

had been there. Other observers have seen this same condition. Mr. Hinton uses the word *repair* instead of reproduction, and reports one case of *repair* of *half* the membrane after three years' treatment; and another, in which *nearly* the whole membrane was restored after its destruction: it, however, remained perforate.

Troeltsch,<sup>1</sup> in this connection, states that "the perforation is generally the reason that a chronic otitis with otorrhœa often remains permanent—a radical cure not being possible." The perforation can be blamed for this, only because it exposes the middle ear to the cold air; for if the middle ear cavity be restored to a healthy condition, the suppuration will cease, and the perforation will generally close.

Roosa<sup>2</sup> obtained a new membrane after ten months' treatment. The inflammation was acute when the case came under his care, and the patient was less than 12 years of age. He claims that there was *entire* destruction of the membrane in this instance. A case is reported by Spencer,<sup>3</sup> of St. Louis, but the details are very meagre. He claims entire loss, with subsequent reproduction of the membrane ten years later. Moos<sup>4</sup> reported two cases in which the membrane was destroyed *even up to* its periphery, and in both was closed by cicatricial tissue. In the cases reported by the writer of this paper the new tissue does not seem to be cicatricial, but resembles a true membranal formation.

In the case of Dr. S. the membrane may have been restored by proliferation as there was a minute shred left, but in the one from which I removed the cochlea, nothing remained of the ossicles, or the old membrane, and yet the new membrane resembled the normal membrana tympani.

I desire to express my obligations to Dr. J. H. Thompson for the drawings from which the cuts accompanying this paper were made.

---

### ARTICLE XIII.

A CASE OF CROUPOUS BRONCHITIS; RECOVERY UNDER TREATMENT. By THOMAS H. STREETS, M.D., P. A. Surgeon, U. S. N. Hospital, Yokohama, Japan.

THE following report of a case of this rare disease may not be without interest on account of the fulness of the clinical history, the presence of certain anomalous symptoms, and the marked results of treatment.

<sup>1</sup> On the Ear, p. 184.

<sup>2</sup> Treatise on Dis. of the Ear, p. 359, 4th ed.

<sup>3</sup> Transactions of American Otological Society, 1871.

Klinik der Ohrenkrankheiten, p. 133.

The patient is a native of Ireland, a sailor, aged 39 years, 5 feet 9 inches in height, and weighed, previous to his recent illness, 167 pounds. He had always enjoyed excellent health; or, to use his own expression, "had never been on the sick list a day in his life." No hereditary tendency or syphilitic infection could be traced in the case. He bore the rating on board the ship of "Captain-of-the-Hold," and his occupation kept him out of the sun-light, and in the darkness and dampness of the bottom of the ship. I may say here, that I have seen the strongest and most robust constitutions break down when continuously employed as Captain-of-the-Hold. The rating is probably changed oftener than any other on board a man-of-war, in consequence of the bad health of those filling it.

In the spring of 1878, while the ship was lying in the harbor of Yokohama, he had an attack of ordinary bronchial catarrh. He received medical treatment, and apparently recovered during a cruise to the southward, in the tropics. No bronchial tube casts were raised during this attack, the expectoration being altogether mucous or muco-purulent. In June of the same year, after the ship had returned to Japan, he had a recurrence of his bronchial trouble, and it was then that the croupous character of the disease first manifested itself. Very shortly after the first appearance of the cough he began to expectorate tube casts, and according to the patient's statement, as many as six or seven were brought up daily, some of them being of the size of a goose-quill. On the 18th of June he had a copious hemorrhage from the lungs, following a severe and straining effort of coughing. Temperature ranged from  $99^{\circ}$  to  $101^{\circ}$ . This is the record that accompanied the patient from the ship, supplemented by his own statements. He had a second attack of hæmoptysis on the day of leaving the ship for the hospital. Was admitted into the latter institution on the 5th of July, 1878.

The right side was only invaded by the disease, which was circumscribed—being confined to the middle and lower parts of the right lung in front. Percussion sounds normal; the vesicular murmur masked over the affected area, and moist râles audible. Temperature in the morning normal, elevated one or two degrees in the evening; night sweats, and much general debility. Digestion good and appetite fair. July 9th. Coughed up two bronchial tube casts, and his sputa were slightly streaked with blood. 10th. Brought up a large bronchial cast in the morning; afterwards the cough was less troublesome. 11th. After a severe paroxysm of coughing this morning, brought up a large tube cast. Has considerable pain and tenderness about right nipple. 12th. At 9 P. M. the thermometer registered  $100^{\circ}$  in the axilla. During the night had a sharp attack of coughing and raised two tube casts. Always felt easy and comfortable after expelling the casts. 13th. During the night brought up one tube cast. 14th. Coughed up several bronchial casts during the night, and felt so much easier in the morning that he imagined his health was improving. Not much cough during the day. Morning temperatures continue normal. 15th. Had more ease from cough than on any day since admission. 16th. In the afternoon and at night had attacks of epistaxis. Expectored two casts from the small bronchi during the afternoon. Dyspnoea has not been a very marked symptom in this case. The casts present all the characteristics of the bronchi of the lower portion of the lung—gradually tapering into the smaller branches and long between the bifurcations. When not stained with blood their colour is a diluted milky-white. 17th. Felt very badly during the day, and coughed up several casts during the night. Has

been taking cod-liver oil and whiskey and an expectorant mixture of fluid extract of *prunus Virginiana* and *senega*. The night-sweats are controlled by belladonna. At this date commenced inhalations by a steam atomizer of a solution of ammonium chloride and carbolic acid. 18th. Rested badly, although he had but little cough. Brought up a cast from the small bronchi. On the 20th the patient continued to cough up casts which are principally from the small bronchi. 21st. Had but little sleep during the night, and considerable cough. Expectored a small cast. Is feeling very weak, and has considerable pain below right nipple and under right shoulder blade. Tr. iodine locally gave relief to the pains.

There was no change in any of the symptoms until 27th—had a spell of coughing every night, which was usually relieved by the expectoration of one or more bronchial casts, and only now and then raising any during the day. On the 27th another symptom was superadded, which became very prominent as the disease progressed, causing a great deal of suffering. He began to complain of considerable pain in the right knee-joint. There were heat, redness, and swelling about the joint, which pulsated under the hand. The knee finally became so bad that the patient could no longer move about, and was confined to his bed. Opiate lotions were applied. During the two days following the 27th coughed much less, and raised no bronchial casts. On the 30th was able to walk about again; had a paroxysm of coughing, during which he brought up a cast from the small bronchi. The pain in the knee continued with varying intensity, sometimes the greater pain being in the knee-cap, sometimes in the popliteal space, and sometimes it radiated up and down the leg in the direction of the veins. This pain for a time became the most prominent symptom. Bronchial casts continued to appear, but with diminished frequency, sometimes three or four days elapsing without any. A mixture of tr. colchicum and potassium acetate was given, and also salicylic acid, under the impression that the pain was of a rheumatic character; but no benefit accrued from either. Emp. belladonnæ, with the knee wrapped in cotton-batting, gave relief. On August 6th the temperature rose to 102°, which was the highest reached in the disease. The temperature on this and the preceding morning was 99°. Had an attack of epistaxis in the afternoon, which lasted about five minutes. Coughed up a larger tube cast than usual.

After the 25th, the patient ceased to expectorate casts, except at long intervals, but the cough continued with diminished expectoration. No change otherwise, except growing weaker and more debilitated, and losing weight steadily. Sept. 3d. Had a slight attack of epistaxis, followed in the night by a severe attack, which could only be checked by plugging the nostrils. On the following day there was bleeding from the gums, and in the night another spell of nose-bleeding. On Sept. 14th the patient's cough had entirely ceased. From the commencement of the disease he had steadily lost weight until he was reduced to 116 pounds. A tonic and stimulating course of treatment was instituted and persevered in for a long time, but without any good results. Appetite and digestion continued good. From Sept. 18th the nose and gums began to bleed almost continuously; was obliged to keep the nostrils plugged most of the time. Astringent mouth-washes, turpentine, sulphuric acid, and other hæmostatics were used without benefit. The blood had evidently lost its property of coagulability. The skin was sallow and dirty-looking in places. The tip of the nose was swollen and purplish,

and there were one or more large purplish blotches on the cheeks. Stools very dark. The patient was confined to the bed most of the time by the inflamed state of the knee-joint. There was slight œdema of the right leg, which was probably caused by the interference with the circulation about the knee, as it was not present elsewhere. He was considered to be in a rather critical condition. Oct. 11th. Coughed up a cast during the day, and another at night. Their appearance was very different from what they had been in the commencement of the disease. They were less solid—like strings of ropy mucus, and were expelled without much effort.

Oct. 12th. Began the administration of potassium iodide gr. x, and ammonium carbonate gr. v, three times daily, combined. There were no more bronchial casts raised from this date. The bleeding from the nose continued until the 14th, when the blood recovered its coagulability—after bleeding about ten or twelve drops a clot formed in the nostril. The oozing from the gums continued for several days longer. On the 15th the thermometer registered the normal temperature in the axilla—the first time in five months. The pain and inflammation disappeared from the knee, and the soreness from the chest. The skin became fair, and the purplish blotches left the face. In fact, every morbid symptom vanished like the clouds from the sky after a storm. The remedy acted like a specific. The patient gained nineteen pounds in weight in one month from the time he began taking the medicine. The week ending Nov. 10th he gained seven pounds, and the week preceding that six pounds. Discharged to duty Nov. 18th weighing one hundred and thirty-four pounds.

Richardson defines croup as “a disease of an inflammatory nature, in which the blood is specially disposed to undergo separation of its fibrinous parts, in which there is inflammatory exudation into the windpipe” (*Diseases of Modern Life*, page 58). Croupous bronchitis is a disease of a similar nature. “According to Kretschy’s view, the blood only can be the source of the rapid and inexhaustible supply of fibrine as the cementing substance for the croup-membrane, and not the epithelial cells; the escape of cells also taking place from the bloodvessels” (*Ziemssen’s Cyclop. Pract. Med.*, vol. iv., Amer. ed., page 455).

Riegel, in his survey of the clinical symptoms of croupous bronchitis, (*Ziemssen’s Cyclop.*) does not once refer to the hemorrhagic tendency of the blood in the advanced stages of the disease, which was a prominent symptom in the present case, and which is so natural a sequence of the defibrinated condition of the blood. I, therefore, infer that it must have been absent in the cases heretofore reported.

Another anomalous symptom was the inflammatory condition of the right knee joint. Its pathological connection with the bronchial trouble I cannot make out; but that it was due to the same morbid cause is probable, for the reason that it was amenable to the same remedial agent.

Unfortunately for our patient, the disease displayed its characteristic tendency to relapse. He was returned to the hospital Nov. 30th, having been away but twelve days. Paroxysms of coughing, harsh and hard, with a great straining effort to raise the casts. Those expectorated were small, from the smaller bronchi, and short, not branched, evidently broken

off at the bifurcations. Temperature elevated in the evenings. General health otherwise good. During the first week of admission, the patient was kept upon potassium iodide gr. v three times daily. Under this treatment there was only an amelioration of all the symptoms—the cough became looser, the bronchial casts were raised whole, the straining effort of coughing ceased, and the evening temperature fell to normal. On the 8th gave potass. iodide in x gr. doses, and every symptom immediately disappeared, except a slight soreness about the lower portion of right lung in front of the original seat of the disease. Symptoms of iodism were quickly produced by the gr. x doses.

Following this relapse was an attack of herpes zoster, with its characteristic neuralgic pains, seated on the left side of the neck and shoulder, and upper part of left breast. Discharged to duty again January 13, 1879, weighing 141 lbs.

In the spring of 1879, he suffered another relapse, which followed an attack of cold, to which the patient is very liable on the slightest change of weather. He was treated on board ship with potassium iodide, and when he reached the hospital all the active symptoms had subsided. He remained under treatment for six months, and was kept almost continuously upon the iodide, without, however, eradicating the dyscrasia.

Another interesting phase of the disease was developed during this stay in the hospital. An eruption of an impetiginous character appeared on the forehead, at the edge of the hair, in the eyebrows, and on the tragus, and in the meatus of the ear. It appeared first as a pointed elevation, on an inflamed and raised base, occurring either singly, or in groups of three or more points. Suppuration followed, and a thick crust formed, which left a red scar after dropping. In the groups the suppuration extended from one point to another, until the whole patch was covered by one scab. The parts about the ear became swollen—almost closing the meatus. The eruption was always accompanied by a slight bronchial catarrh, and the latter ceased with the former, which rapidly dried up and disappeared under gr. x doses of potassium iodide. The patient usually complained of supraorbital neuralgic pains at the same time. Several successive crops of the eruption appeared, reappearing when the remedy was suspended, or when given in diminished doses, on account of iodism. The general health remained good.

“Waldenburg reports the case of a girl, eight and a half years of age, who, for more than four years, had every few days expelled branched masses. . . . Waldenburg noticed that after the recovery from bronchial croup an impetigo of the scalp, which had existed for a long time, increased very much, thus suggesting the idea that possibly there was a certain nosological connection between the bronchial croup and the impetigo” (*Ziemssen's Cyclop. Pract. Med.*, Amer. ed., vol. ix. page 468).

In the present case no bronchial casts were expelled during the prevalence of the eruption, and it strengthens the idea suggested above. The patient was ultimately discharged to duty August 6, 1879, with his weight still further increased by five lbs. His health remains good at the date of writing (Oct. 4, 1879). The impetiginous eruption continues to appear about the head, but is easily controlled by potassium iodide.