quantity for one operation), and steeped in 1 per cent. solution of iodine in water for ten days. It is usually sterile in five days, but I say ten, for safety's sake.

At the commencement of the operation, skeins of the sizes required are picked out of the stock jars with sterile forceps, and placed in carbolic acid, 1 in 20, till needed. This dissolves out excess of iodine, which might possibly cause irritation.

The advantages of this preparation over any other variety of catgut that I know of are:

1. Its preparation is extremely simple, and can be carried out quite easily by surgeon or house-surgeon. The advantages of this over suture material prepared by complicated processes by instrument makers and others are obvious.

2. It is very strong, although after it has been kept for several months the very fine sizes do certainly become brittle.

3. It is very resistant, and there is consequently no fear of too rapid absorption.

4. It is beautifully smooth, uniform in diameter, inelastic and delightful to handle.

These characters constitute the main advantages over the other varieties of iodine catgut that I have mentioned, the ordinary Claudius catgut being rough, uneven, and brittle, and the Salkindsohn being soft and elastic, and consequently unsatisfactory for tying knots.

Owing to its tensile strength and its resistance to absorption quite fine sizes can be used, and so the difficulty of threading needles is overcome. For instance, for skin sutures the No. 000,000 is used. This does not become absorbed for eight to ten days if the wound is dry, and thus lasts long enough to ensure firm union but does not require removal. Moreover, being very fine, the stitch holes soon disappear. For intestinal work, peritoneum, etc.—the No. 00 is used and has given complete satisfaction. For muscles, aponeuroses, and tendons, etc., the No. 1 or No. 2 is used. This is not absorbed for quite a month, as is shown by the fact that on two occasions when it became necessary to reopen abdominal wounds on the twenty-fifth and twenty-seventh day after operation respectively, the No. 2 catgut sutures that had been used for muscle and aponeurosis were not only not absorbed but were still quite strong.

In addition to the advantages that I have already mentioned, it may be noted that there has been no case of tetanus, or disease simulating tetanus, in all the hundreds of cases in which this material has been used.

CHRONIC OEDEMA OF THE FACE AND MUCOUS MEMBRANES.

By JAMES ADAM, M.A., M.D.,

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CHRONIC oedema of the face is not a common condition, and, although Sir Jonathan Hutchinson¹ clearly described it in 1883, its true nature, and still more its appropriate treatment, have not been sufficiently understood. This is obvious, not only from the fact that the two cases now recorded had been to many doctors, specialists and hospitals, without benefit, but also from the fact that, regarding two cases, apparently similar, recently exhibited in London and New York, most divergent opinions were expressed, especially as to treatment.

CASE I.

My first case² was a joiner, aged 22, who had suffered from the condition for nearly three years. In 1902, scab formation began to trouble him at the orifice of the left nostril; in 1903, swelling began at the inner canthus of the left eye, and slowly increased, involving the cheek and side of nose. By his doctor's advice he had six teeth extracted. In 1904 he saw two specialists in Edinburgh.

In 1905, when I first saw him, solid oedema extended from eye to mouth, and from the nose over the whole cheek; it caused him much mental misery owing to the disfigurement. There was no pain or tenderness, but occasionally a feeling of heat and a red flush; the edges of the nostrils, especially the left, were covered with thick, hard crusts; the mucous membrane of both inferior turbinals was much thickened, that on the right showing a growth, like a small cherry, occluding the nostril. The tissue of the soft palate and uvula was much thickened; adenoids were still present.

I regarded the condition as one of eczema of the nostrils, with a chronic erysipelatous process grafted on it, and asked Dr. Alex.

Morton to see the case. He agreed with me, and the treatment we adopted was the removal of crusts in the nostrils with H_2O_2 , followed by application of $AgNO_3$ dissolved in sp. aeth. nit., and by Brooke's ointment; reduction of turbinal hypertrophy, removal of adenoids and tip of uvula; application of mercurial ointment to cheek, overlaid with cotton-wool and a firm elastic bandage; iodide and thyroid internally.

After two months the oedema disappeared, and remains cured; there is still slight thickening of the soft palate and inferior turbinals.

CASE II.

The other case was referred to me at Glasgow Royal Infirmary by Dr. Morton, Dermatologist to the infirmary. A woman, aged 22, had had chronic oedema of the left cheek, upper lip, and the left lobule of the nose for four years, had attended several hospitals, and seen nine doctors. The oedema, especially that of the upper lip, was very disfiguring; crusts were found inside the left nostril, and an ulcerated groove down the centre of the mucous surface of the upper lip, due to the sharp and carious edges of the everted central incisors.

The treatment adopted was similar to that in Case I, but the lip proved somewhat obstinate, owing to difficulty in dealing with the teeth. It has taken six months to cure the case. The antrum was healthy. A culture from the labial fissure gave mixed staphylococcus and streptococcus; a vaccine was prepared accordingly by Dr. J. A. Campbell, and four injections given at twelve-day intervals, and then discontinued. The condition was improving by this time, but whether the injections had material influence is doubtful.

The tumour-like tissue from the first case was kindly examined by Dr. R. M. Buchanan, Bacteriologist to the City of Glasgow. He reported:

At one point there is some superficial ulceration; here there is distinct cell proliferation; also the orifice of some of the mucous ducts is distended with retained secretion. The structure of the tissue is dense fibro-cellular, very vascular, and rich in mucous glands. The numerous irregular channels are venous and not lymphatic; no lymphatic obstruction can be definitely recognized; no evidence of bacterial invasion; no streptococci after culture.

This report cannot be regarded as conclusive for various reasons, of which the only one that need now be mentioned is that the tissue was intranasal and some distance from the primary seat of invasion, and therefore not certain to show the essential lesion.

Sir Jonathan Hutchinson, when in 1883 he first drew attention to cases of solid oedema of face, expressed the opinion that the condition was due to recurrent attacks of erysipelas, and of the same nature as elephantiasis. In 1888 he said that the condition in all typical cases ought to be symmetrical; if only on one side of the face, some local cause ought to be suspected; that the attacks of erysipelas which produce these conditions are in some cases very frequent, and usually attended by great swelling; after each attack more and more deformity is left. "The treatment is the liberal use of tonics, and especially of steel, and the avoidance of sudden changes of temperature. If it occurs in early life, I think it is generally outgrown in the end."

I wish to point out (1) that the disease is a local and not a constitutional one; (2) that, so far as the face is concerned, the primary lesion is probably always one of a mucous membrane, or more usually of a mucous orifice; (3) that the oedema may affect the mucous membrane as well as the skin; (4) that the condition is curable.

That the condition has nothing to do with any constitutional dyscrasia seems obvious from the clinical history of the cases, from the results of local treatment, and from the fact that in most of the cases no constitutional taint has been discoverable in either the family or personal history. Both of my patients are of excellent physique. Erysipelas of the face in most cases starts from some fissure about the nose, less usually from about the eyes or ears; when frequently recurrent the nose ought always to be carefully supervised; in this way recurrence can often be prevented. Several of the published cases, as well as both of mine, had crusts in the nostrils.

That the offending microbe is always the streptococcus is not proved, but it is the most likely. In any case, there is a chronic infective lesion of recurring potency, and the "solid oedema" is obviously a local defensive barrier against systemic invasion. That such an oedema, therefore, should be, as Hutchinson suggests, symmetrical in typical cases, is unlikely; it was not in either of mine. That chronic oedema of such origin should appear in mucous membrane as well as in skin is likely, but does not seem to have been definitely stated; yet it is well

known to occur in connexion with acute lesions. In their recent elaborate report on the oedemas of the larynx, Bourgeois and Egger³ mention, among chronic lesions, only tuberculosis, syphilis, and cancer. With regard to his case of solid oedema of face, Mr. Herbert Tilley expressly said that the nose was normal, so far as he could see; but, curiously enough, at the same meeting of the Laryngological Society in 1906, Mr. Scanes Spicer showed a case of chronic oedema of the larynx in a teacher, almost certainly not tuberculous, and he raised the question whether it might not be a septic infection of dental origin. Halsted's remarkable case, shown to the American Laryngological Society in 1908, is most interesting in this respect:

A woman of 30, with personal and family history absolutely free of all constitutional taint, had a peritonsillar abscess; this had not cleared up four months later, when some pus was let out from the anterior pillar, and there was thickening of the soft palate and over the arytenoids, and crusts in the right nostril; a month or two later excoriation of the nostrils was noticed; three years later the condition was still the same, fissure and redness at tip of nostril; again, at five years' date from the quinsy, the same condition, except that the patient had just had "an attack of what her physician diagnosed as facial erysipelas, differing from erysipelas in that a thickening of the lip and of the skin over the cheeks persisted after the active disease had subsided." She has recently had five or six of these erysipelatoid attacks with increase of oedema over face. Her physician, Dr. Dana, had given up his idea that the attacks were erysipelas; Halsted regarded them as a persistent angio-neurotic oedema involving the face with "some underlying cause, constitutional or local, some dyscrasia, the nature and source of which we do not know."

The interest of this case is that, first, we have an infective focus in the mucous membrane remaining uncured for four months; by this time an oedema of the surrounding mucous membrane indicating spread of infection has developed, and remains confined to it for three years; then the characteristic solid oedema of the face develops, with crusting of nose and typically recurrent erysipelatoid attacks. Angio-neurotic oedema is something quite different, and depends on a toxæmia usually of intestinal origin; as Bourgeois and Egger say, "Il suffit de la connaître pour poser le diagnostic." It is clear, then, that a chronic septic infection of a mucous membrane or about a mucous orifice may cause oedema of the membrane long before it affects the skin; this almost certainly happened in both my cases.

The essential point in treatment is to get rid of all septic foci; till this is done attempts to deal with the oedema are worse than useless. Crusts about the nostrils are best got rid of by H₂O₂ solution; the surface is then dried, AgNO₃ dissolved in sp. aeth. nit. immediately applied to fissures, followed by an antiseptic ointment. For the oedema I have used ung. hydrarg. co.* covered with cotton-wool in thick layer, and pressed down by cotton elastic bandage; this only at bedtime. This treatment was continued for months, and was considered more important than the iodide or thyroid which were given internally.

REFERENCES.

¹ Sir J. Hutchinson, *Medical Times and Gazette*, 1883, I, p. 4; also *Illustrated Medical News*, October 20th, 1888, p. 82. ² This case was shown at the Glasgow Medico-Chirurgical Society, May 3rd, 1907, *Transactions*, vol. vi. ³ Bourgeois and Egger, *Les oedèmes du larynx*, *Revue Hebdomadaire*, May 22nd, 1909, p. 611.

SUPPURATION TREATED BY VACCINES.

By S. MALLANAH, M.D. EDIN.,
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CASE I.

A LABOURER, aged 40, with a chronic varicose ulcer of the right leg of one year and a half duration, came for treatment at a local dispensary. The ulcer had a very unhealthy appearance, was somewhat circular, being in diameter 2 in., and resisted the routine antiseptic treatment for nearly a month. I isolated a pure culture of *Staphylococcus pyogenes aureus* from the discharge, and prepared a vaccine containing 100 million of organisms per c.cm. On August 15th, 1907, half a c.cm. of this vaccine was given subcutaneously in the right thigh. On August 16th, 1907, there was a profuse discharge, and on August 17th a scab formed over the ulcer, and no dressing was applied. On August 21st the scab fell off, and I was astonished to see the ulcer completely healed.

* Dr. Morton prefers Brooke's ointment: Acid. salicyl., gr. 30; ichthyol., gr. 60; ung. hydrarg. oleat. (5 per cent.), pastae zinci co., 3ss.

CASE II.

A patient, aged 56, suffering from a large carbuncle on the back. He was weak and anaemic, and had a temperature of 101° F. The size of the carbuncle was 10 in. from above downwards and 9½ in. from side to side. There were about forty apertures scattered all over the surface, through which thick slough could be seen. The skin around was brawny in appearance. The urine was free from sugar. *Staphylococcus pyogenes aureus* was isolated from one of the pustules, and a sterilized emulsion, containing 10 million organisms, was prepared and injected in the arm on October 6th, 1907. On October 8th, 1907, all the apertures became larger, and there was free discharge of thick fluid pus from every opening. The growing edge seemed to become somewhat paler. On October 11th a second injection was given subcutaneously, the vaccine fluid containing 20 million organisms. On October 14th all the apertures were found suddenly closed up—that is, healed—and a big slough was left in the centre. On October 18th a third injection was given, containing 20 million organisms. On October 20th, 1907, a big gap formed in the centre, and the whole of the slough was extruded through it. There was a big cavity left, covered with granulations, which communicated with the exterior through a large opening in the centre. On October 24th a fourth injection, containing 30 million organisms, was administered. The whole cavity healed, leaving a central oval ulcer, which became covered with healthy granulations, and on November 17th, 1907, the whole was completely cured.

CASE III.

An officer in the Revenue Department, aged 37, suffering from diabetes for a number of years, consulted me in the month of February, 1908. He had a large crop of boils upon the thighs and legs, and was passing 4½ pints of urine a day, containing 20 grains of sugar to the ounce. *Staphylococcus pyogenes aureus* was isolated from one of the boils, and a vaccine containing 20 million of organisms per c.cm. was prepared. Three injections, repeated every fifth day, completely cured the crop of boils. The quantity of sugar fell to 5 grains an ounce during treatment, although the diet was not changed.

CASE IV.

A man, aged 60, belonging to the Customs Department, presented a carbuncle about the size of a fist, situated over the front of the chest on the right side. He complained of frequency of micturition, and the urine contained a trace of sugar, which disappeared later on during the treatment. *Staphylococcus pyogenes citreus* was isolated, and four injections of sterilized emulsion of this organism given every four days completely cured his condition within sixteen days. The first injection was given on August 11th, 1908. The vaccine contained 20 million organisms per c.cm. The rise of temperature recorded was only 100° on the day of inoculation: during the treatment a crop of boils, four in number, developed on August 15th, 1908. One appeared over the left upper eyelid, one on the left cheek, one over the right forearm, and one over the belly above the umbilicus. All these boils aborted after the third injection. The opsonic index was taken in this case only, it was 0.6 before injection, and after injection it rose to 1.2.

CASE V.

A diabetic, aged 42, suffering from abscesses and boils for nearly a year, consulted me in September, 1908. He had been operated on several times without much benefit. He was passing 4 pints of urine daily, containing 30 grains of sugar to the ounce. The abscess was about the size of an orange; a small opening was made to allow a free flow of pus, because in a closed abscess an outlet is always necessary for the free discharge of pus, which increases a few days after the vaccine. Three injections of *Staphylococcus pyogenes aureus* isolated from the pus of the abscess cavity completely cured the abscess and the boils. There was a considerable reduction of sugar during the treatment. The opsonic index in diabetes is generally very low, varying from 0.3 to 0.6, and hence vaccine inoculation will be very useful in cases of diabetes to protect them from getting boils if used prophylactically.

CASE VI.

I was consulted in March, 1908, as to a boy aged 15 who was in a very low state of health, and had on the inner side of the left cheek cancrum oris, which was rapidly increasing in spite of the local application of strong nitric acid. His condition was considered hopeless at the time. Three injections of vaccine prepared from staphylococci isolated were given every third day, and completely cured the malady within fourteen days.

CASE VII.

A girl aged 10 suffering from suppurative of the middle ear for more than two years was completely cured by six vaccine injections of *Bacillus pyocyaneus* isolated from the case, and given every fifth day in May, 1909. In this case every other treatment was useless.

THE Lord Mayor of London laid on September 22nd the foundation stone of a home for the nurses of the City of London Asylum at Stone, near Dartford, to be built in the grounds of the institution. The object of the home is to provide the nurses with a place of recreation and rest apart from the asylum building.