THE
Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XV.

CHICAGO, OCTOBER 11, 1890.

No. 15.

ORIGINAL ARTICLES.

THE SURGICAL TREATMENT OF CROUP.

Read in the Section of Laryngology and Otology, at the Fort-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

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When medical treatment has been thoroughly tested and it is evident that the patient must die from asphyxia unless relieved, then we must meet the emergency by surgical measures.

A nice question of judgment often arises as to the proper time for interfering surgically. When shall we abandon all hope of saving the patient by medical means, and when shall we know that the child will perish unless given prompt relief? In answer to these queries I would say that when the voice becomes whispering, when the cough becomes suppressed, when in addition the dyspnoea becomes urgent, and the loud stridor heard both on inspiration and expiration, and when there is marked recession at the base of the sternum and above the clavicles—when all these symptoms are present and continuous, and not relieved by the use of emetics, it is certainly time to operate.

I do not advise and do not practice early operations. Operations performed early, with the first symptoms of laryngeal invasion, should not be sanctioned, as many will recover under medical treatment. Operative measures, on the other hand, should not be postponed until the patient becomes moribund, for while many will recover even under these circumstances, yet their chances for recovery are far less than when the operation is performed earlier.

We should endeavor to strike a happy medium between the two extremes and bear in mind the indications for surgical interference. Having determined that an operation is imperative, the next question to decide is the choice of operation. Shall we choose the time-honored operation of tracheotomy or the more recent operation of intubation of the larynx?

The latter operation requires far more skill and delicacy of *technique*, and is an operation limited

to those especially qualified. In the hands of those so qualified it gives results that cannot be attained by the older operation. It is an operation that I would unhesitatingly recommend in preference to tracheotomy at all ages, under all conditions, and under all circumstances. In support of this statement I would fully record two hundred and eighty-five cases with one hundred recoveries, or 35 per cent. These cases have ranged from 5 months to 20 years in age, and from mild diphtheritic forms to the most malignant. All have been operated upon in private practice, and the majority of them in poor and destitute families where tracheotomy would scarcely have been undertaken. If any one claims the superiority of tracheotomy over intubation under these circumstances I would challenge them to record their cases. Tracheotomy in hospital practice, where patients can have every care and attention, or when performed upon selected cases and upon the older patients, will give fair results; but when performed as intubation is, upon young babies, upon bad diphtheritic cases at all ages and among all classes, the results will be disheartening.

My first 150 cases were duly recorded in THE JOURNAL; the remaining cases coming under my care I desire to record at the present time.

It is often said that intubation is performed early and unnecessarily, and that if tracheotomy were performed under the same circumstances the results would be equally brilliant. This is a mistaken idea and I desire to refute it. By the record of these cases it will be seen that nearly all were in the practice of other physicians and I have been called as a last resort, after all other measures had been exhausted, and when it became evident that the patient must die unless relieved. Not infrequently the operation is so long delayed that the patient is dead upon my arrival, and too frequently they are found unconscious, pulseless and comatose. A few of these cases have been so remarkable as to be worthy of special mention.

Case 181.—This patient was not only greatly exhausted from the disease, but also by previous attempts at intubation which had been unsuccessful. Upon arriving, the patient was found unconscious, pulseless at the wrist and upon the very verge of suffocation. A tube was quickly

introduced and artificial respiration performed. The child soon revived, wore the tube four days and made a perfect recovery.

Case 191 was another that was pulseless and unconscious and required artificial respiration, but is living and well to-day. Drs. Kippax, Guérin and Jacques were present at the operation and will verify this report.

Case 226.—Upon arriving I was informed by Dr. Case, the attending physician, that it was *too late*, the boy was dying. The sphincters had relaxed, the eyes were rolled upward, he was livid, unconscious and pulseless, and within five minutes undoubtedly would have been dead. With the remark that we would give him a chance for life, a tube was quickly introduced and artificial respiration performed. He fully revived and wore the tube three days, when it was ejected. The dyspnoea returned and it became necessary to reintroduce it. In four days it was removed and the child made a perfect recovery.

Case 254.—This was a case in which the constitutional symptoms were very severe and the diphtheritic membrane not only covered the whole pharynx but also invaded the larynx, trachea and bronchial tubes. Upon introducing the tube, membrane was pushed down in front of it. It was immediately withdrawn, when a long strip of membrane was ejected. The tube was reintroduced. Two days later there was evidence of membrane below the tube; it was removed and a membranous cast of the trachea ejected. On the seventh day after the operation the patient was able to do without the tube. The respiration, although easy, was rapid on account of the extension of the membrane to the bronchial tubes. The child was very much prostrated from the very beginning of the disease, and the heart's action was feeble and rapid; she was tided along, however, from day to day with an abundance of nourishment, stimulants, digitalis, strychnia and ammonia. Gangrene occurred in the toes of both feet, they becoming cold and black. Gangrenous spots were also seen upon the legs between the knees and the feet. Although the respiration became natural the circulation became more rapid and feeble, and the child died ten days after the tube was removed.

Case 252.—In this case the pharyngeal symptoms were mild, no membrane being visible in the pharynx, but the child was dying from suffocation due to laryngeal obstruction. The tube was introduced, giving prompt relief. Two days later it was evident that membrane was present below the tube, and when it was removed a partial cast of the trachea was expelled. As the respiration was still greatly impeded, the tube was reintroduced. Two days after this it again became evident that there was partially detached membrane below the tube. It was also evident that membrane had extended into the finer bron-

chi. The tube was removed and this membranous cast was ejected, which you will observe is a cast of the whole trachea and the two larger bronchial tubes. The patient was now able to breathe comfortably, and made a perfect recovery.

Case 257.—This patient was a baby only 15 months of age, a child of the poorest of Italians. The small room occupied was so filthy and crowded that tracheotomy never would have been considered for a moment. The baby was dying of suffocation when the operation was performed. The tube was coughed out on the second day and it became necessary to reintroduce it. On the fourth day it was removed and the child recovered.

Case 259.—This patient was a little girl 6 years old. The surroundings were even more wretched than in the previous case. The furniture of the room consisted of two old chairs, a rickety table, a small round stove and a sporting bull-dog. Everything was filthy in the extreme. The child was found to be suffering from a semi-malignant form of diphtheria. The nasal cavities were invaded, the pharynx covered with diphtheritic membrane, while the difficult respiration indicated that the larynx was invaded. The odor from the decomposing membrane in the throat was most offensive. The throat had been torn, bruised and lacerated by previous unsuccessful attempts at intubation, and the child's condition seemed most deplorable—so much so that one of the physicians present stated, with some vehemence, that if this patient recovered there was a *God in heaven and antiseptic surgery a delusion*. A tube was quickly introduced, which was coughed out on the fourth day, and perfect recovery followed. This case seemed miraculous to all who witnessed it.

These cases are only a few out of many of the same character, but sufficient, I hope, to prove to you that the operation is not performed early, unnecessarily or upon selected cases.

In Regard to After-Treatment.—The same line of treatment that has been instituted before the operation should be continued just as faithfully afterwards. In case the pharyngeal symptoms are severe and the nasal cavities invaded, antiseptic washes and frequent doses of iron are indicated. Where the pharyngeal symptoms are mild and the disease manifested principally in the larynx, with a tendency to extension downward, the bichloride of mercury should be vigorously employed. During the past two years, in those cases where the treatment has been noted, the following results have been obtained: In ninety-nine cases where the bichloride of mercury was administered there were fifty recoveries, or 50.5 per cent. In twenty-six cases where it was not administered there were nine recoveries, or 34.61 per cent.

Care of Patient.—The success attending the treatment of croup by intubation will depend, first, upon the delicacy and skill with which the operation is performed; and second, upon the care

TABLE OF CASES.

Case.	Age.	Date.	Consultation with.	Termination.	Cause of Death.	Tube Worn.	Time of death after op't'n	Diphtheritic Symptoms.
		1888						
151	18 mos.	March 30.	Dr. Steele.	Fatal	Extension to bronchi.	36 hours.	36 hours.	Severe.
152	4½ years.	" 31.	Dr. Scudder.	"	Detachment of membrane.	2 days.	2 days.	"
153	2½ years.	" 31.	Dr. Colwell.	"	Extension to bronchi.	2 days.	2 days.	Very severe.
154	2½ years.	April 5.	Dr. C. C. Sperry.	"	"	2 days.	2 days.	Severe.
155	18 mos.	" 13.	Dr. Abel.	"	"	36 hours.	36 hours.	"
156	5½ years.	" 13.	Dr. B. D. Foster.	Recovery	"	6 days.	"	Very severe.
157	18 mos.	" 14.	Drs. Guerin and Quine.	Fatal	Detachment of membrane.	12 hours.	12 hours.	Severe.
158	15 mos.	" 19.	Dr. E. E. Babcock.	"	Extension to bronchi.	2 days.	2 days.	"
159	3 years.	May 13.	Dr. Harris.	Recovery	"	3 days.	"	Well marked.
160	5 years.	June 2.	Dr. Charles E. Caldwell.	"	"	4 days.	"	Severe.
161	18 mos.	October 15.	Dr. Murdoch.	"	"	4 days.	"	Well marked.
162	4 years.	" 18.	Dr. Simons.	"	"	4 days.	"	Severe.
163	4 years.	" 25.	Own practice.	Fatal	Extension to bronchi.	3 days.	3 days.	Well marked.
164	6 years.	" 28.	Dr. Jacobs.	Recovery	"	3 days.	"	"
165	6 years.	Nov. 1.	Own practice.	"	"	2 days.	"	Severe.
166	2 years.	" 4.	"	Fatal	Sudden suffocation after ejection of tube.	2 days.	2 days.	"
167	3 years.	" 12.	Dr. E. E. Babcock.	"	Extension of membrane.	3 days.	3 days.	"
168	1 year.	" 13.	Dr. Burr.	"	Obstruction below tube.	1 day.	1 day.	"
169	4 years.	" 14.	Dr. Beery.	Recovery	"	4 days.	"	"
170	7 years.	" 15.	Dr. Tillotson.	Fatal	Exhaustion.	2 days.	3 days.	Malignant.
171	1 year.	" 25.	Dr. Stout.	"	Extension to bronchi.	2 days.	2 days.	Severe.
172	7 years.	" 27.	Dr. O'Malley.	Recovery	"	4 days.	"	Semi-malign'nt
173	18 mos.	" 30.	Drs. Jacques and Steele.	"	"	2 days.	"	Mild.
174	7 years.	Dec. 2.	Dr. C. E. Caldwell.	"	"	5 days.	"	Severe.
175	4 years.	" 3.	Dr. G. W. Webster.	"	"	5 days.	"	Semi-malign'nt
176	4 years.	" 11.	Dr. Jacobs.	Fatal	Extension to bronchi.	6 days.	6 days.	Severe.
177	4 years.	" 16.	Dr. Giljohann.	Recovery	"	4 days.	"	"
178	12 years.	" 20.	Drs. Rockwell and Gee.	Fatal	Detachment of memb. below tube.	2 days.	2 days.	"
179	4 years.	" 25.	Dr. Miller.	"	Exhaustion	7 days.	7 days.	Very severe.
180	4 years.	" 25.	Drs. Banga and Broell.	"	Detachment of memb. below tube.	24 hours.	24 hours.	Severe.
		1889						
181	8 years.	January 1.	Dr. Jacques.	Recovery	"	4 days.	"	"
182	6 years.	" 2.	Dr. Church.	"	"	4 days.	"	"
183	18 mos.	" 5.	Dr. A. L. Thomas.	Fatal	Extension of membrane.	2 days.	2 days.	"
184	17 mos.	" 10.	Dr. Porsons.	"	Exhaustion	12 hours.	12 hours.	Malignant.
185	2½ yrs.	" 14.	Dr. Harry L. Thomas.	"	Extension of membrane.	24 hours.	24 hours.	Severe.
186	15 mos.	" 18.	Dr. Miller.	Recovery	"	3 days.	"	"
187	5 years.	" 24.	Dr. Barrows.	"	"	4 days.	"	"
188	2½ yrs.	" 27.	Dr. Whidden.	"	"	4 days.	"	"
189	3½ yrs.	Feb'y 17.	Dr. Giljohann.	Fatal	Extension of membrane.	3 days.	3 days.	"
190	4 years.	" 19.	Dr. Abel.	"	Exhaustion	4 days.	8 days.	"
191	7 years.	March 11.	Dr. Kippax.	Recovery	"	12 hours.	"	"
192	5 years.	" 14.	Dr. Simons.	Fatal	Exhaustion	24 hours.	24 hours.	Malignant.
193	3 years.	" 18.	Dr. Beery.	Recovery	"	3 days.	"	Severe.
194	7 years.	" 19.	Drs. Steele and Babcock.	"	"	2 days.	"	"
195	2 years.	" 25.	Dr. Steele.	Fatal	Exhaustion	5 days.	5½ days.	"
196	4 years.	" 26.	Dr. Jacobs.	"	Extension of membrane.	3 days.	"	"
197	6 mos.	April 2.	Dr. Whitman.	"	"	24 hours.	24 hours.	"
198	8 years.	" 8.	Drs. Mitchell and Gatchel.	"	Exhaustion.	24 hours.	24 hours.	Malignant.
199	4 years.	" 10.	Dr. Stowell.	"	Extension of membrane.	2 days.	2 days.	Severe.
200	4 years.	" 14.	Dr. Hall.	"	"	7 days.	13 days.	"
201	4 years.	" 16.	Dr. Jacobs.	"	Detachment of membrane.	4 days.	4 days.	"
202	2½ yrs.	" 20.	Dr. Streeter.	"	Extension of membrane.	2 days.	2 days.	"
203	4 years.	" 29.	Dr. Streeter.	"	Exhaustion	3 days.	10 days.	Semi-malign'nt
204	3 years.	May 1.	Dr. Merowitz.	Recovery	"	3 days.	"	Severe.
205	4 years.	" 6.	Dr. C. E. Caldwell.	"	"	3 days.	"	"
206	3½ yrs.	" 14.	Dr. Kewley.	Fatal	Detachment of membrane.	24 hours.	24 hours.	"
207	3 years.	" 27.	Drs. Nelson and Bosworth.	Recovery	"	4 days.	"	"
208	2½ yrs.	" 28.	Dr. Stroe.	Fatal	Extension of membrane.	24 hours.	24 hours.	"
209	4 years.	June 1.	Dr. McArthur.	Recovery	"	5 days.	"	"
210	5 years.	" 9.	Dr. Steele.	Fatal	Measles	2 days.	2 days.	"
211	4 years.	" 10.	Dr. Brill.	Recovery	"	9 days.	"	"
212	5 years.	" 15.	Dr. Brinkerhoff.	"	"	5 days.	"	"
213	4 years.	" 20.	Dr. Winrow.	Fatal	Extension of membrane.	4 days.	4 days.	"
214	17 mos.	July 31.	Dr. Brill.	Recovery	"	5 days.	"	"
215	18 mos.	August 2.	Dr. Mercer.	Fatal	Extension of membrane.	2 days.	2 days.	"
216	4 years.	" 16.	Dr. Rutherford.	"	Exhaustion	9 days.	9 days.	"
217	8 years.	" 21.	Dr. Eskridge.	"	"	36 hours.	36 hours.	Malignant.
218	3 years.	Sept. 2.	Dr. Rutherford.	"	Extension of membrane.	36 hours.	36 hours.	Severe.
219	3 years.	" 18.	Dr. J. G. Berry.	Recovery	"	4 days.	"	"
220	4 years.	Oct. 4.	Dr. Willard.	Fatal	Detachment of membrane.	3 days.	3 days.	"
221	18 mos.	" 4.	Dr. Pyncheon.	"	Exhaustion	36 hours.	36 hours.	"
222	2½ yrs.	" 6.	Own practice.	Recovery	"	5 days.	"	Mild.
223	5 years.	" 7.	Dr. Whitman.	Fatal	Extension of membrane.	3 days.	3 days.	Severe.
224	5 years.	" 9.	Drs. Sullivan and Berry.	Recovery	"	5 days.	"	Well marked.
225	2½ yrs.	" 9.	Dr. Egan.	Fatal	Extension of membrane.	2 days.	2 days.	Severe.
226	4 years.	" 10.	Dr. Case.	Recovery	"	6 days.	"	"
227	3 years.	" 12.	Dr. E. R. Bennet.	"	"	3 days.	"	"
228	18 mos.	" 14.	Dr. Hall.	Fatal	Extension of membrane.	2 days.	2 days.	"
229	9 mos.	" 18.	Dr. Rutherford.	Recovery	"	4 days.	"	"
230	3 years.	" 21.	Dr. E. R. Bennett.	Fatal	Unknown	24 hours.	24 hours.	"
231	9 years.	" 27.	Dr. Gee.	"	Extension of membrane.	2 days.	2 days.	"
232	3 years.	" 30.	Bosworth and Creighton.	"	"	2 days.	2 days.	"
233	3½ yrs.	Nov. 3.	Dr. J. Bell.	Recovery	"	4 days.	"	"
234	5 years.	" 5.	Dr. C. G. Davis.	Fatal	Extension of membrane.	2 days.	2 days.	"
235	6½ yrs.	" 6.	Dr. Whitnall.	"	"	4 days.	4 days.	"
236	3 years.	" 8.	Dr. Leavett.	"	Detachment of membrane.	2 days.	2 days.	"
237	7 years.	" 10.	Dr. Goodall.	"	Extension of membrane.	2 days.	2 days.	"
238	4 years.	" 13.	Dr. J. G. Berry.	"	"	2 days.	2 days.	"
239	4 years.	" 14.	Dr. McGaughey.	"	"	2 days.	2 days.	"
240	5 years.	" 19.	Dr. Harris.	"	Pneumonia	36 hours.	36 hours.	"
241	13 mos.	" 20.	Dr. Roberts, of Lemont.	"	Extension of membrane.	36 hours.	36 hours.	"

TABLE OF CASES—CONTINUED.

Case.	Age.	Date.	Consultation with.	Termination.	Cause of Death.	Tube Worn.	Time of death after op't'n	Diphtheritic Symptoms.
242	3 years.	Nov. 28.	Own practice	Recovery		8 days.		Severe.
243	3 years.	Dec. 3.	Dr. Creighton	"		4 days.		"
244	5 years.	" 4.	Greenfield, W. C. Caldwell	"		9 days.		"
245	2½ yrs.	" 11.	Dr. Champlin	Fatal	Extension of membrane.	36 hours.	36 hours.	"
246	2 years.	" 30.	Dr. Butler	"	"	2 days.	2 days.	"
247	10 years.	" 30.	Dr. Waldemeyer	Recovery	"	4 days.		"
248	4 years.	1890 January 5.	Dr. Wing	Fatal	Exhaustion	36 hours.	2½ days.	"
249	3 years.	" 6.	Dr. Taylor	"	Extension of membrane.	36 hours.	36 hours.	"
250	4 years.	" 6.	Dr. Dahlburg	"	"	48 hours.	48 hours.	"
251	9 years.	" 16.	Dr. Daugherty	"	Pneumonia	3 days.	3 days.	"
252	4 years.	" 16.	Dr. Harris	Recovery	"	4 days.		"
253	6 years.	" 26.	Dr. R. G. Collins	Fatal	Uræmic convulsions	3 days.	3 days.	Very severe.
254	6 years.	" 27.	Dr. A. S. Thomas	"	Gangrene of foot	7 days.	14 days.	Malignant.
255	4 years.	" 30.	Dr. Bacon (Englewood)	"	Exhaustion	2 days.	2 days.	Very severe.
256	4 years.	" 30.	Dr. Greenfield	"	Unknown	2 days.	2 days.	Severe.
257	15 mos.	Feb'y 2.	Dr. Volini	Recovery	"	4 days.		Well marked.
258	3 years.	" 8.	Dr. Steele	"	"	5 days.		Very severe.
259	6 years.	" 11.	Drs. Bates and Church	"	"	4 days.		"
260	2 years.	" 20.	Dr. Riley	Fatal	Exhaustion	2 days.	2 days.	"
261	4 years.	" 21.	Dr. Byrne	Recovery	"	7 days.		Severe.
262	7 years.	" 21.	Dr. Flood	"	"	4 days.		"
263	18 mos.	" 24.	Dr. Quine	Fatal	Extension of membrane.	24 hours.	24 hours.	Very severe.
264	6 years.	" 25.	Dr. Flood	"	"	3 days.	3 days.	Severe.
265	7 years.	" 25.	Drs. Earle and Herrick	Recovery	"	21 days.		Well marked.
266	3 years.	March 1.	Dr. P. S. Hayes	"	"	6 days.		Severe.
267	11 mos.	" 6.	Dr. C. E. Caldwell	Fatal	Extension of membrane.	48 hours.	48 hours.	"
268	15 mos.	" 6.	"	"	"	48 hours.	48 hours.	"
269	3 years.	" 15.	Dr. Simons	"	Detachment of membrane	12 hours.	12 hours.	"
270	3 years.	" 16.	Dr. Parsons	"	Extension of membrane.	4 days.	4 days.	"
271	3 years.	" 18.	Dr. Earle	Recovery	"	3 weeks.		Well marked.
272	2 years.	" 19.	Dr. McWilliams	"	"	5 days.		Severe.
273	5 years.	" 27.	Drs. Shepherd and Jones	"	"	4 days.		"
274	7 years.	April 2.	Dr. Banga	"	"	4 days.		Well marked.
275	20 years.	" 7.	Dr. Rockwell	Fatal	Exhaustion	36 hours.	36 hours.	Malignant.
276	2½ yrs.	" 10.	Dr. Froom	Recovery	"	3 days.		Well marked.
277	7 years.	" 11.	Dr. Kewley	Fatal	Extension of membrane.	24 hours.	24 hours.	Malignant.
278	10 mos.	" 13.	Dr. Casely	Recovery	"	2 days.		Well marked.
279	4 years.	" 15.	Dr. Coy	"	"	5 days.		Severe.
280	1 year.	" 18.	Dr. Creighton	Fatal	Exhaustion	2 days.	2 days.	"
281	5 mos.	" 22.	Drs. Earle and Herrick	"	"	10 hours.	10 hours.	Well marked.
282	4 years.	" 28.	Dr. James Bell	"	Extension of membrane.	2 days.	2 days.	Severe.
283	2 years.	" 29.	Drs. Earle and Fitch	Recovery	"	5 days.		Very severe.
284	5 years.	May 1.	Dr. Fitzpatrick	Fatal	Detachment of membrane	12 hours.	12 hours.	Severe.
285	5 years.	" 3.	Dr. Schmidt	Recovery	"	2 weeks.		"

SUMMARY.

One hundred and fifty cases previously reported, with forty-one recoveries, or 27.33 per cent.

Present report of one hundred and thirty-five cases, with fifty-nine recoveries, or 43.70 per cent.

Total, 285 cases, with 100 recoveries, or 35 per cent.

The ages have been as follows:

Under 1 year,	10 cases with	3 recoveries, or 30	per cent.
Between 1 and 2 years, 37	" 9	" 24.32	"
" 2 and 3 years, 46	" 10	" 21.76	"
" 3 and 4 years, 47	" 17	" 36.17	"
" 4 and 5 years, 59	" 23	" 38.98	"
" 5 and 6 years, 27	" 14	" 51.85	"
" 6 and 7 years, 18	" 7	" 38.88	"
" 7 and 8 years, 20	" 9	" 45.00	"
" 8 and 9 years, 7	" 4	" 57.14	"
" 9 and 10 years, 6	" 3	" 50.00	"
" 10 and 11 years, 3	" 1	" 33.33	"
At 12 years, 2	" 0	" 00.00	"
At 13 years, 1	" 0	" 00.00	"
At 14 years, 1	" 0	" 00.00	"
At 20 years, 1	" 0	" 00.00	"

285 cases, 100 recoveries, or 35.00 per cent.
There were ten cases under the age of one year; of these, one was five months old, one six months, four were nine months, two ten months, and two eleven months of age. Among those to recover after the operation were two nine months old and one of ten months.

There were 93 cases under three years of age, with 22 recoveries, or 23.65 per cent.

There were 193 cases over the age of three years, with 78 recoveries, or 40.62 per cent.

and judgment exercised in the subsequent management of the case. One of the greatest dangers following intubation is from detachment of membrane below the tube. When the tube is introduced, if membrane is pushed down in front of it and there is evident obstruction, it should be

removed at once. The expulsive cough that follows will expel the membrane. One must exercise the greatest judgment in the selection of the proper tube. A tightly fitting tube that could not be expelled when membrane became detached below it, has been the cause of many a death. There are always indications of membrane below the tube, and one should be constantly on the alert and anticipate the dangers that constantly threaten. A peculiar hoarseness to the cough, and sometimes a flapping sound as the membrane is forced up against the bottom of the tube, are indications that should never be unheeded. Under these circumstances the tube should at once be removed, and the expulsive cough following will in the great majority of cases expel the membrane. Some advocate performing intubation first and tracheotomy later if necessary. This will rarely be required if these indications are duly appreciated and properly met. In this manner complete casts of the whole trachea, and often of the larger bronchi, can be secured just as effectively as by a tracheotomy, and with much less danger to the patient.

We cannot consider the surgical treatment of croup without reference to tracheotomy. It is an operation that will always have a place in the

treatment of this disease. Intubation is an operation requiring so much delicacy and skill that its employment will be limited to those specially favored. Those who have not had special training or who are not unusually dextrous should never attempt intubation, but should resort to the older operation.

While there are some who have but little faith in tracheotomy and who question its utility, yet statistics prove conclusively its value as a life-saving operation. Recoveries from tracheotomy amount to about 26 per cent. In 1886 it was my pleasure to collect reports of 306 cases operated upon in Chicago with 58 recoveries, or 18.95 per cent. Agnew¹ (1878) reports 11,696 cases with recoveries amounting to 26.25 per cent.

Monti¹ (1884, Vienna) 12,736 cases with 26.8 per cent. of recoveries. Lovett¹ and Monroe, 21,853 cases performed in various parts of the world, with 28 per cent., while Mastin¹ has collected reports of 862 cases operated upon in the United States with recoveries amounting to 26 per cent.

It must be admitted, however, that individual operators often present a much larger percentage of recoveries. On the other hand, some meet with almost uniform failure, and their cases are never reported. Thus it has come to my knowledge that one operator has performed tracheotomy one hundred times with but one recovery, another fifty times with two recoveries, another twenty with one, another fourteen with none, and another eight with none, making a total of 212 cases with but four recoveries, or 1.88 per cent.

In operating the slow method is to be preferred when there is sufficient time; the tissues being carefully dissected and blood-vessels avoided or ligated. After the trachea has been opened all loosened membrane should be removed before the tracheotomy tube is inserted. The wound should be frequently dressed with antiseptics, and a pad of antiseptic gauze constantly worn over the tracheotomy tube. Feathers and brushes should not be introduced into the trachea, as is too frequently done. As little irritation should be produced as possible, and for the purpose of dissolving the sticky secretions that collect in the trachea and for exciting coughing by which to cause their expulsion, a warm alkaline solution should be employed instead, either by an atomizer or by pouring it directly into the tube. In case membrane is present below the tube, papyotin, tripsin or a saturated solution of pepsin may be employed for the purpose of dissolving it. The tube should be removed and cleansed as required, and it should be remembered that unremitting care and attention is the price of success.

SOFT-HANDED SONS OF TOIL.—This is the classification of our craftsmen according to Dr. Holmes.

¹ Cyclopaedia of Diseases of Children, Vol. ii.

REPORT OF A CASE OF LEFT LATERAL HOMONYMOUS HEMIANOPSIA WITH A WOUND IN THE OCCIPITO PARIETAL REGION.

Read in the Section of Ophthalmology at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

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Cases of well-defined lateral homonymous hemianopsia must ever, in the nature of things, be rare; and such phenomena arising from a wound and uncomplicated with other symptoms, must, if possible, be still rarer. Of course, the impossibility in this case of demonstrating the actual abnormal state of the involved part of the brain detracts from its interest; but there are several questions which arise in connection with such a case which may be profitably passed in review. I will first report the case:

W. S., male, 21 years of age, came to the clinic at St. Luke's Hospital, Chicago; he had previously been to another institution in the city, but, as he was complaining of a noise in the ears, he was referred to the ear department and no observation seems to have been made of the eyes. He still complained of a noise in the head on the left side, but he complained also of the loss of the left half of vision of the left eye. He assured me that the right eye was "all right." I was examining, when I first saw him, the patients before some students of the Chicago Medical College, and after making a rough finger test of the field of vision of the left eye, and finding his statement relative to the loss of the left half of the left eye correct, I accepted his statement relative to the right eye, and discussed with the students the possible conditions which might bring about such a phenomenon; at the same time remarking that it seemed impossible for any pathological condition of the optic nerve or chiasm to produce such a clear cut vertical hemianopsia of one eye. The fundus was examined and nothing abnormal was found; no optic neuritis, no detachment, no atrophy, no choroiditis. The pupil was a little larger than its fellow on the right. No definite conclusion was reached that day as to the cause of the difficulty. On examining him next day with the perimeter, the observation was extended to the right eye and the patient was astonished to find that his right eye was affected in an exactly similar way. Whilst previously traces of syphilitic infection were vigorously sought for without result, attention was now immediately directed to the posterior part of the head. The following history was then obtained, in part from the patient and in part from his mother: at the close of January, or the early part of February, he was, when the worse for liquor, struck on the back of the head with a tin pail; he walked about a block to his home after receiving the