

MIXED ANÆSTHESIA.

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THE newest thing in surgery is mixed anæsthesia, or mixed narcosis as some prefer to call it. The idea itself is comparatively old, and chloroform and morphia have been used together in various ways for the production of anæsthesia in hospitals, both at home and abroad in a fitful and experimental sort of way, for some three or four years past. But in this country, at all events as far as I am able to judge, the use of mixed anæsthesia has not attracted the attention that it deserves. Some recent experiences with it in Germany, in operations about the mouth, for which it is peculiarly adapted, have led me to undertake a series of experiments with it, in ordinary cases, and these, I think, are worth publishing. They do not, it is true, resemble in any way the marvellous successes obtained with mixed anæsthesia in Germany, where patients are said to have watched the performance of operations on their own persons without feeling pain. But they have points of practical interest of their own, as regards economy of time and chloroform and risk of life. First, I should mention that it is claimed for mixed anæsthesia, or the induction of combined anæsthesia and narcosis, that patients are thereby deprived of nerve sensibility, whilst the mental faculties are but partially obscured. The value of this condition in certain operations about the mouth and fauces requiring the patient's aid to get rid of blood coagula, etc., in the pharynx, obstructing respiration, is obvious. It is precisely in these cases that the Germans have met with brilliant success, and it is to these that they draw attention. Now the experiences that I have to bring forward are of a very doubtful kind as regards the condition of mixed anæsthesia. Very few of the cases operated upon were able to answer questions rationally during the operation, and none to watch the operation. However, my experiments were conducted under altered conditions. Germans administered chloroform five minutes after the hypodermic injection of morphia. I waited, in some cases, until palpation showed that the injection had been removed by absorption, and in others, until the effects of the morphia was visible in the pupil and the patient's manner. Nor do I think, if it is desirable to produce the combined effects of both drugs, that it is wise to push the quickly acting chloroform until the morphia has had time to take effect. In my experience the more complete-

ly the patient is under the influence of morphia, the more rapidly the chloroform acts, and the less the quantity of chloroform used. My objects were, economy of time in hospital work, economy of chloroform, and the avoidance of that complete chloroform insensibility which has so often terminated in death. These objects were, I think, as the table will show, satisfactorily obtained. The *modus operandi* was to inject hypodermically one-third of a grain of morphia in adults, and from a quarter to one-sixth of a grain in youths, according to their age, and to follow this up by the administration of chloroform, after a sufficient interval. The interval I varied purposely from 10 to 35 minutes. The average length of time required to produce anæsthesia was 5½ minutes; the shortest time 4 minutes; and the longest 12 minutes. The average amount of chloroform used to produce anæsthesia was 1½ dram. The anæsthesia was not pushed to completeness in any of the cases except the 5th and 7th. The patients were operated upon whilst talking incoherently, or in some cases answering questions rationally. They all recovered from the chloroform remarkably quickly, and all soon after subsided into a quiet slumber, under the influence of the morphia. Only one patient vomited after the operation. These are the facts which the table appended shows—the saving of time in hospital work; the economy of chloroform; the diminished risk to life from anæsthesia; and the absence of nausea and vomiting. Any one of these advantages would stamp mixed anæsthesia as worthy of a prominent place in surgery. It remains to be seen whether they attend its use constantly. I am continuing experiments with a view to test further the value of mixed anæsthesia, and these I shall be glad to place at your service hereafter. Should they further prove, as appears certain, that a very great saving of chloroform can be made in operative surgery, mixed anæsthesia should attract the attention of the Government as well as of the profession in India.\*

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\* During my incumbency as Second Surgeon in the Medical College Hospital (1874-75), I made it an invariable rule, following Professor Partridge's practice, to inject morphia hypodermically about 20 minutes or half an hour before administering chloroform. Anæsthesia was, we found, more speedily induced and more easily maintained in this manner than when chloroform was used without previous preparation.—K.M.C.L.

Tabular Statement showing the effects of Mixed Anæsthesia under different conditions of strength of hypodermic injection of Morphia, interval before Chloroform and duration of operation.

No.	CASE.	Operation.	Morphia hypodermically injected. grs.	Chloroform begun in minutes.	Anæsthesia in minutes.	Character of Anæsthesia.	Duration of Operation.	Amount of chloroform, drachms.	Age in years sex and race.	REMARKS.
1	Necrosis Metatarsal bone—Little toe.	Removal of necrosed bone.	¼	10	12	Ordinary...	8 minutes ..	3	30 Hindu male.	No excitement; rational; quiet sleep afterwards
2	Phymosis ...	Circumcision ...	¼	22	6	Ordinary...	2 minutes ...	1½	25 Hindu male.	Excitement; talkative; quiet sleep.
3	Contraction and adhesion of Tendons of Achilles.	Extension and rupture of adhesions.	⅓	15	6	Mixed ...	7 minutes ...	2	32 Eurasian male	Excitement; talkative; vomit.
4	Syphilitic Bubo, Ulcer.	Excision of undermined flap	⅓	15	5	Mixed ...	2 minutes ...	1½	22 Hindu male	No excitement; quiet rest afterwards.
5	Elephantiasis of Scrotum.	Excision, scrotum, right testicle.	⅓	19	9	Ordinary...	60 minutes ...	11	55 Hindu male.	Deep anæsthesia; quiet rest afterwards.
6	Cystic disease of testicle, left.	Excision of left testicle.	⅓	15	7	Mixed ...	30 minutes ..	5	37 Hindu male.	No excitement; rational; quiet rest afterwards.
7	Symptoms of Stone bladder.	Sounding the bladder.	⅓	20	5	Mixed ...	15 minutes ..	5	47 Englishman.	Much excitement; talkative; quiet rest.
8	Undermined Bubo	Excision of flap	⅓	23	6	Mixed ...	2 minutes ...	2	26 Hindu male.	Very quiet and talked; quiet rest.
9	Abscess leg ...	Slitting of sinus.	¼	32	4	Mixed ...	1 minute ...	1	18 Hindu boy.	Quiet and rational; afterwards quiet rest.
10	Phymosis ...	Circumcision ...	⅓	18	4	Mixed ...	5 minutes ...	1½	36 Hindu male.	Quiet and rational.
11	Retention from stricture—organic.	Tapping bladder through rectum.	⅓	35	8	Mixed ...	8 minutes ...	2½	45 Englishman.	Excitement, momentary.
12	Extravasation of urine from stricture.	Perineal section Cock's.	⅓	37	5	Very profound.	10 minutes ...	4	50 Englishman.	Excited but slept well subsequently.