A NOTE ON PROGNOSIS IN TETANUS.

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The undernoted cases admitted to the septic wards present some points of interest. Both were under treatment or observation when symptoms of tetanus appeared. Antitetanus serum was used freely in each, and yet the course of the disease and the results of the treatment were quite different.

The following histories are founded on the notes made by Drs. Muir and Sinclair respectively:

CASE I.—J. K., aged 52, miner, was admitted on January 6th, 1909, with a large fungating mass on the outer aspect of the left thigh of two years' duration. He complained more, however, of pain in the stomach of a fortnight's duration. A large tender swelling was found in the hypogastric and left iliac regions. The patient looked ill and perspired freely. An enema was given with little result; the bowels had not moved for four days. Pulse 111, temperature 100.6°. The patient gives a history of having been in the Royal Infirmary two months earlier, when he was advised to have the leg amputated. I found marked tenderness and rigidity of the abdomen, and rigidity also of the muscles of the lower jaw and of the extremities. He was given a dose of croton oil and an injection of antitetanus serum. Films were prepared from the surface of the epitheliomatous mass, which showed the tetanus bacillus in large numbers. Under treatment by antitetanus serum and the daily application of hydrogen peroxide the rigidity gradually passed away, and by February 5th we were able to disarticulate the leg at the hip. The patient is now well.

CASE II.—J. K., aged 38, calendar finisher, was admitted on April 18th, 1909, from the dispensary, complaining of stiffness of the jaw and back of the neck of one day's duration. On Saturday, April 10th, he fell on the point of his thumb, which he dislocated at the interphalangeal joint; the skin was broken, and the head of the second phalanx protruded through the aperture. Evidently the parts had been for about an hour in this state before he came to hospital. At the dispensary the finger was steeped for half an hour in 1 in 40 carbolic solution. The dislocation was then reduced and a wet dressing applied. The finger had been dressed daily since. Suppuration started in the finger, which became red, swollen, tense, and painful. On April 17th the opening at the joint was enlarged downwards to allow the pus to escape. On admission the patient was complaining of pain in the upper left part of the abdomen and there was marked rigidity of the abdominal wall. The legs and arms were not rigid. The bowels had not moved for three days. Pulse 120, temperature 99°. Nasal feeding was tried, but was unsuccessful. An enema was also given without result; 30 grains of chloral were administered per rectum, with a nutrient enema of peptonized milk. On April 19th, in the morning, he had a spasm. Chloroform was given, and during the administration pulse and respiration ceased, but were ultimately re-established. Nutrient suppositories were given every two hours. At 9.15 a.m. next day he had another spasm. He became cyanosed, and respiration was difficult. The pulse became weak and could hardly be felt. There was not marked opisthotonos. Shortly after this the pulse could not be felt and the respirations stopped. The patient died at 9.30.

On comparing these cases it seems evident that the difference in the result was due to the difference in the site of the infection and the resulting difference in the facility for multiplication afforded to the bacillus. In Case II on *post-mortem* examination pus was found in the tendon sheath, extending to the elbow, a condition which could not be diagnosed clinically, and was not even anticipated by the pathologist, but found when looked for. In pus taken near the elbow the tetanus bacillus was discovered.

The conclusion to be drawn from these cases is that the synovial fluid of the tendon sheath is an excellent medium for the growth of the tetanus bacillus, and that steeping in 1 in 40 carbolic will not prevent the occurrence of tetanus if the tendon sheaths are exposed. When tetanus has occurred, also, the sheath of the tendon should be freely opened up, even although there is no apparent necessity to do this. From Case I also it is evident that hydrogen peroxide is capable of destroying the tetanus bacillus when it can be reached. Whether the antitetanus serum was of any value or not it is impossible to say.

I am indebted to Dr. Robert Taylor for permission to publish Case II, the patient being under his care.

The late Miss Annie Marples, of Broomfield, Sheffield, has bequeathed £2,000 each to the Sheffield Royal Hospital, the Sheffield Royal Infirmary, and the Hospital for Women at Sheffield.

THE STERILIZATION OF THE SKIN OF OPERATION AREAS.

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Most surgeons will admit that occasional cases of suppuration occur in their practice for which they are unable to account. The most frequent are small stitch abscesses. They are generally attributed to the suture material, but I venture to think that such blame is often misplaced. Of all our preparations the one least under control is the sterilization of the skin. It is impossible to perform or even to supervise the process, and we are therefore dependent upon the assistant or nurse who undertakes the duty. The results we obtain prove that it is efficiently carried out in the majority of cases, but it is improbable that amongst a large number occasional defects will not occur.

The ideal method is one which can be inspected by the operator or one which will leave visible proof that it has been thoroughly carried out. If a substance could be discovered which would render the skin sterile when painted over it and leave a visible stain there would be little chance of error.

Thinking of this I was much interested in an article describing the method of skin sterilization with iodine, as used by Dr. A. Grossich, of Fiume, in the *EPITOME* of the *JOURNAL* for November 21st, 1908. It was again brought before your readers by Major Porter on February 6th, 1909, and in the following week Mr. Goodwin informed us that it is used in the clinic of Professor von Eiselsberg in the *Allgemeine Krankenhaus* at Vienna. The method appeared to me exactly what I desired. I was, however, very sceptical as to its efficiency, and I could not bring myself to paint such a strong solution of iodine as recommended (10 per cent.) on the skin, especially as it was directed to repeat it twice. I have seen acute dermatitis follow a single painting—a condition I should not like to produce about an operation wound. It struck me that perhaps a weaker solution might be sufficient, and I accordingly decided to try the tincture of iodine *B.P.*, which is about a quarter of the strength.

I commenced with minor cases, but I was soon so well satisfied that I extended it to others. During two months I have used it in upwards of 50 cases, the particulars of which are given in the table on page 369.

Where a "perfect" result is recorded, there was primary union without any suppuration, stitch abscess, or inflammation. In two cases there was some separation owing to deficient skin, which caused a granulating wound, but otherwise they healed immediately. Three of the goitre cases were discharged from hospital in a week.

The cases described as satisfactory were septic at the time of operation. The two cases of appendicitis were suppurative ones, requiring drainage. The colostomy wound was, of course, immediately subject to faecal contamination, and the same applies to the three colotomies, as they had to be opened immediately. All of them healed with a minimum of inflammatory trouble.

The ages of the patients varied from 2 months to 84 years. In none of them did the iodine application cause the slightest discomfort. The cases are fairly representative, and include some of the most anxious—knee-joint, fracture, hernia, etc.

If we disregard the 6 septic cases, there remain 51 consecutive successes and no failure.

The method I adopt is to paint a wide area of the surface to be operated upon with the iodine solution previous to the administration of the anaesthetic. It is painted on very freely, especially over hairy parts, and allowed to soak in. It is again painted immediately preceding the operation. After the stitches are inserted they are painted over for a margin of an inch all round.

The first and only dressing is usually made on the eighth day; the stitches are then removed, and the line of incision with a margin of 1 in. is painted with the iodine solution. If for any reason the wound requires to be inspected at an earlier date, it is painted as above described.

No previous preparation of any kind is undertaken—no bath, no scrubbing, and no shaving. The latter is an

Operations Performed with Iodine Skin Preparation.

Operation.	No.	Result.
Amputation, thigh	1	Perfect.
Amputation, breast... ..	2	"
Appendicitis	2	Satisfactory.
Appendicostomy	1	Perfect.
Colostomy	1	Satisfactory.
Colotomy	3	"
Epithelioma of lip	1	Perfect.
Fracture, malunited	1	"
Glands in neck	2	"
Goitre	5	"
Hernia, strangulated	1	"
Hernia, radical cure	6	"
Hydrocele, radical cure	2	"
Incisions in fingers	2	"
Injections of antitoxin	4	"
Knee-joint exploration	1	"
Laparotomy exploration	1	"
Laparotomy, mesenteric glands	1	"
Laparotomy, ruptured tubal	1	"
gestation		
Osteotomy, femur	1	"
Paracentesis thoracis	1	"
Plastic operations	2	"
Trephining	2	"
Tumours, subcutaneous	7	"
Varicose veins	6	"
Total ... 57		

important point, because it saves the patient a good deal of after-discomfort. This is at variance with the method previously referred to, and combined with the weaker solution of iodine constitutes the difference.

The solution I use is made of 1 part of liq. iodi fort. B.P. and 3 parts of spirit. The spirit is made by mixing equal parts of spt. vini meth. and distilled water. It is practically the same strength as the tincture of the B.P., but is cheaper, owing to the use of methylated spirit. This is a consideration not to be neglected in a hospital where large quantities are used.

I have no means of verifying my results by bacteriological investigations, but practically they are so uniformly satisfactory that I feel justified in bringing them forward. My reasons for advocating the use of iodine solution are:

1. That it is an efficient method of skin sterilization.
2. The surgeon can be absolutely certain that it has been applied.
3. It is quickly and easily applied.
4. It saves the patient the suffering of a preparation which is at present very lengthy and very disagreeable.
5. It obviates the necessity of shaving, which is unpleasant at the time and causes considerable irritation afterwards.
6. It saves an enormous amount of labour upon the part of assistants and nurses, and consequently a lessened expenditure.
7. It saves the cost of preparatory materials and dressings.
8. It can be used in emergency cases where preparation by the usual method is impossible.

SIR FREDERICK TREVES has intimated that a scheme to bring the British Red Cross Organization into more intimate association with the Territorial Forces will shortly be issued. It is understood that the scheme will be carried out through the county associations and the county committees of the British Red Cross Society.

SEVENTY-SEVENTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Belfast on July 23rd, 24th, 26th, 27th, 28th, 29th, and 30th.

PROCEEDINGS OF SECTIONS.

SECTION OF NAVY, ARMY, AND AMBULANCE.

Fleet Surgeon JOHN LLOYD THOMAS, R.N., President.

PRESIDENT'S INTRODUCTORY REMARKS.

It is my proud privilege to extend, on behalf of the British Medical Association, a very hearty welcome to all who are present to-day at this Sectional meeting, and in particular to say how glad we are to hail, with friendly hand, those delegates who are amongst us from over-sea countries and who in that way join forces with us in what is the chief object of this—like all periodical meetings of the kind—research.

The British Medical Association, I need hardly say, is ever on the alert for and spares not any pains whenever and wherever the opportunity offers of improving the conditions which make for the advancement of medical and surgical science, and we of this Section, as a dutiful child of that Association, have our part to play, and I fervently hope that, during the next three days we shall have so conducted ourselves by inquiry and by free discussion of the excellent papers which are prepared for you on each day that the parent may not be disappointed in its offspring.

These papers show much devotion and keen perception on the part of the authors, and variety characterizes them.

For obvious reasons, individuality will be found in all such contributions, and sometimes the right meaning of the author may be a little clouded, and, of course, the opinions expressed are his own, and must not of necessity be accepted on that account; for these reasons, let us have free and friendly analysis, for wholesome criticism must make for betterment, even where a paper is originally good. The more the caloric the better the steel!

As the majority of those attending this Section are of the army or navy, and have in consequence been at one time or another closely associated with the medical officers of the various nations of the world, I take this opportunity of reminding the Section of the gigantic strides made, in this instance by our American cousins, in the realm of preventive medicine. It is only recent history how that Cuba, once the hotbed of yellow fever, has been lifted out of the Slough of Despond and been placed on a working footing with the other West Indian islands; this by the strenuous and most rigid observation of modern sanitary methods.

Much more recently, indeed at the present moment, the American Government is showing its comprehensive capabilities from the point of view of practical sanitation for stamping out once more that fell disease, yellow fever, on the arid and vast plains of Panama, where, in the days not far distant (when De Lesseps endeavoured to lay a course for its waterway), the white man found his grave, when the death toll generally was more appalling than we can afford to be reminded of with equanimity. Now, thanks to the glorious advancement of medical science, this veritable graveyard is again populated by white men (and women, too), who go about their business and make it possible for the engineers to face the problem of establishing a communication between the Western Ocean and the Far Eastern Seas.

Bacteriological research having taught us in recent years that *Stegomyia* mosquitos are the bearers of yellow fever, the destruction by the prevention of breeding of these pests, in addition to the most careful and studied protection