REDUCED HEMORRHAGE DURING NASAL SURGERY

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The use of local anesthesia in nasal surgery has the considerable advantage of allowing the operator excellent manoeuvrability. Moreover it results in only slight hemorrhage which allows the surgeon a clear view of the field of operation.

General anesthesia with intubation gives good relaxation of the patient and the operative field can be kept sterile more easily; also there is no danger of aspiration and the surgeon is not inconvenienced by emotional reactions of the patient. On the other hand general anesthesia often produces considerable hemorrhage obscuring the operative field.

For two month we carried out plastic septum operations after the method of Cottle, using general anesthesia. The primary results are presented here.

The patient is premedicated with Atropine 0.5 mg. and Pethidine 50 - 100 mg. according to age.

Anesthesia is induced using both Pentothale and Scoline. The patient intubated via the mouth with a cuffed endotracheal tube and a close fitting tamponade is established in the hypopharynx. The tracheal catheter is carried down over the centre of the chin and connected to the anesthetic machine using a Y-tube on the patient's chest.

The skin of the face is then carefully disinfected and covered with adhesive plastic, so that only the field of operation is accessible through a hole in the plastic.

The mucous membranes are decongested with Lidocaine 5% with Noradrenalin 1 : 100.000 on cotton wool tampons placed in the nasal cavities. After these have been removed 15 cc of ½ % Lidocaine with Noradrenalin are injected under the mucous membranes.

The anesthetic is given using N_2O - O_2 - Fluothane. The N_2O and O_2 are given in a concentration of 50% and the Fluothane in a concentration of approx. 1 - 2%.

The anesthetic is given through the so-called semiclosed circuit with a oneway valve. From the time that a reduction in the hemorrhage is required, hyperventilation is commenced. The pressure during ventilation is measured by

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an electromanometer and lies between 10 and 15 mm Hg. or 13 - 20 cm of water. It is this pressure that affects the alveoli and which acts as a brake on the blood flow from the pulmonary artery to the pulmonary vein. This pressure of 10 - 15 mm Hg. should be compared to the normal pressure in the pulmonary capillaries which lies between 10 - 15 mm Hg.

The % of Carbon dioxide in the closed circuit, especially in the end-tidal expiratory air lays between 1.8 and 3.8 % which means that the patient was hyperventilated in the period when extra pressure was applied to the alveoli.

During hyperventilation the systolic pressure was varied somewhat and lays between 70 and 110 mm as the extremes.

The blood lost during operation is aspirated through a normal suction pump and after the operation an additional 200 - 300 cc. of water are aspirated into the reservoir. The soiled sponges are then placed in the reservoir of the suction pump, after which they are rinsed in the contents of the reservoir. After the operation a hb % is carried out on blood from the patient and on the content of the reservoir. The total blood loss is then estimated using the following formula:

$X \times$ pts hb % = Hb % in the bloody fluid (X + 300 cc. of water).

The first 7 patients were placed in a horizontal position on the operating table whilst the last 8 were placed in exactly a 5° anti - Trendelenburg position using a protractor. This latter refinement in the technique, appears to have caused a 25% reduction in the operating time and a 50% reduction in the blood loss.

We consider the method used as being free from risk inasmuch as no ganglion blocking drug is used apart from Fluothane, which has a natural ganglion blocking effect. It is noteworthy that the blood pressure increased approx. 15 mm Hg 2 minutes after the hyperventilation ceased and the pressure in the breathing bag was released. The patient returned to spontaneous respiration while the end - expiratory CO_2 level was still below the usual physiological concentration of 5.6 %. The anesthetic diagram shows the blood pressure during operation, the increase of 15 mm Hg. after the cessation of hyperventilation and the increase to normal when the patient awakened.

The use of ganglion blocking drugs such as Arfonad or Vegolysin can have an effect up to 24 hours after the operation. As a result of this the patient must be kept in a horizontal position for a corresponding period. Patients operated upon using the present method do not appear to run this risk.

We will now try out this hypertensive approach on a larger number of patients and hope that in due course, we can publish the results of this type of anesthesia, which appears to give better results than those normally obtained.

Lastly general anesthesia has the effect of giving the operator the comfortable feeling that he does not have to hurry and in consequence will often finish more rapidly. It also requires less effort and mental strain on the part of the operator.

Journal-no.	Name	Age	Duration of Surgery	Hemorrhage
207	M.F.	11	125 minutes	169 cc
258	L.A.	18	105 ,,	232 ,,
296	A.Ø.	22	100 ,,	164 ,,
317	S.N.	20	100 ,,	201 ,,
336	H.P.	15	75 ,,	147 ,,
349	H.K.	32	80 ,,	121 ,,
385	M.S.L.	20	65 ,,	70 ,,
411	M.S.	46	90 ,,	107 ,,
446	B.S.	15	70 ,,	49 ,,
491	S.W.	16	80 ,,	174 ,,
497	E.M.	45	60 ,,	41 ,,
520	H.H.C.	19	50 ,,	110 ,,
552	C.C.	53	60 ,,	42 ,,
671	P.E.H.	16	60 ,,	30 ,,
672	B.L.	17	60 ,,	31 ,,

Table 1. Chart showing the age of the patient, the duration of surgery and the amount of hemorrhage. This information was obtained from 15 operations. The last 8 patients were operated in a 5° anti Trendelenburg position.

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