœtid sputa. But the diagnosis can only become *certain* after a laryngoscopic examination, enabling us to see the walls of the trachea covered with crusts.

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The lesions, will, so to speak, be put before the eyes of the observer, who will therefore avoid being led into error either by a fœtid abscess of a nasal sinus, or by the emission through the mouth of a fœtid crust originally formed in the naso-pharyngeal cavity.

It is, then, impossible to allow a case of *tracheal ozæna* to escape unnoticed, unless we omit to search for it, or in cases in which we meet with special and personal difficulties in attempting to inspect the laryngo-tracheal cavity with the help of the mirror. Such difficulties are, however, now hardly to be taken into account since the introduction of cocaine to laryngology.

Laryngo-tracheal ozæna is a serious complication of nasal ozœna. In fact, whereas the patient simply affected with the latter form is sure to find a complete relief from his unpleasant symptoms, and to become enabled to conceal them by means of such a simple and easily performable mode of treatment as nasal injections, people labouring under *tracheal* or *laryngo-tracheal ozæna* can but obtain the same result by having recourse to inhalations, a much slower and more difficult proceeding, the effects of which are far more uncertain. If, in addition to this, we take into account the frequent fits of coughing, sometimes attended with impairment of the respiratory function, we are led to the conclusion that the prognosis of ozœna is severely aggravated by the extension of the disease to the larynx and trachea.

If the affection I have attempted to describe were limited to the laryngeal cavity, as was the case in the observation reported by Tsakyrogboas, it would remain within the reach of our direct means of treatment, and we could hope to be able to free the diseased cavity rapidly from its fœtid products, and furthermore to modify the anatomical conditions of its mucous membrane through such local procedures as brushing or even *cleansing*, as has been recently proposed by Loewe, of Berlin. Unhappily such means, so easily applicable to parts seated above the glottis, are not to be thought of for lesions of the subglottic part of the larynx and of the trachea, owing to the obstacle opposed to the penetration of our instruments by the spasmodic contraction of the vocal cords.

In order to surmount that difficulty, and with the prospect of cleaning the tracheal cavity from the fœtid crusts, and, at the same time, in the hope of modifying the conditions of the diseased mucous membrane, I had tried different means, such as inhalations performed either with simple steam or with pulverized antiseptic solutions. I also attempted, according to Baratoux's proposal, to inject a few drops of a lukewarm solution of boric acid directly into the trachea with the help of a little syringe provided with a curved cannula. I tried simultaneously the effect of insufflations of antiseptic powders. This last means proved inefficacious in all cases. I cannot say the same with regard to the injection of a liquid solution performed according to Baratoux's proceeding. It certainly succeeds in determining a softening of the crusts, and gives rise to severe fits of coughing, which may end with the expectoration of the fœtid sputa; but its action is not protracted enough, and is hardly tolerated by the patients, who generally oppose its renewal.

My experience has definitely led me to give the preference to the

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system of inhalations above all others. They act slowly, but so much the more efficaciously, and are not unpleasant for the patients.

To poor people the use of simple steam may be prescribed for the object aimed at, but beyond those special conditions I would much rather recommend the use of an inhaling apparatus, by means of which not the steam but the liquid solution itself, finely pulverized, is aspired into the air passages.

The composition of the solution may be varied according to particular circumstances. For my own part I derived much benefit from the use of thymol, but I consider the penetration of whatever pulverised solution into the trachea as the chief point of the method, and firmly believe that regularity and perseverance in the performance of the treatment are far more important than the chemical composition of the adopted solution.

CLINICAL NOTES.

By B. TAUBER, M.D. (Denver, Colo.).

Tuberculosis of the Pharynx.[1]

OUT of a total of 6500 laryngeal and pharyngeal patients, 13 cases of the above disease came under my care for treatment—namely 6 from Ohio, 2 from Kentucky, 2 from Indiana, 1 from Illinois, 1 from New York, and 1 from Colorado, an average of 2 in each 1000 of cases.

This subject has been discussed by Isambert, Fraenkel, and others. Tuberculosis of the pharynx generally presents itself as a complication, either of tuberculosis of the lungs, larynx, or of both, rarely preceding them. Twelve cases were secondary manifestations of tuberculosis of the lungs and larynx, and in *one case* it appeared to be *primary*, as on close examination of both lungs I could not detect pulmonary consolidation or softening.

The etiology of tubercular pharyngitis is the same as that of phthisis pulmonalis, and is referred to heredity, the depression of vital powers, breathing of impure air, a residence in a moist and cold climate, or insufficient nutriment. Males are more predisposed to it than females, and this may be due to the greater degree of exposure the former are subjected to. As regards age, the majority were between 20 and 32 years of age.

Pharyngoscopically we observe greyish and shallow-looking ulcers on the anterior folds of the pharynx and soft palate, spreading to the roof of the mouth, to the posterior wall, the velum palati, and to the tonsils, and at an advanced stage also on the epiglottis and larynx, and if the latter are implicated, in most cases the disease also spreads to the upper part of the larynx. These greyish granulations are lenticular in shape; rapidly they disintegrate, become yellowish in colour, and cause necrosis of the mucous membrane; at the same time the cervical glands become enlarged. As the disease progresses the granulations become confluent, and are gene-

[1] Read before the Colorado State Medical Society.

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