This operation should be done not less than six weeks after the first intervention—that is to say, when the cicatrisation of the first is completed, and the tissues have recovered their suppleness and vascularity.

The flap should be thick ; it should be as long as the height of the lip will permit of, and rather wider than the orifice to be obliterated.

The operative technique may be summarised as follows :

(1) Refresh the inferior and lateral surfaces of the cystic cavity with the curette, including also the inferior and lateral borders of the buccal orifice. Do not touch the upper border (Fig. 1).

(2) Trace and cut the flap from the lip with its base above.

(3) Push down and engage the flap across the orifice to be obliterated, the raw surface being brought downwards against the freshened floor of the cavity, the mucous surface being uppermost. This goes to form the floor of the nasal fossa and antrum.

(4) Liberate the two vertical lips of the labial wound and suture with horse-hair or silk. This suture prevents the flap springing back into place on the internal surface of the cheek, and the pressure of the lip against the dental arch maintains it in the cystic cavity (Fig. 2).

After-treatment.—Do not be disquieted by the œdema of the lip and of the cheek which follows the operation. On no account should the sutures of the lip wound be removed before cicatrisation, or the flap will resume its position on the inner surface of the lip and the success of the operation will be irremediably compromised. After assuring ourselves that the scar is sound the sutures may be removed, one by one, after the tenth day.

Success depends upon the adhesion of the raw face of the flap to the floor of the cystic cavity and to the lower and lateral borders of the buccal orifice. The raw surface of the flap left outside of the orifice is epithelialised from the buccal epithelium, and forms the inner wall of the vestibule of the mouth.

The mucous aspect of the flap is entirely enclosed in the old cystic cavity, which thus becomes a diverticulum of the nasal fossa or antrum.

(D. M., *trans.*)

CASE OF LABYRINTHITIS; DIFFUSE PURULENT MENINGITIS; LABYRINTHOTOMY; RECOVERY WITH INTRA-YENOUS AND INTRATHECAL INJECTIONS OF COLLOIDAL SILVER.

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THE patient when first seen had chronic mastoiditis and vertigo with evidence of an erosion of the bony labyrinth, and it was hoped that under rest and local treatment the symptoms would subside sufficiently to observe and analyse his vestibular reactions, etc., and that with even a feebly functioning labyrinth the absence of evidence of infection extending to the membranous labyrinth, a simple radical mastoid operation would relieve him and enable one to avoid any operation on the labyrinth.

The fistula test was positive and the response to caloric tests proved that the labyrinth was functioning at the outset, notwithstanding the loss of all hearing in the affected ear.

It is regretted that the sudden development of acute meningitis prevented fuller observation and testing, but the chronic mastoiditis with the diminishing vestibular response and nystagmus, when a vestibular fissure had been already diagnosed, led to the conviction that the obvious acute meningeal infection was of labyrinthine origin, although, of course, there could be no proof that this was the path of infection short of a *post-mortem* examination. The operation revealed no other apparent route. It was felt safer to proceed at once to uncap the vestibule and open up the cochlea without delay after doing the mastoid operation.

In this case we appear to have a definite labyrinth infection with consequent leptomeningitis. On draining the labyrinth the meningitis began to clear up. Ten days after the operation there was an exacerbation of the headache but no increased temperature. On lumbar puncture the cerebro-spinal fluid was more purulent and thicker than hitherto. The cell-count reached 16,800 cells per cubic millimetre with 90 per cent. polymorphonuclears, showing phagocytosis, and *Streptococcus brevis* was identified. The recovery from this condition was extraordinarily rapid. The technique was alternate intrathecal and intravenous silver injections, until it was observed that the latter appeared more efficacious when intravenous injection only was practised.

The intravenous injection of the colloidal silver preceded the lumbar puncture in order that the withdrawal of the cerebro-spinal fluid should aid the passage of the silver from the blood into the subarachnoid. It is noteworthy that there was a temporary but marked exacerbation of the headache on the tenth day after operation, but this was considered to be due to the discontinuance of the withdrawal of cerebro-spinal fluid by lumbar puncture for a few days, and that this was the cause seems certain, inasmuch as with the resumption of daily lumbar puncture and intravenous injection of collosol argentum the headache rapidly lessened and the temperature became nearly normal. There was no evidence of any fresh infection causing this transient exacerbation.

E. T.—, male, aged thirty-seven, admitted to the Bristol Royal Infirmary on September 23, 1919, complaining of pain in the left ear and dizziness. There was a history of purulent discharge from left ear since boyhood, more foul recently, and he had vomited twice during the previous week. The fistula test positive on the left side. On admission temperature was 100° F., left middle ear full of pus and granulations; he had slight tenderness over left mastoid and slight pain in left occiput. Disinfecting irrigation and drops ordered.

September 25.—Bilateral occipital and supra-orbital headache; vertigo with tendency to fall to the left. Spontaneous nystagmus to left. Left ear absolutely deaf. Patient too poorly for further vestibular and other tests.

September 26.—Feels very giddy. Temperature 100° F., right-sided decubitus. Caloric test (hot), feeble nystagmus to left. A slight vertical twitching of eyes to left on distant accommodation. Too ill for further or precise testing. Occipital headache more marked with some rigidity. Lumbar puncture: 40 c.c. removed, turbid, diplococci present (few cells, 50 per cent. polymorphs). As the patient, with chronic mastoiditis and a vestibular fistula, had evidently developed meningitis, an immediate radical mastoid operation and labyrinthotomy appeared essential. The mastoid antrum and cells contained pus, and the inner tympanic wall was covered with pus and granulations. The external semicircular canal was next laid open and followed forward from the fistulous erosion to the ampulla and

backward to its junction with the posterior, but the superior canal was not laid bare in its entirety, and the first and second turns of the cochlea were opened up externally by burring; the modiolus was not removed. The wound was dressed with collosol argentum gauze packing (in place of the glycerine of carbolic acid drops, etc., hitherto used).

September 27.—General condition fair. Head-retraction and rigidity as before operation. Temperature 100° F. Daily dressing and lumbar puncture.

September 28. Lumbar puncture: 15 c.c. of definitely turbid fluid withdrawn.

October 2.—Headache much better. Wound clean. Lumbar puncture: Cerebro spinal fluid clearing; a few polynuclears.

October 6.—Headache to-day is again severe, with some neck pain. Temperature 99.6° F. Lumbar punctures, having been discontinued, now resumed, and 15 c.c. very cloudy fluid withdrawn under pressure and 1 c.c. collosal argentum injected. Streptococci cultered from cerebro-spinal fluid. The exacerbation of headache appeared to be due to the discontinuance of lumbar punctures for several days. By this time the mastoid wound was clean, and the labyrinthine area covered with healthy granulations, having been continuously dressed with collosol argentum gauze packing.

October 7.—Headache less. 3 c.c. collosol argentum injected intravenously, followed by lumbar puncture and withdrawal of 28 c.c. of turbid fluid under pressure (cerebro-spinal fluid cells, leucocytes 95 per cent., culture sterile). Temperature 99° F.

October 8-17.—Daily lumbar puncture preceded by intravenous collosol argentum 3 to 5 c.c. Cerebro-spinal fluid gradually cleared up. Some incontinence of urine from October 8 to 17, not later. Temperature steadier. Gradual convalescence.

December 6.—Condition generally very good. Walks with no vertigo.

June, 1920.—Patient is at work, in excellent health, and a clean ear. Facial paresis practically recovered.

ANTRAL INFECTION AND MANGANESE.

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SINCE its introduction in 1914, colloidal manganese has proved valuable in a variety of coccal infections, especially in furunculosis and in gonorrhœa (1), (2). McDonagh has formulated a theory to explain its action. Manganese is supposed to circulate as hydroxide adsorbed to colloidal particles of lymph protein. Thus it is enabled to exercise in the animal body the function which is normal to it in some plants, namely, the setting free of active oxygen from organic peroxides (3). This provision of active oxygen is supposed to play an essential part in resistance to infection. Colloidal manganese *in vitro* has no appreciable germicidal action (4).

In subacute and chronic infections of the maxillary antrum and other nasal sinuses it is often of considerable benefit. Especially is it useful in those cases where, although satisfactory drainage of the infected cavities has been secured, an indolent discharge persists. In addition to its apparently specific effect in coccal infections, manganese stimulates the hæmatopoietic function. This, and the slight leucocytosis, etc., which the injection of any foreign colloid will produce, are doubtless important accessory actions.

The technique followed in these cases is as follows: The two stock solutions (5) are mixed by drawing an equal volume of each into a sterile syringe and turning this over once or twice. The colouration of one fluid serves to indicate when admixture is complete. The solution