the tonsil by operation. I think that Mr. Butlin's conclusion, that "removal of the disease through an external incision (pharyngotomy) has hitherto proved a dangerous proceeding, and has not yielded as good results as operation through the open mouth," should be qualified, for of these five recoveries, two were cases of external incision, and as the whole number is only five, there must be three of one kind and two of the other. I am, however, free to say that my patient might perfectly well have been operated upon through the mouth, but I chose the external method because I thought I could get more room, and control hæmorrhage easier, and remove a healthy margin with more boldness.

In conclusion I desire to express my thanks to Mr. Butlin for the article he has written on the tonsil, as well as the obligations I am under to him for what I have learned from his work on "The Operative Surgery of Malignant Disease," one of the most thoroughly satisfactory books that well-applied observation has ever given us.

THE VALUE OF "PRIMARY ANÆSTHESIA" IN MINOR SURGICAL OPERATIONS.¹

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In every out-patient surgical department there is a large number of minor operations which must be performed in that department, both because of the lack of hospital accommodations and because the patient desires to go home and can be allowed to do so with safety. There are two important reasons why operation without anæsthesia is undesirable. First, because it gives unnecessary pain; and second, because the operation is likely to be less perfect and less thorough.

Nitrous oxide is rapid and safe, but the duration of its effect is so short that it is not desirable for minor surgical operations. Chloroform I have never used either for brief or prolonged anæsthesia. Cocaine is of great value in many cases, but it is not without danger and it not infrequently fails.

Profound ether anæsthesia is not desirable for the work for several reasons. It requires much time and previous preparation of the patient. The recovery is tedious, often requiring many hours. Nausea and vomiting are not infrequently greatly prolonged.

The rapidity of the appearance and disappearance of the anæsthetic effect of ether first struck me during its use for the pains of child-birth. It is here that the woman feeling the approach of the pains, seizes the sponge and with a few rapid breaths is almost completely relieved of her pain. Her consciousness returns immediately if the ether is judiciously used.

Making use of this "primary anæsthesia," as it has been called, I have operated on several hundred patients during the last three years. I have never seen any ill effects from the use of ether in this way.

During a portion of last year's service I tabulated forty successive cases with the following results: thirty-five successful, three partially successfully, two failures. By failure I mean that the patient felt the operation,

and complained of the pain, either at the time or afterward.²

The method of procedure which I have adopted is about as follows: As far as is possible in a short time, the confidence of the patient is gained. They are told that a few breaths will make them insensible to pain and that in a few minutes they will be in a condition to go home. Women and children are, as a rule, less alarmed if they are allowed to inhale the ether in a sitting posture. The effort of keeping erect takes the attention and the position is less suggestive of complete helplessness. This is not a desirable position for strong men unless they are held in by a strap. It is well always to have assistants at hand, although a large number of cases might easily be handled alone. An ounce or more of ether is poured on a sponge or towel. This is given to the patient with directions to breathe rapidly and deeply.

It is important to teach the patient how he is to breathe before applying the ether. I tell them to breathe as a dog pants. The rapid and moderately deep breath I think is the best one, not only for rapid primary anæsthesia, but also for the induction of profound anæsthesia. It is a well-known fact that rapid breathing of air itself produces a certain degree of anæsthesia. Another reason for rapid breathing is that there is a tendency to continue any muscular act in an automatic way after consciousness of the act has ceased. We see this in the repeated use of certain words or phrases, or the continuance of a motion of the leg or arm. I often see patients wholly unconscious of pain breathing at the rate of forty per minute the impulse to such breathing having been given during consciousness.

The tendency is naturally toward slow breathing and much more time is required if the breathing be slow. The sponge should be held a short distance from the face and should not cause coughing.

Everything should be in readiness for the operation. After a dozen or more rapid breaths I ask the patient if he is ready. The reply is usually "No." This question is constantly repeated until the patient says "Yes," or until there is no response. If the operation is merely a single incision or one with little exploration, the ether is at once removed. If more time is required the ether should be kept applied. The duration of insensibility to pain is from twenty seconds upward.

Vomiting rarely occurs. It never occurs unless profound anæsthesia is approached. I have had two patients who said that they vomited after reaching their homes. The pupils are not affected. The pulse is slightly accelerated.

Patients are, almost without exception, pleased with the action of the ether. An intelligent patient with good control of himself makes the best subject for rapid anæsthesia.

It is an undoubted fact that more ether is used by surgeons than is necessary. The dread which many patients have a second time is often only fear of the distressing "coming out." It is, of course, very convenient for the surgeon to have his patient profoundly etherized, but the loss to the patient may be great, both in comfort and in strength. Often profound anæsthesia cannot be avoided; sometimes it may.

¹ Read before the Boston Society for Medical Improvement, October 13, 1890.

² In the table, under the head of "Inhalations," the "number" and "time" refer to the number of inhalations and the time required before insensibility was produced.

No.	Name.	Sex	Age.	Operation.	Frame of Mind.	Position.	Inhalations.		Period of Insensibility.	Remarks.	Result.
							No.	Time.			
1	N. F.	F	24	Needle in finger.	Willing.	Sitting.	73	2½ m.	1 m.	Needle found. Got up and walked.	Success.
2	M. D.	F	31	Needle in finger.	Willing.	Sitting.	26	45 s.	45 s.	Got up and walked immediately.	Success.
3	A. L.	F	23	Felon.	Unwilling.	Sitting.	61	4½ m.	..	Cried and struggled.	Failure.
4	M. S.	F	7	Fracture of external condyle into joint. Examination.	Willing.	Sitting.	..	7 m.	27m.	Arm examined and put into splints.	Success.
5	T. H.	F	53	Adhesion of knee ankylosis.	Willing.	Sitting.	33	110 s.	70 s.	Patient had before taken ether very badly. No bad effect. Went out immediately.	Success.
6	M. H.	F	21	Felon.	Timid.	Sitting.	27	140 s.	30 s.	On coming to consciousness cried, but not from pain.	Success.
7	A. D. See No. 9	F	21	Felon.	Reluctant.	Sitting.	..	4 m.	..	Made an outcry when cut. On the following day said the ether helped her.	Partial success.
8	E. H.	F	30	Curetting tuberculous sinus.	Reluctant.	Sitting.	30	2 m.	5 m.	A thorough curetting.	Success.
9	A. D. See No. 7	F	21	Removal of neo-crocod phalanx.	Willing.	Sitting.	50	3 m.	6 m.	Second etherization. Went home ten minutes later.	Success.
10	R. R.	F	35	Abscess of breast.	Unwilling.	Sitting.	..	70 s.	..	Able to walk in three minutes.	Success.
11	L. A.	F	35	Perineal abscess.	Timid.	Reclining.	20	65 s.	3 m.	Drew away a little when the cut was made, but had no recollection of pain. Came out at once.	Success.
12	N. J.	F	18	Alveolar abscess.	Fearful.	Sitting.	..	..	..	Began at once to cry and push away sponge. An incision was made which gave pain.	Failure.
13	A. M.	F	24	Deep abscess of breast.	Timid.	Sitting.	28	90 s.	2 m.	On returning to consciousness complained of feeling weak. This passed off quickly.	Success.
14	N. C.	F	20	Cheesy gland of neck.	Willing.	Sitting.	29	85 s.	3 m.	Gland thoroughly curetted.	Success.
15	A. P.	F	17	Abscess of neck.	Willing.	Sitting.	20	35 s.	1 m.	Went away immediately.	Success.
16	M. T.	F	15	Felon.	Willing.	Sitting.	25	45 s.	1½ m.	Nail removed, and deep incision.	Success.
17	J. S.	F	60	Impacted Colles' fracture.	Willing.	Sitting.	58	110 s.	..	The patient was perfectly relaxed.	Success.
18	E. F.	F	60	Colles' fracture.	Willing.	Sitting.	6	20 s.	25 s.	Conscious, but felt no pain.	Success.
19	D. W.	F	39	Tubercular glands.	Timid.	Sitting.	29	67 s.	105 s.	Thoroughly curetted and packed.	Success.
20	M. S.	F	28	Axillary abscess.	Willing.	Sitting.	37	70 s.	2½ m.	.....	Success.
21	J. P.	F	31	Felon.	Fearful.	Sitting.	47	150 s.	80 s.	There was a stage of excitement after a few breaths. No pain.	Success.
22	A. S.	F	17	Axillary abscess.	Willing.	Sitting.	35	90 s.	..	.....	Success.
23	M. H.	F	23	Felon.	Willing.	Sitting.	34	45 s.	..	.....	Success.
24	S. E. S.	M	25	Removal of neo-crocod phalanx.	Willing.	Reclining.	80	..	3½ m.	.....	Success.
25	W. A.	M	20	Abscess of ankle.	Willing.	Reclining.	30	..	1½ m.	.....	Success.
26	J. G.	M	23	Felon.	Willing.	Reclining.	37	..	3½ m.	The felon was incised and curetted.	Success.
27	J. Q.	M Adult		Inflamed bursa.	Willing.	Reclining.	..	2 m.	2 m.	Incised and curetted.	Success.
28	S. S.	M Adult		Felon.	Willing.	Reclining.	..	1½ m.	3 m.	Noisy on coming out. Quickly quieted.	Success.
29	W. L. S.	M Adult		Foreign body in palm.	Willing.	Reclining.	12	60 s.	1 m.	If the search had not been quickly successful, the period of anesthesia might have been easily prolonged.	Success.
30	M. P.	M Adult		Felon.	Willing.	Reclining.	18	15 s.	50 s.	The patient breathed rapidly and became unconscious very rapidly. No pain. Recovery in fifteen seconds after the removal of the ether.	Success.
31	J. M.	M	16	Felon.	Fearful.	Reclining.	32	2 m.	3 m.	The patient was deaf and dumb.	Success.
32	J. R.	M	15	Amputation of finger.	Willing.	Reclining.	48	1½ m.	2½ m.	The amputation required one minute. There was no pain, and the boy walked out as soon as the dressing could be finished.	Success.
33	M. J.	M	7	Felon.	Willing.	Sitting.	12	45 s.	2½ m.	Perfectly quiet. Recovered at once.	Success.
34	W. M.	M	27	Obscure injury to wrist.	Reluctant.	Reclining.	25	1½ m.	2½ m.	Felt sleepy, and was nauseated for half an hour. Struggled a good deal. Felt no pain.	Partial success.
35	J. M.	M	..	Abscess of hand.	Willing.	Reclining.	12	30 s.	..	A quick incision was made, and the operation was over in thirty-five seconds from the beginning of the etherization.	Success.
36	B. F. B.	M	19	Felon.	Willing.	Reclining.	17	30 s.	..	The operation was over in forty seconds, after twenty inspirations had been taken.	Success.
37	F. N.	M	33	Colles' fracture.	Willing.	Reclining.	..	..	..	The fracture was reduced in forty-five seconds from the beginning of the etherization. The patient struggled, but was conscious of no pain afterward.	Success.
38	S. B. J.	M	24	Alveolar abscess.	Willing.	Sitting.	15	30 s.	..	The patient was conscious of the cut, and struggled a little. No real pain.	Partial success.
39	P.	F	50	Colles' fracture.	Willing.	Reclining.	25	1½ m.	2 m.	Immediate recovery.	Success.
40	S.	M	35	Felon.	Reluctant.	Reclining.	44	2½ m.	1 m.	The patient began to move the legs regularly, and continued to do so while insensible to pain. Remembered the cut, but did not feel pain.	Success.