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MEMBRANOUS CROUP—TRACHEOTOMY—DEATH.

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WALTER CREIGHTON, æt. 3 years and 1 month, had not been well for some time previous to this attack of croup. On Sunday, Nov. 6th, he had a fit, and on the same day it was noticed that there was a swelling, not tender to the touch, under both ears. The next day (Monday), he coughed a little and was supposed to have taken a slight cold. At night, about 9½ o'clock, after being asleep for ten minutes or more, he suddenly jumped up in the bed, drew in his breath with great difficulty, and said there was something in his throat and that he could not breathe. He struggled and tossed about for some time, in great distress, and asked for an emetic. An emetic was given, and he vomited three or four times, but without relief. At 4, A.M., Tuesday, he took some antimony. During the day he did not feel like having his clothes on. Swallowing was painful, the cough was frequent and at times loose, the voice weak, hoarse and inclined to a whisper, the breathing labored and at times noisy. He had been almost constantly in his mother's arms since Sunday. On Wednesday, the 9th, he was worse. At 3, P.M., I saw him with Dr. Read, the attending physician. At that time there was membrane on the tip of the uvula and on both tonsils. There was none elsewhere, as far as could be seen. The edges of both nostrils were excoriated, and the skin, from there to the mucous membrane of the lip, was inflamed as in scarlatina. He evidently had membranous croup. The voice was a whisper, the cough hoarse and generally loose, the breathing croup-like, not much labored nor quick, nor indicating much obstruction to the passage of air. His general appearance was pretty good. Percussion of chest was resonant. The urine was tested by nitric acid and heat, but no albumen was found. Directions were given for steam in the room, nit. argent. to throat, Dover's powder gr. ij. every two or three hours, p. r. n. During the night, there were three or four suffocative paroxysms of cough-

ing, with great difficulty of getting breath. Thursday morning the symptoms were increasing in severity. Just after noon, the suffocative paroxysms came on every half hour, whenever he roused or moved about. There was also a frequent inclination to vomit, with the feeling as if there was something in the throat to come up. In these paroxysms, the head was thrown back, the arms strongly flexed and spasmodically stiff, the face livid, the countenance wild, and constant struggling to get breath. At 5½, P.M., the voice and cough were nearly extinct, and the breathing was more and more obstructed and labored. The pulse was 140, small.

Tracheotomy was immediately urged, and performed at 6, P.M., with the assistance of Drs. Read and Buckingham. The trachea was kept open by the dilator till the usual coughing had somewhat subsided, to allow a more free and easy passage of whatever was then ready to be expelled, before inserting and securing the tube. A piece of membrane, over two inches long and a quarter of an inch wide, was forced out, and several smaller pieces, together with some bloody, viscid mucus. The respiration was soon comparatively quiet, and without any labor. In addition to the previous directions, which were to be continued, it was ordered, in writing, to inject through the tube into the trachea about twenty drops of the sol. nit. argent., and repeat it every four hours; to remove and clean the inner tube at least every hour, or oftener whenever it appeared obstructed. If the respiration became dry, squeaky and labored, about ten drops of tepid water were to be syringed into the trachea. Two or three folds of lace to be kept over the opening of the tube.

10, P.M. Patient appears to be doing well. Has rested pretty quietly and slept a few moments. Many pieces of membrane have been raised through the tube. Pulse 132. The cough is not very frequent. The respiration is easy, and the lungs sound pretty well. The sol. nit. argent. ordered to be used at 12 and at 6, A.M. A Dover's powder at 1 and at 6, A.M.

11th (Friday). Had a pretty good night. The tube was frequently removed, cleaned and replaced without any disturbance to patient. Many pieces of membrane and much viscid mucus were raised through the tube. Took some beef tea and some wine and water.

Has not been so well since early this morning. At 9, A.M., the countenance has an asphyxiated look. The respiration is dry, hoarse and hurried. The pulse was 152. Both tubes were taken out. A flapping sound was immediately heard, and a piece of membrane was seen moving about in the trachea during the coughing. This was seized by the forceps, and not coming away, it was drawn out and removed by the scissors. Immediately there was a free hæmorrhage, of an ounce or more, into the trachea. The patient instantly became deadly pale, and there was a profuse perspiration

over the face and body. The struggle for breath was very distressing. By turning the body on its side and raising it a little, the blood and mucus were soon expelled from the trachea. Some hot brandy and water was then given, and in a few moments he rallied and looked brighter and better than at any time during the morning. Directions were then given to persist in giving beef tea and other nourishment. The respiration was easier, and at times the alæ nasi were dilated, but no air could be felt through them. In the middle of the forenoon he took a Dover's powder, and slept quietly for a little while. At 1 o'clock he had raised many pieces of membrane from the tube, with some blood (not fresh).

9½, P.M. Respiration has been pretty quiet and easy most of the P.M. At times it has been dry and squeaky, and labored. The tube has been removed every hour and oftener. The sol. nit. argent. has been used once or twice, the tepid water several times, with much relief and always followed by expulsion of membrane and mucus. The membrane is softer, as if decomposing, and has a yellowish tinge to the usually white look. Pulse 138. Has taken sufficient nourishment. The bleeding of this morning does not seem to have affected him injuriously.

12th (Saturday). Had a pretty comfortable night, and slept some. The cough, respiration and expectoration were about the same. To-day, 9, A.M., countenance is more natural. Pulse 132. Respiration easy, and at times very quiet. Many bubbling râles, mostly in trachea. The membrane expelled to-day is in lumps, as if rolled up, and is beginning to look yellow. Some of the mucus raised is very viscid, requiring a long coughing before it is expelled. A fine scarlatinoid eruption is seen on chest and abdomen, none on the extremities. Skin moist and soft. Tongue cleaner, and moist. Takes nourishment well. Is quieted by the Dover's powder.

9½, P.M. Seems to be gaining strength. Has had some good sleep this P.M. No albumen in urine. After one of the paroxysms of coughing, vomited a large quantity of liquid with some membrane in it, by the report of the mother. Has used his playthings a little while. There have not been to-day so many of those dry, labored paroxysms of coughing. The inner tube has been removed very frequently to wash away the viscid, gummy deposit.

13th (Sunday). Was comfortable during most of the night. Had some naps one hour long. The tube was cleaned often. Great relief always followed the injection of tepid water, which has been done about ten times in the twenty-four hours, and only when the breathing was dry, squeaky, labored, and attended with some symptoms of asphyxia. A large lump of membrane is invariably ejected after it.

He retched and vomited once in the night, probably from the separation of membrane about the glottis. The mother says that membrane has been raised from the mouth.

9, A.M. Still comfortable. Respiration easy, not quick, nor noisy. Cough loose. Expectoration more purulent-looking. Masses are raised up, almost decomposed, yellowish and with longitudinal stripes and furrows. Tongue cleaning. Pulse 132. Scarlatinoid eruption fainter. Asks for nourishment. Uses his playthings. Can articulate words so as to be heard.

9½, P.M. Has had a better day than yesterday. The cough is less. Tube removed about every two hours, generally pretty clean. Occasionally the tepid water is used. Respiration easy. The mother reports that the breath and what is raised to-day, smells bad. There are now no distinct pieces of membrane, but masses in lumps looking like thick, whitish yellow porridge. Took some inf. gentian e. and ioidid. potass.

14th (Monday). At times, last night, patient was in much distress. The tepid water injection was used every two hours, and always with relief; the tube was changed every hour. To-day, 9, A.M., patient is generally more quiet. The expectoration is more purulent, and not so offensive, though still copious and in lumps. The respiration is good. Pulse as before. Tongue cleaning. Has had frequent retchings. Some milk and water that he drank this morning came out of the tube for the first time. Has taken some wine and water, although he dislikes all drinks, probably because they excite coughing. The eruption is about gone.

15th (Tuesday). Did not seem much disposed to use his playthings yesterday P.M. Had a better night; slept one hour at a time. To-day, 9, A.M., as comfortable, though still quiet. Some bloody expectoration, probably from the separation of membrane. The most of what is forced through tube is thick and purulent, with an occasional offensive odor. Does not take nourishment well, though attempts are made to try his taste on different things, such as weak shells, wine whey, gruel, toast and barley water.

Has been pretty quiet through the day and evening. Pulse ranged from 120 to 132. There was a slight blush on cheek in the evening.

16th (Wednesday). Had a quiet night. The tube was changed three times between 1 and 5 this A.M. To-day the respiration is easy and silent. The cough is less. The expectoration is less, still purulent and slightly offensive; occasionally it is bloody. Through the day has remained quiet without wanting his playthings. Has had several naps, one hour long. Is sleeping quietly now, 9½, P.M. Pulse 130. Asked for milk and water.

17th (Thursday). Mother reports that yesterday P.M. some of the expectoration was dark red and purulent. Had a comfortable night, sleeping two hours at a time. Is gaining strength. The face has a good color. Respiration is inaudible. Tongue is of good color. The cough is much less. Mother says she saw something white coughed up into the mouth, and immediately swallowed. The expectoration is thin and yellow, and without odor.

The tube is still changed every one or two hours. The tepid water is seldom used now.

18th (Friday). Had a good night. The tube was changed five times since 9, P.M. Countenance bright. Pulse 132. Respiration easy and noiseless. Both tubes permanently removed. The wound has a perfectly healthy look. Is rather disinclined to nourishment.

1, P.M. Within the last hour has sunk suddenly away, without any visible cause. He is now, to appearance, nearly moribund. The pulse is with difficulty felt at the wrist. The respiration is perfectly noiseless and without the least effort. At short intervals there is some general restlessness. Wine and water, and beef tea, by the mouth and per anum, were prescribed and given.

19th (Saturday). The sinking state increased very slowly, and he died easily at 3, A.M., nine days and nine hours since the operation. No post-mortem examination was allowed.

Though this case was unfavorable and unexpected in its result, there are many interesting points attached to it, showing that, even after tracheotomy has been performed, it is not all plain and smooth sailing, unattended with danger to the patient and anxiety to the parents and surgeon.

A few remarks may be here made, bearing upon some of the prominent and practical features which come up from day to day.

Steam.—Its effect may be well judged of from the remark of attendants, that if there is less than there should be, the patient soon chokes up and complains of more or less dryness in the throat, followed, if unrelieved, by a distressed look and an asphyxiated condition, all of which generally disappears the moment there is a sufficient supply.

Dover's Powder.—This unquestionably produced a powerful and beneficial influence both before and subsequent to the operation, in quieting the nervous irritability and the tendency to coughing, and in producing sleep, all of which would go to prevent that exhaustion of the strength and constitutional disturbance, which a waking state under the circumstances would greatly increase. Syr. papaveris., paregoric or laudanum, may produce the same results.

Tube (inner).—It should be removed *at any time*, when there is *an obstruction*. In the majority of cases, it is also advisable to remove and clean it about every hour, during the first twenty-four hours, and sometimes as often afterward, as the individual case may demand. Viscid mucus, a gummy deposit or pieces of membrane, may in a short time bring on a troublesome obstruction.

Both tubes should be removed whenever the obstruction does not cease on removing the inner one, and, if it still continues, a few drops of tepid water injected into the trachea will almost always displace it. The same should be done the day after the

operation, in order to allow a more free escape of detached membrane and mucus, above and below the wound.

Retching and choking have been noticed in nearly all the patients, two, three or four days, or later, after the operation, and have been supposed to be connected with detached membrane in the upper part of the larynx, and about the epiglottis. When this occurs, remove both tubes, and membrane will probably be expelled both from the mouth and wound. In this patient, the inner tube has been removed twenty-four times, in twenty-four hours, without any disturbance or discomfort to him, and occasionally even when asleep.

In a patient operated upon a year ago, on a Sunday, there was this troublesome retching on Tuesday; and on removing both tubes a piece of membrane two or three inches long, mostly solid, and with a tongue-shape epiglottis, was expelled from the wound.

Sol. Nit. Argent.—The injection of this always gave relief, and expelled more or less membrane.

Tepid Water.—A few drops of this was injected into the trachea, when there was a dry, squeaky cough, labored respiration and an asphyxiated look, particularly if coming on suddenly. In every instance it was followed by the expulsion of lumps of membrane, which had probably obstructed a bronchial tube. The relief was also immediate. There was a necessity one day to do it ten times in twenty-four hours, and always with the same result. This is too often to use the sol. nit. argent., unless it is very weak.

Membrane in lumps.—This has been noticed in some of my previous cases. It was not so soft at first, but that the flat, ribbed membrane could be seen. There was soon a greater degree of softening, like thick porridge or curd, as if rolled in lumps during the process of expulsion, of a decomposed and offensive odor, and of a dingy white yellow, instead of the natural white color. The air from the trachea had the same offensive odor. From the various stages in which these lumps have been seen, it is undoubtedly decomposed membrane. I have not examined as yet to see if there is any reported case where this offensive odor of the expectoration and breath has been noticed after tracheotomy, and *during life*. Mention has been made of it in *post-mortem examinations*, where with this thick, porridge mass, and offensive odor, has been seen small fragments of membrane in the smaller bronchial tubes.

Eruption.—In this patient it looked very much like the eruption of scarlatina. In Paris, other forms have been seen, such as urticaria and measles.

Albumen.—None was found in the urine at any time.

Hæmorrhage.—This was certainly very singular, and very difficult to explain. There was unquestionably something producing a bad effect upon the system previous to the removal of the tubes.

When they were removed, a substance looking like thin flat membrane was seen, moving about in the trachea. On seizing it with the forceps, gentle traction was not sufficient to bring it away, and it was cut off by the scissors and followed by that sudden gush of blood. The sudden stoppage of the bleeding and its non-recurrence are also singular circumstances, together with the subsequent great relief, whether owing to the bleeding or removal of the membrane.

Sudden Sinking.—This remains unexplained, particularly as he was so comfortable in the morning, and afterward showed no symptom of any pulmonary difficulty.

ON HERMAPHRODITISM.

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A HERMAPHRODITE is an animal or plant uniting in itself the sexual characters of the male and female. The name is derived from the fable of the union into one of the bodies of Hermaphroditus and Salmacis. There are two kinds of hermaphroditism, the spurious and the true: in the former there is only an appearance, from arrest or excess of development, of a union of opposite sexual characters; in the latter, there is an actual coexistence in the same individual of more or less of both male and female organs; the former may occur in either sex, and in the latter the male or female may preponderate. Spurious hermaphroditism in the female may depend on the preternatural size of the clitoris, from a continuation of its growth in intra-uterine proportions, and on prolapsus of the uterus, both of which have assumed the appearance of the male organ; the former is most common in warm climates (especially in Africa), and was well known to the ancient Greeks; the celebrated poetess, *Mascula Sappho*, is said to have been included in this class. This condition is often complicated with other anomalies of structure and character, which approximate the female still more to the male in appearance; this kind of malformation has been often noticed in monkeys and in the lower mammals. Cases of supposed hermaphroditism from prolapsed womb are on record, though none such have been observed in the lower animals. Spurious hermaphroditism in the male may arise from extroversion of the bladder, adhesion of the penis to the scrotum, or most commonly, from fissure in the perinæum, urethra, penis, or glans (*hypospadias*), from arrest of development of the male sexual organs. Cases of *hypospadiac males passing for females* have been not uncommon; some of the lower mammals, horses especially, are subject to a similar malformation. True hermaphroditism is the normal type of sexual structure in almost all phanerogamic plants, the reproductive organs being either upon the same flower or upon different flowers on the same individual; and this

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