and not the anaesthetist, who is confronted with these occasional complications, not only because such complications are almost invariably the concern of his department, but because the cases most likely to be affected are those in which nasal and pharyngeal operations, and tonsillectomy in particular, have been performed.

It is clearly unwise to pass a tube through a nasal passage the interior of which is a closed book to the introducer; it is not enough to ask a patient if he can breathe through the chosen airway, as that will disclose neither a sharp spur nor an infected nose. More useful help can be gained by an examination with a headlight *after* shrinking with cocaine; this may reveal a passage in which trauma is unavoidable, and which not even the most gentle persuasion could negotiate with safety: trauma is the prerequisite of all intubation troubles.

Complications

Haemorrhage.—This may be caused by undue force being applied in a narrow nose or by coming up against an impassable obstruction: the highly vascular mucous membrane is abraded, and the seeds of possible infection are sown. In a few cases haemorrhage has been very considerable, and in one tonsillectomy case the surgeon was blamed because the patient lost as much as two pints of blood.

Infection.—This is secondary to abrasion of the mucosa, although it may be caused primarily by faulty aseptic technique. Though more likely to occur in an already infected nose—in which case an aggravation of symptoms will result—it may also be found in a hitherto perfectly healthy one. In tonsillectomy or septic pharyngeal cases infection is particularly likely to occur if trauma has taken place; but the causation in these cases is different, and it is, I believe, the *withdrawal* of the tube from an infected field over the abraded area in the nose which is responsible. It was the occasional virulent sinus infection after tonsillectomy in a war hospital that first attracted my attention, and I noticed that this sequence had occurred: haemorrhage from the intubated side of the nose, followed by an infection of the antrum on the same side, in cases in which radiographs and transillumination had shown the antrum to be healthy before operation. By withdrawal of the tube, on which have accumulated organisms and septic blood-clot resulting from the operation, and depositing these on the abraded mucosa or sinus ostia, infection is readily initiated. Such sinus or nasal infections greatly increase the patient's discomfort and prolong convalescence; they rarely clear up without intranasal drainage, and may necessitate a stay in hospital, in Service cases, of 4 to 6 weeks instead of the usual 7 to 10 days. Such nasal infections may encourage secondary haemorrhage from the tonsillar bed or nasal passage or lead to acute otitis media. It is indeed difficult to explain to the tonsil patient why the antrum should require puncture, the ear an incision, or the nose packing.

Adhesions between the two surfaces of the nasal passage, septal and turbinal, may follow if both of these have been traumatized in opposed areas.

Some Contraindications

(a) If the operation and anaesthesia can be in every way efficiently, safely, and satisfactorily controlled by other methods, nasal intubation is not the preferable method rhinologically.

(b) Large sharp spurs, marked turbinal hypertrophy, and gross septal deviations should be considered contraindications, particularly in cases of tonsillectomy or septic pharyngeal states. Purulent secretions and crusts, alar and vestibular infections, and large polypi should also debar the passage of a nasal tube.

(c) Septicaemic or very toxic patients are not suitable subjects for intubation; if intubated at all, the oral route is preferable, and particular gentleness is required, as a minimum of trauma to the nasal, laryngeal, or tracheal membranes is likely to be followed by a serious spread of infection.

(d) Tubes which have slipped into the oesophagus are likely to be infected, and are better not withdrawn through the nose or reinserted into the nasal passages, particularly if bleeding during introduction has occurred.

(e) In cases with a history of recurrent sinusitis the oral route is preferable.

(f) Cases in which one side of the nose is being operated upon are better not intubated via the remaining nostril; particularly if the lesion is an infective one, the oral route is again preferable.

(g) Children undergoing removal of tonsils and adenoids should not be pernasally intubated. It is unwise to pass a good-sized tube past a large adenoid pad; and, moreover, removal of adenoids, now often undertaken as the first step in the operation, is seriously interfered with by the presence of the tube in the nasopharynx. It is not difficult to remove tonsils with a tube through the mouth if intratracheal anaesthesia is desired, and this in no way interferes with adenoid removal.

Precautionary Measures

The following suggestions, most of which are well known but will bear repetition, are made in an endeavour to surmount some of the difficulties presented:

1. Careful sterilization of the hands, all instruments necessary for intubation, sprays, and lubricants is essential; these are best placed on a sterile towel spread over the patient's chest.

2. The nasal passages should be sprayed with 5% or 10% cocaine before anaesthesia is begun.

3. Inspection of the selected airway with a good headlight is advisable.

4. If there is resistance to the passage of a tube no attempt to force a passage is permissible. If much bleeding has followed the attempt the tube should be withdrawn and antiseptic ointment (sulphanilamide, for example) inserted. The tube should now be inserted, preferably by the oral route, though in some cases the use of the other nostril may be reverted to after inspection.

5. All blood-clot and secretions should be removed from the throat and post-nasal region in tonsil cases, preferably by suction, before the tube is removed; fragments of infected blood-clot are likely to be withdrawn along with the tube and deposited in the nose.

6. If it is known that trauma has occurred during intubation it is possible to withdraw the tube via the pharynx at the end of the operation. By grasping it with forceps as it lies in the posterior pharynx it can be withdrawn bent upon itself, from larynx and nose simultaneously; by this means the infected tube does not pass over the abraded mucosa. With soft tubes this manoeuvre is simple; with more rigid ones it is difficult. It is possible to cut the tube in half in the pharynx, and withdraw it in two pieces; it is needless to add that this suggestion will not meet with universal approval in these days of rubber shortage; but, nevertheless, it is an easy way out if the need is imperative.

MAINTENANCE TREATMENT WITH DIGITALIS

BY

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It is a well-established clinical practice to recommend the continuance of a maintenance dose of digitalis for patients with congestive cardiac failure who have responded well to the drug. Gold (1941) stated that "only about 15% of cardiac patients owe to the habitual use of digitalis the fact that they are able to carry on with a reasonable degree of comfort. The reputation of the drug is not enhanced, to say the least, by its use in the remaining 85% of the cardiac population." In Stobhill Hospital there has for some years been a special cardiac clinic for the supervision of patients with cardiac involvement who, after residence in the wards, have been found suitable for out-patient treatment. It has been a general rule, when digitalis therapy has proved necessary, to ascertain the adequate maintenance dose and to continue its administration. In some instances this treatment has been carried on for over four years. Patients attend at regular intervals, and many of them take an intelligent interest in their treatment. It was thought that these patients were excellent subjects for determining whether, in view of Gold's statement, we had been unduly liberal in dispensing digitalis.

Experimental Investigation

Having decided on this investigation, the first 20 patients who attended the clinic on and after a certain date and who were receiving a maintenance dose of digitalis were chosen. Drug therapy was immediately stopped and no medication was given until there was some indication of ill-health. These patients, all of whom had proved most co-operative, attended the clinic every week. If objective signs of heart failure such as marked increase in heart rate, visible dyspnoea, cyanosis, or oedema appeared, it was concluded that the lack of digitalis was being felt. If, however, without objective evidence, the patient complained of not feeling well, he was given tablets containing lactose in order to make quite certain that the ill-health was due to increasing cardiac decompensation and not to psychological disturbance from want of medicine. Only when objective signs of failure appeared was digitalis therapy restarted.

The 20 patients varied in age (Table I) and in duration of digitalis administration (from a few weeks to more than four years).

TABLE I.—Age Incidence of the Patients Investigated

Age :	20-30	31-40	41-50	51-60	61-70
Number of patients	3	5	8	1	3

There was a definite history of rheumatic fever in all but three patients, in whom arteriosclerosis with hypertension appeared to be the aetiological factor. One patient with a history of rheumatic fever had a positive Wassermann reaction, while the others had no serological or other evidence of lues. All had been in-patients of the hospital with definite signs of cardiac failure. Auricular fibrillation was present in all but two of the series. The daily maintenance dose (Table II) varied from 1/2 to 4 gr. of the powdered leaf, which is the preparation utilized for all patients attending the clinic.

TABLE II.—Maintenance Doses of Digitalis

Maintenance dose (gr.)	1/2	1	1 1/2	2	3	4
Number of patients	3	2	2	7	4	2

Of the 20 patients 16 showed objective evidence of progressive cardiac failure before any complaint was made of ill-health or distress; in each case compensation had apparently been satisfactory the previous week. Such a rapid onset of recurrence of cardiac failure differs from the lengthy period of subjective upset which is the rule before a first attack of congestive failure.

TABLE III.—Time Taken for Signs to Appear after Cessation of Digitalis Administration

Case	Age	Maint. Dose (gr.)	Signs	Time in Weeks after Digitalis Stopped
1	45	2	C	5
2	38	1 1/2	D O	8
3	41	1/2	D O	8
4	40	2	T	2
5	34	4	C T	11
6	49	1/2	D T	6
7	38	3	D T	2
8	27	4	O T	6
9	61	1 1/2	D T	2
10	54	3	T	4
11	44	2	O	2
12	62	2	C D O T	2
13	48	3	T	5
14	47	2	T	3
15	29	3	T	3
16	24	2	D T	6

C: Cyanosis. D: Visible dyspnoea. O: Oedema. T: Marked increase in heart rate.

In this group the time taken for the signs to appear after the cessation of digitalis administration varied from two to eleven weeks, with an average of just under five (Table III).

Visible dyspnoea was the feature in 7 instances, oedema of the feet in 5, cyanosis in 3, and a marked tachycardia in 12.

There was no correlation between the size of the maintenance dose and the length of the sign-free period, nor did the age or weight of the patient appear to influence the duration of the period.

The remaining 4 patients made subjective complaints—increased fatigue and a feeling of breathlessness—at an interval varying from two to six weeks after cessation of the digitalis therapy. No objective evidence to support their complaint was found in any of them. Accordingly the lactose tablets were given. In all four cases objective signs subsequently appeared—in one case in two weeks, in two cases in four weeks, and in one case in six weeks after the first subjective complaint. Visible dyspnoea was noted in all four cases, increase in heart rate in two, cyanosis in one, oedema in one, and liver enlargement in one. These signs appeared in all cases eight weeks after the digitalis had been stopped (Table IV).

TABLE IV.—Time Taken for Appearance of (i) Symptoms and (ii) Signs after Cessation of Digitalis Administration

Case	Age	Maint. Dose (gr.)	Signs	Time in Weeks after Digitalis Stopped	
				Subjective	Objective
17	39	1	D T	4	8
18	44	2	D C L E	6	8
19	70	1	D O T	2	8
20	50	1/2	D C	4	8

C: Cyanosis. D: Visible dyspnoea. L E: Liver enlargement. O: Oedema. T: Marked increase in heart rate.

In all the cases digitalis administration was restarted as soon as there was any sign of increasing cardiac decompensation. Evidence of recovery appeared within a week. This fact indicates clearly that digitalis therapy was essential for the comparative well-being of these patients.

Comment

From this small series of cases it seems reasonable to state that for patients with cardiac failure who have required digitalis for treatment in the decompensated state a maintenance dose of the drug is necessary.

I have pleasure in expressing my indebtedness to Prof. Noah Morris for his advice and assistance in the preparation of this paper, and to Dr. A. D. Briggs, medical superintendent of the hospital, for his interest.

REFERENCE

Gold, Harry (1941). *Med. Ann. Distr. Columbia*, 10, 127.

Medical Memoranda**Multiple Foetal Adenomata of the Thyroid**

The following case on which I operated six months ago in South Africa may prove to be of some interest.

A European woman aged 30 presented herself complaining of a disfiguring swelling in the neck. On examination the right lobe of the thyroid was found uniformly much enlarged, but there were no toxic or pressure symptoms. At the patient's request operation was undertaken. The right lobe and isthmus were removed, leaving only a very small piece of tissue over the recurrent nerve. The left lobe appeared only slightly enlarged, and was not disturbed. On section the specimen was found to contain dozens of nodules each slightly larger than a pea, and these on histological examination were shown to be foetal adenomata.

I believe this case to be unusual; for foetal adenomata are as a rule single, and it must be most exceptional to find dozens present in the same gland. One wonders whether, if this case had been left alone, each of these nodules would have developed into a typical colloid adenoma. How frequently do the common cases of nodular goitre have their origin in multiple foetal adenomata?

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