

FIBRINOUS RHINITIS.*

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The occurrence during last summer and fall of a series of cases, which apparently were fair examples of what has been described as fibrinous rhinitis, and certainly were the first to fall under my own notice, and a desire thereby to add a little if possible to the small amount of knowledge we possess upon this interesting subject leads me to present this paper.

Fibrinous rhinitis is an affection described under a variety of names—such as membranous rhinitis, croupous rhinitis, pseudo-membranous rhinitis, streptococcic rhinitis, laminated fibrino-plastic rhinitis, and by Bretonneau and other writers in France, as *Coryza Couenneux*. It was first mentioned about twenty-six years ago by Henock. The best description of the disease that I can find in the most recent text-books is that contained in Walsham's¹ "*Nasal Obstruction*." It is as follows: "The nasal cavities are obstructed by false membranes of a grayish-white color and fibrinous consistency, adhering to the swollen and reddened mucous membrane, especially that covering the septum and turbinal bones. The false membrane adheres more or less firmly and leaves a bleeding surface when forcibly removed, or it may come away easily without any bleeding. Cocaine does not cause a shrinking of the swelling; no membrane is discovered in the fauces. The glands in the neck are not enlarged, and no constitutional symptoms are present. The patient is most likely a child. It usually begins without apparent cause as an ordinary cold in the head, and may be ushered in by headache and slight fever, which, however, quickly subside. The urine is not albuminous, and the disease abates in a couple of weeks, and is not followed by paralysis."

The last extensive paper upon this subject in American and Canadian literature is that of Ravenel², of Philadelphia, published in 1895, wherein he collects reports of seventy-seven cases. As a result of these observations, Ravenel drew the conclusion that "patients suffering from fibrinous rhinitis were always a possible source of contagion, and should be isolated as carefully as those affected with the more common types of diphtheria."

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I find, however, that such eminent authorities as Bosworth in America, and Lennox Browne and Walsham in England, express themselves in their recent publications to the effect, that fibrinous rhinitis is a benign disease distinct from diphtheria. It is true that Bosworth states that all these cases should be isolated, but where is the need of isolation, with all that is implied thereby, if the disease be benign. Bosworth³ states that "croupous or fibrinous rhinitis is characterized by a deposit of fibrinous exudation, which is superimposed upon the epithelial layer, and does not involve the deeper tissues. The disease undoubtedly is frequently caused by, or follows operations in the nose, as after the galvano-cautery. In children the exudate forms a soft, thick almost granular mass, very friable, which in some cases can almost be wiped from the mucous membrane in small fragments. The treatment appropriate to diphtheritic cases is most often used with benefit in these cases. The patient should be isolated at once."

Walsham⁴ says: "Fibrinous rhinitis is rare. The affection is sporadic, and not contagious. In bacteriological examinations, the Klebs-Löffler bacillus is not found, but the staphylococcus pyogenes aureus, or a staphylococcus resembling this organism may be present. By some observers fibrinous rhinitis is believed to be merely a mild form of nasal diphtheria, since in some supposed cases of the affection the Klebs-Löffler bacillus has been discovered in the membrane. It is possible that these particular cases were mild forms of nasal diphtheria, fibrinous rhinitis being a benign disease distinct from diphtheria."

Lennox Browne⁵ says: "Recognizing there is such a disease as diphtherial rhinitis, there is also a form of nasal inflammation characterized by exudation of membrane which, although probably bacterial in its nature, holds a subsidiary position in pathology analogous to that of non-bacillary-membranous laryngitis. Risk of contagion is remote. Cultivation and inoculation experiments give negative results. The neighboring glands are not involved and no one has found the Klebs-Löffler bacillus."

On the other hand, Haviland Hall⁶ in "Albutt's System of Medicine," says: "In the majority of cases the disease is the result of diphtheritic infection, and in some the general symptoms are so slight that the true nature of the disease is likely to be overlooked. It is only after a careful bacteriological investigation with a negative result, that the possibility of any cause other than diphtheria should be admitted, and until such examination is made the patient should be isolated. In the non-diphtheritic cases have been found a coccus

resembling the staphylococcus pyogenes aureus, but differing from it by its extraordinarily quick growth, and by the duration of its power of infection, the streptococcus aureus and the pneumococcus membranous rhinitis occasionally occurs in the new born infant, usually in connection with septicemia in the mother."

Here then we have very opposite views expressed by leading authorities upon a subject of great importance, namely, the contagiousness of one form of a disease, which is looked upon with dread by physician and community. All of the cases which I here record occurred within a period of about fourteen months, and must be considered in my opinion simply as cases of diphtheria, where the type was of an unusually mild character. These cases are as follows:

Case I. Occurred in the writer's family. On July 17th, 1898, M. W., aged six years, complained of stuffiness of the left nostril in the evening, but was quite well and slept soundly and was not examined till the day following. The left nasal chamber was then found completely filled from front to back with a grayish-whitish fibrinous semi-transparent membrane. It was removed entire by injecting cocaine beneath it and by the use of a probe. The membrane was attached to the septum anteriorly and to the inferior, and perhaps to the middle turbinated bones as far back as the posterior nares, and when removed left a slightly bleeding surface. The throat showed no signs of membrane except two faint white lines behind the right posterior faucial pillar. The pulse was 76 and the temperature normal. After the removal of the membrane finely powdered iodoform was dusted on to the surface. The membrane was examined the same day by Professor Anderson, who found numerous polynuclear leucocytes with fibrin, but no bacteria. Cultures were also made, which showed abundance of staphylococcus albus, but nothing else. The membrane did not reform to any appreciable extent, and did not invade other parts. Iodoform was blown in daily, the child was not isolated and was not ill in any way, and the nose was healed in about a week.

M. E. W., aged five years, sister of No. 1, was examined accidentally on the evening of the 29th of July, 1898, twelve days following the above, and a membrane was observed on the posterior wall of the pharynx; which was examined also by Professor Anderson. Culture proved this to contain Klebs-Löffler bacilli. She was isolated and antitoxin promptly administered. The glands were slightly enlarged and there was a slight extension of the membrane. Recovery ensued within a week. No paralysis followed, but the anemia was

very marked. The nose was not involved. Neither of these children were exposed to contagion in any known way and no other members of the family were affected.

Case II. August 25, 1898, H. W., aged nine years, was brought to the office by her mother who stated that she was not sick, but that she complained of some stuffiness of the nose, which she thought might be a return of adenoids for which an operation had been performed in May. On inquiry it was found that she had had a sore throat about ten days earlier, which had been pronounced by a physician non-diphtheritic, and from which she had recovered. The one side of the nose was found completely blocked with a membrane similar to that described in No. 1. Removal left a bleeding surface. The child was promptly referred to the Isolation Hospital, and the Klebs-Löffler bacilli were found. The membrane spread out to the pharynx. Recovery ensued, but over six weeks passed before the bacilli disappeared.

Case III. In the early part of 1898, M., an infant of a few days old was referred to me by Dr. McMahon. The child was found to have difficulty in nursing, as its nose seemed to be blocked. On examination I found one side of the nose filled by a fibrinous membrane. The membrane was examined at the health office, and the Klebs-Löffler bacillus found. There was an extension of the membrane and no other symptoms of diphtheria were observed.

Case IV. H. R., boy aged five, in the practice of Dr. Fotheringham, developed a choked nose in November, 1898. The nasal chamber was completely occluded by a whitish membrane. The Klebs-Löffler bacillus was found in abundance. The membrane remained present for fourteen days, and the bacillus was found on each of the several examinations.

There was no clinical evidence of diphtheria at any time, and there was no extension of the membrane. The remaining residents of the house, father, mother and maid each developed typical pharyngeal diphtheria with all the clinical symptoms, the maid's case being of a severe type with faucial paralysis and a peripheral neuritis of the anterior tibials following.

The following cases occurred in my practice in the Hospital for Sick Children:

Case V. F. J., aged nine, was operated upon in September, 1898, for deflected septum. On the fourth day thereafter one nostril was occluded by a fibrinous membrane. Bacteriological examination showed the presence of staphylococci and the Klebs-Löffler bacillus. The child was isolated for nine days and there was no extension of the membrane, and no delay in the healing of the wound.

Case VI. W. R. C., aged four, was admitted in February, 1898, for anemia and epistaxis. The child proved to be hemophylic. Some months after admission both nostrils were found to contain a fibrinous membrane, which on removal left a bleeding surface. This membrane recurred persistently, and its presence was attended by attacks of epistaxis. Repeated bacteriological examinations were made, but no Klebs-Löffler bacilli were ever found. The child was not isolated, the membrane was removed, and various powders, styptic and anti-septic, were applied. The membrane finally disappeared, and the child was discharged in the following September.

Case VII. H. P., boy aged ten, entered the Hospital for Bell's paralysis on December 30, 1898. On the 27th of January his nose was observed to be sore and bleeding, and high up in the right chamber a whitish membrane was discovered. This was found to contain staphylococci only, no other symptoms were observed and the patient was discharged on the 9th of February.

As will be seen these seven cases give examples of a benign membrane in two cases, and of a membrane containing Klebs-Löffler bacilli in five cases. Again in two cases, one of them with a benign membrane there is a clear history of the infection of these brought into contact with the patient. The appearance of the membrane varied, being grayish and viscid in No. 1 and white and somewhat friable in No. 6. In no case could the membrane be removed without leaving some slight bleeding point, and in no case except in No. 6 was the bleeding very marked. In case No. 1 the membrane was the most typical I ever saw, and careful examination proved nothing to be present but staphylococcus and yet the only child with which she was brought into contact, developed pharyngeal diphtheria. In case No. 3, which was examined by a very accurate observer, the membrane was typical, constitutional symptoms were absent, and yet the patient spread true diphtheria to three persons. Of the hospital cases, only one was isolated, diphtheria, however, was epidemic in the hospital in the summer of 1898, and an occasional case appeared in the wards throughout the winter. The greatest watchfulness being required to prevent an outbreak. These two cases, therefore, would appear to have suffered from fibrinous rhinitis, owing to their exposure to diphtheritic contagion. I have already presented the views of our leading authorities, and now present as full a list as I have been able to obtain of cases recorded since 1895, of which there are ninety-one, making with my own a total of ninety-eight cases.

F. J. Dixon⁷ reports two cases, in one of which cultures showed micrococcus albus liquefaciens, and bacillus termo of Vignal but no others.

Hennig⁸ reports eighteen cases, which are fairly typical, and after a careful comparison concludes, that fibrinous rhinitis is not a disease *sui generis*, but is intimately related in a clinical and pathologico-anatomical manner to diphtheria. That its etiology is obscure, but that it is not due to Löffler's bacillus.

H. Lambert Lack⁹ reports thirty-six cases, forming two and a half per cent of all the children attending hospital practice. The results of bacteriological examinations carried out in thirty-three cases showed the true Klebs-Löffler bacillus constantly present, generally in pure culture, sometimes mixed with pyogenic cocci. It was usually of the large variety, and its identity was proved by its morphology, by its growth in various culture media. It was shown to be of full virulence in animals, to produce virulent toxins, and to be neutralized by anti-toxins, to live for several months in culture media, and by its vigorous growth to crowd out other organisms if present. A thorough examination proved a previous history of diphtheria in connection with one case only. The disease gave rise to itself in nine cases in four families, and often to mild sore throat, twenty-five cases out of eleven families.

John Middlemass Hunt¹⁰ reports three cases presenting the clinical characters of fibrinous rhinitis, but all of them so related to diphtheria as to make him thoroughly distrust any case based on clinical evidence alone. In two of these there was a bleeding surface left after removal of the membrane. In two cases true pharyngeal diphtheria occurred among those associated with the patient, and the other case developed a severe attack of diphtheria two weeks later followed by extensive paralysis. The Klebs-Löffler bacillus was found in the only case submitted to bacteriological examination.

Richard Lake¹¹ reports one case with a white gelatinous mass, filling entirely the cleft between the septum and the inferior turbinate bone. Bacteriologically no organisms but staphylococcus pyogenes aureus were found. The case was lost sight of before a cure was affected.

Price Brown¹² reports one case with a large white patch of cartilage-like membrane filling the whole cavity and adherent to the septum. It had been noticed by the patient for about two weeks. On removal it left a more or less abraded surface. There were no indications of diphtheria. The membrane was made up of fibrin and leucocytes. No bacteriological examination was made.

Meyer¹³ reports twenty-two cases in which he had made bacteriological examinations with inoculation experiments, and found in nine cases streptococci only, and in the thirteen others the Löffler bacillus in virulent form. In their clinical course the cases with diphtheria bacilli showed no difference from those without.

Gerber¹⁴ reports seven cases where virulent diphtheria bacilli were found. In other cases, the number not being given, streptococci, staphylococci, diplococci, etc., were found without the Klebs-Löffler bacillus. Gerber considers that the clinical pictures may be identical while the diseases are different, and that the difference between this and true diphtheria is one of degree only, dependent upon the vulnerability of the mucous membrane.

Gerber and Podack¹⁵ report five cases of primary fibrinous rhinitis in which the virulent Klebs-Löffler bacilli were present. They emphasize the great danger of infection in these cases on account of the relatively slight symptoms, and the chronic course, and insist on strict isolation.

Pluder¹⁶ reports six cases of rhinitis fibrinosa diphtherica, of which five were examined bacteriologically. Klebs-Löffler bacilli were found in all, while in one case there occurred extension to the pharynx—pharyngeal diphtheria—and more or less diphtheritic severe sore throat in persons in contact with the patient. He considers that but for the fact that there is no known case of fibrinous rhinitis which has been followed by paralysis, the diseases might be considered as identical.

In this series of cases we have the Klebs-Löffler bacillus present in sixty-nine out of a total of ninety-eight cases. These are not the observations of one man, but of a number, and most of the cases bear the ear-marks of careful observation. Looked at from the point of view of these results are not the conclusions of Ravenel in 1895 amply borne out. The cases of fibrinous rhinitis are rare, and the general practitioner who meets with a case will look up the subject in one of the recognized authorities, and acting upon their conclusions, will be apt to leave the case without isolation. This is too dangerous for the community and not justified by what we now know of the disease.

With regard to the frequency with which this form of disease appears, I feel convinced that the observations of Potter and Lambert Lack are not borne out in the experience of others. In my own case, in an experience of six years in charge of an intern and extern nose and throat clinic in the Hospital for Sick Children, not one case of fibrinous rhinitis was observed till those above recorded appeared. This long experience without a case and then the sudden appearance of a comparatively large number only goes to prove in my mind that fibrinous rhinitis is but one of the forms or phases of diphtheria due to an attenuation of the bacillus. It is assumed by some observers that the membrane which is now and then found in the nose after operative procedures is identical with that found in fibrinous rhinitis.

To this I would demur. The appearance is not at all the same. The history of the case in itself is a guide if the physician has occasion to suspect the nature of the deposit present. I have in many instances observed this membrane-like eschar after the galvano cautery.

It would appear that observers of this interesting disease thus fall readily into three classes:

1. Those who consider diphtheria and fibrinous rhinitis to be distinct diseases.
2. Those who consider there is but one disease, but that the degree of contagiousness varies, so that we may safely neglect to isolate such cases where no clinical and bacteriological evidences of diphtheria are to be found.
3. Those who would isolate every case.

In view of the fact that cases possessing a membrane bacteriologically innocent have apparently communicated diphtheria to others, are we not warranted in thinking that the Klebs-Löffler bacilli were really present somewhere. If so, we are forbidden thereby to abandon the isolation of these cases until a series of bacteriological examinations have been made, which practically means until the disease itself has disappeared.

In conclusion, we may fairly consider that the accumulated evidence proves the following points:

1. Fibrinous rhinitis and diphtheria are not distinct diseases.
2. All cases of fibrinous rhinitis need the same precautions as to isolation that diphtheria requires.

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NOTE. Subsequent to the reading of this paper, the writer has received a copy of "Non-Diphtheritic Pseudo-Membranous Rhinitis," by Dr. Price Brown, in which the views expressed are at direct variance with the conclusions of my paper.