puncture hole thus made is covered with a piece of gauze about the size of two postage stamps. The gauze and the cyst wall are then picked up with a pair of sponge-holding forceps (Fig. 2). The gauze minimizes leakage and prevents the forceps slipping. Gentle traction may be made with the forceps at first in this direction and then in that, and the cyst wall is cleared by gauze and blunt dissection, aided here and there by a few touches of the scalpel. As dissection proceeds and the deep parts of the cyst are reached it will be found convenient to apply a second pair of sponge-holding forceps. Using these means the intact cyst may be completely enucleated.

REFERENCE.

¹ Bailey, Hamilton: *British Journal of Surgery*, vol. x, No. 40, 1923.

TONSIL-SUCTION FOR DIAGNOSIS AND TREATMENT.

BY

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INSTRUCTIONS FOR USE.

In Diagnosis.

The patient sits facing a good light and removes dentures. The diagnostic tonsil-sucker is warmed in hot water to prevent condensation. With the stem against the angle of the mouth the sucker is pressed firmly against the opposite

tonsil, the suction ball is well squeezed, and then released with the finger over the air-hole on the stem. The tonsil is thus extroverted, and any pus in its crypts is seen—yellow on the red tonsil—inside the glass funnel. The glass funnel is now given a combined pull and a slide towards the cheek, so that the pus is picked off by the incurved glass edge; excessive suction will prevent the sliding movement. This needs a little knack. Repeat to ensure that all pus is removed.

The pus can be microscoped (for polymorphs and germs), and the patient is requested to see it and smell it (it is usually offensive) in the funnel to convince that treatment is necessary.

The Therapeutic Tonsil-sucker.

This glass funnel is similar to the diagnostic one, but has a wider mouth, thicker rim, and its edge is not

incurved. A rubber finger-stall (medium thickness) is wetted and slipped over the glass funnel. It should form a flat diaphragm across the funnel mouth. On this the antiseptic cream is thickly spread. This is pressed against the tonsil and strong suction applied. The crypts of the extroverted tonsil are thus thickly smeared with the antiseptic cream. Pressure is then relaxed (by opening the vent-hole); the tonsil subsides into its usual shape, carrying the antiseptic into the crypts and spaces from which the pus has been evacuated. This manœuvre should be repeated thrice in rapid succession before withdrawal.

After use the glass funnels should be cleaned and kept in the glass jar of weak carbolic provided. The rubber ball acts as stopper to the jar. The finger-stalls can also be cleaned and kept in this solution, and used again. For more rapid sterilization I use a saucepan.

The antiseptic cream contains mercury oleate, bismuth, kerosene (for its creeping qualities), and vanishing cream. Better formulæ are being searched for.

As an extra safeguard, the portion of the glass tube which enters the patient's mouth is enclosed in a sleeve of rubber tubing.

Treatment is repeated at least once a week until no more pus is found. Then the interval can be lengthened to 10, 14, 21, or 28 days. The course is usually longer in older patients than in younger, though the health may be benefited long before the pus is all gone. Tiredness, pallor, anorexia, rheumatism, and other subinfective toxic symptoms often quickly disappear. In quinsy and acute tonsillitis it will probably be found that septic fluid can be sucked out and tension relieved with a larger glass funnel having a layer of cambric tied flat across its mouth.

Illustrative Cases.

CASE I.

Dr. X., aged 35. Had bad tonsillitis after sleeping in a damp bed in 1919.

Tonsillitis recurred with rheumatic pain and swelling in ankles, finger-joints, and back in March, 1927. I saw him first five months later; the fingers and ankles were still swollen, with flat feet. Though the tonsils looked normal I could suck liquid pus out of them having the same smell as the nasty taste he was getting. This pus was largely composed of polymorphs, with only a few pneumococci, bacilli, and diplococci.

At first I cleaned the tonsils twice a week by suction, later weekly, then monthly, and left various antiseptics in the crypts—for example, thymol iodide and kerosene, bipp, iodoform and kerosene, and ung. hydrarg. molle. The amount of pus rapidly diminished, and in about two months there was little or none. His rheumatism also quickly diminished, and he was able to do his practice throughout.

On December 20th he reported himself as very well and without rheumatism; the tonsils contained no pus and remain free (May 2nd). He can taste iodoform when he drinks anything hot eight hours after treatment, proving that the antiseptic is buried in the crypts. He thinks this diagnostic and therapeutic method has a great future.

CASE II.

Miss M., aged 32. Had poor health with frequent colds, sore throats, and abdominal pains and occasional rheumatism. In November, 1925, heads of cheesy pus were sucked from both tonsils. On December 20th there was no pus. In December, 1926, two beads of pus were found in the left tonsil. In April, 1927, she could squeeze beads of foul pus from her tonsils and could feel it accumulating. In May I started treating the tonsils by suction with euthymol and aristol. In July (eight treatments) her rheumatism had gone and the tonsils were almost clear of pus, but her adenoids were still sore and dirty. In September she had to have her adenoids out, and obviously this opportunity of removing the tonsils had to be taken, though they were clear of pus both by suction and in microscopic section.

CASE III.

Mrs. A., aged 57, had suffered from rheumatic neuritis in the left arm for three years. Had "always" had rheumatism in the hands and ankles, and frequent pain and swelling in the tonsillar glands. Had quinsies twenty years ago, and all teeth extracted ten years ago. Her father was crippled with rheumatism for twenty years. Pus was sucked from the tonsils. Suction treatment was started on June 22nd (menthol, aristol, calomel, glycerin). After nine treatments (September 2nd) there was no pus in the left tonsil and the glands had ceased to swell. She looked well, but was still rheumatic.

Between September 27th and October 11th she was given three injections of contramine. On October 18th the pus in the right tonsil was nearly all epithelial debris; there were no polymorphs. On November 1st the rheumatism was wonderfully easier, and on November 29th there was no pus in either right or left tonsil.

On January 3rd, 1928, friends remarked on the wonderful change

in her condition. On January 29th she had mild cholecystitis, which soon yielded to hexamine. There was a little pus on the right tonsil and slight rheumatism in the left shoulder, but nothing like it used to be.

The chronic ill health and rheumatism of this patient was certainly very greatly improved *pari passu* with improvement in the tonsils.

CASE IV.

Miss P., aged 23. This patient had chronic appendicitis. Pus was cleared from her tonsils in seven treatments during two months without influencing the kinked appendix, which was excised as soon as it was convicted. After an untreated interval of three and a half months the tonsils were still clear of pus.

CASE V.

Miss H., aged 25, was a keen athlete, but now too tired, even in the morning, for anything. She had tuberculous dactylitis as a child. There was offensive pus in both tonsils. I thought her tiredness was due to septic absorption, presumably from the tonsils. The pus contained few polymorphs; no pathogenic germs were recognized. On November 26th treatment by tonsil-suction (iodoform, bismuth, and kerosene) was started. After much rest and five treatments she was much better and could skate; there was still slight pus in the right tonsil. On February 1st the tonsils were clean. Ten days later there was a little pus, but her health was better than it had been for six months. On March 30th she said she was "never tired"; there was very slight pus in the right tonsil.

Besides rest, this patient had no other treatment except (later) ultra-violet rays and arsenic, so that it looks as if her ill health had been due to septic tonsils.

CASE VI.

A woman, aged 50, with seven months' constant asthma, which promptly vanished with one cleaning of the tonsils, and the pus almost cleared up in three treatments.

Two other severe and very chronic asthmatics (complicated) are not benefited (so far).

CONCLUSIONS (PROVISIONAL).

Although pus may be demonstrated by this method in many young adults in good health, yet it can hardly be doubted that, when they get older—to the fibrositis age—and less resistant, the infection will accumulate and conquer their resistance, and they will get rheumatism in some form.

I have been using tonsil-suction diagnostically for three years, and should estimate that in patients with fibrositis pus can thus be demonstrated in their tonsils in 90 to 95 per cent. of cases, acting as a focus of subinfection. The tonsils may look quite normal and yet contain pus. The ordinary method of expressing pus with a spatula may be far more painful; one patient said it was agonizing, whereas my method was merely unpleasant. It is a more searching method, and the pus can be seen (and smelt) by the patient. That is an important advantage. If there are infected teeth or sinuses these should first be put right, as the tonsils may then clear themselves.

The method needs trying on a much larger scale and bacteriologically. I have been almost limited to private patients in a consulting practice; so that in these six patients alone has the treatment had a proper trial, except in one lady of 57, where the issue was confused.

In the septic tonsils of adults, the risk of serious haemorrhage after tonsillectomy should be minimized by a preliminary course of tonsil cleaning by suction.

The method is at any rate quite harmless; two of my cases indicate the importance of cleaning the tonsils after a quinsy (or tonsillitis?) and seeing that they remain clean. Six to twelve treatments have usually cleared the tonsils of pus.

My plan is to make the intervals longer as soon as pus ceases to be found; but I cannot yet say whether a few treatments annually will be necessary to keep the tonsils free from pus. Perhaps better pastes will be more effective. Evidently tonsillectomy is the best cure when possible and safe; but in adults it is practically a major operation, and in many patients it is out of the question. Painting tonsils containing deep pus is evidently fatuous. Hence an alternative is most desirable, and seems to be provided by this method, which is available to the general practitioner.

The glass funnels are much more subtle than they look—like golf clubs—and I have had to stand long over the very skilful glass-blower to get them right. Messrs. Reynolds and Branson, Leeds, are the makers.

INTRATRACHEAL INHALATION AND INSUFFLATION OF CHLOROFORM BY MEANS OF A FLEXIBLE METAL CATHETER.

BY

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SOME fifteen years ago I wrote a paper on the intratracheal insufflation of chloroform by means of a gum-elastic catheter. This catheter did not last long, and had to be continually replaced. For some time now, however, Mr. W. S. Kerr, honorary surgeon to the nose, ear, and throat department of the Royal Infirmary, Sheffield, and I have used, instead of the gum-elastic catheter, one made for the most part of flexible metal, and this has given every satisfaction to both the surgeon and the anaesthetist.

The method of administration differs somewhat from the old procedure. The instruments used include a flexible metal catheter, an adapter, a Junker's apparatus, complete with tubes and bellows, and an anaesthetic mask for induction.

The flexible metal catheter is made by Mayer and Phelps in two sizes, No. 12 and No. 16; it is rigid at either end for about two inches, the remaining part being flexible. (See figure.) The internal non-flexible part has an opening at the side, in addition to the end opening. The external non-flexible part, which during action is wholly outside the mouth, is a copy of the internal, except that the external end is somewhat funnel-shaped. The openings at the side are of the same lumen as the catheter, or possibly slightly larger. A blunt metal stylette is provided, the length of which is less than the length of the catheter; this provides rigidity to the catheter during introduction.

The metal adapter (see figure) is made to fit into the funnel-shaped end of the catheter by one end, whilst the other end is attached to the rubber exit tube of the Junker apparatus. The lumen of the adapter is either No. 12 or No. 16 catheter size, according to which size is in use. One Junker's apparatus has all its tubes No. 12 catheter size, and the other all its tubes No. 16 catheter size, for employment with the appropriate size of catheter.

The following method is adopted to induce and maintain anaesthesia.

Preliminary medication is by means of morphine and atropine, which should be injected at least half an hour before induction is commenced. Anaesthesia is induced by means of chloroform dropped on to a mask; this should be fairly deep, because otherwise the patient may come round during the introduction of the catheter into the trachea. When the patient is fully anaesthetized the catheter is at once introduced into the trachea with the aid of a bronchoscope, the stylette being within the catheter.

The catheter having been introduced through the vocal cords, the stylette is at once withdrawn and the catheter attached, by means of the adapter, to the rubber exit tube of the Junker apparatus. There may be some coughing at this stage if the patient has not been sufficiently anaesthetized, but this can soon be remedied by placing the finger over the hole in the rigid portion of the catheter outside the mouth and pumping chloroform vapour into the lungs by means of the bellows of the Junker apparatus. I usually at this stage give three pumps with the bellows while my finger is over the hole, and then remove my finger so that the patient may have a breath of air, and repeat this procedure until the patient is again completely anaesthetized. I do not think there is any danger, at this stage, to the alveoli from excess pressure by this pumping, as there is plenty of room outside the catheter in the trachea to act as a safety valve.

The surgeon now completely plugs the throat around the