sence of gas in the peritoneal cavity, and against perforation of the stomach, was the persistence of the vomiting. But above all, the characters of the collapse, commonly in perforation the initial collapse is succeeded for a time by a stage of reaction and fever due to the peritonitis which is set up, and the symptoms come on quite suddenly; here the symptoms were of gradual onset, and no signs of reaction appeared.

If there had been perforation, it must have been into the lesser sac of the peritoneum or some other circumscribed space shut off from the general abdominal cavity. This would have been still less consistent with the profound and persistent collapse.

The second supposition was that the case was one of acute intestinal obstruction. Against this was the absence of any swelling of the abdomen and of regurgitant vomiting of intestinal contents; though the patient vomited frequently the vomit was small in quantity, and consisted only of stomach contents, being chiefly milk; not even bile was ejected. This seemed inconsistent with intestinal obstruction, however high up it might be. Moreover, there was no positive evidence of intestinal obstruction. The patient said he had been constipated for three or four days, but the bowels acted with an enema and afterwards spontaneously. Nothing, too, but an acute strangulation could have caused such intense collapse, but the onset, which was somewhat gradual, was quite unlike this.

I think, therefore, in this case a diagnosis was by no means impossible. Fortunately the collapsed condition of the patient saved him from fruitless laparotomy, which has been done in several similar cases.

One sign which is sometimes present could not be detected—namely, fulness or swelling in the epigastric region; but our patient had his abdominal wall and mesentery so loaded with fat that the retroperitoneal bulging could not have been felt.

The characteristic symptoms, then, of the disease are these—epigastric pain and tenderness, which may as in this case be at first only of moderate intensity, and resemble the pain of gastric catarrh, but may be very severe from the outset; then vomiting, but the vomit does not present the characters of the regurgitant vomiting of intestinal obstruction. There is usually constipation, but sometimes diarrhoea; there may be fulness or swelling in the epigastrium, but no general distension or any signs of the presence of gas in the abdominal cavity. The tenderness is mostly limited to the epigastric region. Fever is inconstant, and with the collapse the temperature falls. The fatal collapse may set in as early as the second day, more commonly on the third or fourth.

The last point to be considered is the treatment, about which there is little to be said. We have no means of controlling an acute internal infective inflammation; we can only aim at counteracting the effects and obviating the tendency to death.

The fatal collapse in these cases is probably to be attributed to interference with the functions of the great sympathetic ganglia and consequent vasomotor paralysis of the mesenteric vessels and the draining into them of a large part of the blood, together with cardiac inhibition, and the only chance would be to tide the patient over this dangerous period and give time for the inflammation to subside or become limited; in the suppurative or even the gangrenous form this appears to take place. We must then use those means which are usually employed to combat collapse, alcoholic stimulants administered by the mouth or rectum, hypodermic injections of ether and strychnine, morphine to relieve pain; we might perhaps with advantage have recourse to those other remedies which recent experiments have shown to have the power of controlling the vasomotor paralysis and of stimulating the heart. Of these, according to Dr. George Oliver, suprarenal extract is the most powerful. Pressure on the abdomen is also an effective agent, and perhaps, if applied gently and uniformly by a suitable binder might be borne by the patient. At all events we must endeavour to make an accurate diagnosis, and so avoid the risk of hastening the fatal event by useless laparotomy.

A MONUMENT is about to be erected to the celebrated physiologist, Johannes Müller, in his native city of Coblenz. He was the son of a shoemaker, and was born in 1801.

A CASE OF ACUTE HÆMORRHAGIC SEPTICÆMIA TREATED BY ANTISTREPTOCOCCUS SERUM.

BY

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(With Note on the Mode of Preparing the Serum, by T. J. BOKENHAM, M.R.C.S., L.R.C.P., late Research Scholar, British Medical Association.)

It appears desirable to publish at once the following case in the interest of those who make *post-mortem* examinations or are otherwise exposed to septic infection.

HISTORY OF THE CASE.

Dr. G. M., aged 30, pricked his thumb in making a *post-mortem* examination on a case of suppurative peritonitis at 1.45 P.M. on Monday, June 8th. At 7 P.M. the thumb began to throb, and during the evening this throbbing increased to burning pain, and between 9 and 10 the red lines of lymph duct inflammation had extended as far as the axilla, and the glands in this region were enlarged. At 4 A.M. on June 9th pain and tension of the pad of the thumb were so great that nitrous oxide gas was given and an incision made. Previous to this vomiting had occurred, and there had been several shivering fits. The temperature at 7.30 A.M. was 103° F.

At 9.30 A.M. he was seen by one of us. The whole body was covered with a scarlet septic erythema; the face was puffy and the eyes suffused. The patient complained of severe shooting pains up the arm, and in the intervals of pain was listless and drowsy; the temperature was high and the pulse rapid and soft. It was arranged at once to take him as soon as possible to St. Thomas's Hospital, where he was admitted about 3 P.M.

The condition gradually got worse, and on the evening of the following day (June 10th) the temperature was 104.7°, and the pulse 150, soft, feeble, irregular at times, and running. The rash was very brilliant, and hæmorrhagic in places. All day drowsiness had been a marked feature, and the respiration was more rapid than normal, and occasionally jerky. Nourishment was taken with difficulty. There was soreness of the throat, which was of a brilliant red colour. During the day vomiting occurred several times, and also slight bleeding from the nose. Coughing, too, was troublesome, and he hawked up blood-stained mucus from the pharynx. There was no swelling of the thumb, and no discharge of pus from the incision, but there was great pain and tenderness along the forearm and arm, though without obvious swelling or œdema. The axillary glands were large and tender. The red lines were obscured by the rash, but the hard lymph cords could be felt. There was frontal headache and the mind was clouded. The tongue had gradually become coated and dry, and was passing into a typhoid condition. There was slight albuminuria.

At midnight (June 10-11th) 3.5 c.cm. of antistreptococcus serum (Burroughs and Wellcome) were injected. This was repeated every four hours. Six hours after the first injection (6 A.M., June 11th) certain indications of improvement were manifest:

1. The mind was clear, and the headache had disappeared.
2. The respiration was regular and less rapid.
3. The pulse was slower.
4. The tongue was moist along the edges.

June 11th. All this day the temperature was continuously 104° F. Cold sponging, which was done several times, had no real effect. The tongue continued to clean, but a smart attack of epistaxis occurred. The rash was still as bright, and the blotchy subcutaneous hæmorrhages were more evident. Towards evening, after the epistaxis occurred, the pulse became much more rapid and weak, and gave rise to much anxiety. Strychnine and digitalis were ordered every four hours.

During the night the temperature dropped, but much pain and some swelling were noticed in the ball of the thumb, and there was tenderness above the wrist on the radial side, with

slight œdema. Notwithstanding the bad night the general condition was better.

On June 12th the skin was moist, and the tongue was steadily cleaning from the edge, leaving a marked pink moist surface, such as is seen on the throat in diphtheria when the membrane clears under the use of antitoxin. Chloroform was given by Mr. Tyrrell, and an incision into the thenar eminence, opening the sheath of the tendon, was made; also one over the first phalanx of the thumb. The parts, though swollen and tense, contained no visible pus. At midday the dose of antitoxin was doubled, 7 c.cm. being injected every four hours.

The chart will show from this date the gradual convalescence of the patient. No further incisions were necessary, the swelling and œdema above the wrist gradually disappeared, and the incisions all began to heal without any visible discharge of pus. The rash did not disappear entirely until June 16th.

REMARKS.

The use of the antitoxic serum appears to us to have produced the following effects:

1. The mind became clear notwithstanding the high fever.
2. The frontal headache ceased.
3. The tongue began to clean and become moist from the edge until it was clean, moist, and of a peculiar pink colour all over.
4. The pulse became slower and of better quality.
5. The respiration was slower and never jerky afterwards.
6. The skin, which was dry and burning, became moist, and sweating occurred.
7. The wounds healed without suppuration; and the threatened inflammation of the great synovial sac under the anterior annular ligament subsided.

Every care was taken to asepticise the syringe used for the injection, to cleanse the skin at the site of injection, and to maintain the sterility of the serum by keeping it in ice, and

using other obvious precautions. The injections were given into the loin and abdominal wall. Notwithstanding the large number of injections (28 in all, 8 of 3½ c.cm., and 20 of 7 c.cm.), no local reaction has occurred at all except a fleeting urticaria limited to the site of injection, which was noticed once or twice, and did not produce any inconvenience.

The recovery of this case would seem to encourage the employment of the antistreptococcus serum in many other serious surgical conditions. Amongst many others, the following occur to us: fracture of the skull with risk of suppurative meningitis, acute necrosis, acute septicæmia or pyæmia from any cause, rapidly spreading gangrene or cellulitis, erysipelas, general suppurative peritonitis, and septic complications of middle ear disease.

With regard to dose, we should be inclined to commence by injecting a large one—say 20 c.cm.—and then to give a smaller dose—say 7 c.cm. every four hours. After most of the injections given in the above case, the temperature temporarily dropped, but soon rose again, and we fancy that it is of great importance to give the injections frequently.

We append a note by Mr. Bokenham, who supervised the preparation of the serum, as to the animal from which it was obtained, the method employed to immunise the animal, and the tests carried out to estimate the antitoxic value of the serum from the immunised animal.

ADDITIONAL NOTE ON THE PREPARATION OF ANTISTREPTOCOCCUS SERUM BY T. J. BOKENHAM, M.R.C.S., L.R.C.P.

Practitioners in this country have as yet had but little experience as to the effects of serotherapy on pyogenic affections. Reports have certainly appeared in the medical journals of isolated cases treated in this manner, but the supply of serum has been altogether too scanty to allow of anything like an extended trial of its merits. The whole matter is therefore still more or less in the experimental stage

On the Continent, thanks to the energetic labours of Marmorek and of Henri Roger, both of Paris, it has been possible during the past twelve months or so to observe the influence of "antistreptococcus serum," on a considerable number of affections and symptoms directly or indirectly due to the presence of streptococci. Reference to several publications bearing on the subject will be found at the end of the present note. It may be stated generally that these nearly all tend to show that, given a carefully prepared and tested serum such as that issued from the Institut Pasteur, the serotherapy of pyogenic affections may be expected to yield results superior to those obtainable by any other mode of treatment.

The very remarkable case above reported cannot fail to attract the attention of others to this mode of treatment, so that although it had been originally my intention to refrain from making even a preliminary statement on the subject of streptococcus serotherapy until a larger amount of evidence was forthcoming as to its value, I feel that further delay is no longer justified.

I have therefore endeavoured to set forth in the following notes a brief account of the nature, mode of preparation, and the means employed for estimating the activity, of the "antistreptococcus serum" prepared by myself, and supplied to the profession through the firm of Burroughs, Wellcome, and Co.

1. Antistreptococcus serum is serum obtained from the blood of an ass which has received during several months repeated and increasing injections of living virulent streptococci.

2. It will be seen at once, therefore, that the principle involved differs in important respects from that involved in the preparation of antidiphtheria serum. In this last it is the toxins, formed by diphtheria bacilli in bouillon cultures, which are employed to set up immunity in animals furnishing the serum. Antistreptococcus serum resembles rather the diphtheria "antimycetine" as prepared by Klein than the antitoxin ordinarily obtainable, and may be expected to possess antimycotic rather than antitoxic properties.

3. The ordinary streptococcus of the laboratory is practically useless for the production of an active serum. Cultures obtained from various sources—among others from my friends Drs. Marmorek and Roger—failed altogether to give any satisfactory results until their virulence had been reinforced by successive passages through susceptible animals, or by other means which need not be here described.

4. Each injection of streptococci was always followed by considerable local and general reaction, characterised principally by local swelling and rise of body temperature. Such disturbances usually continued during several days, but ultimately a complete recovery took place.

5. Tests applied to the serum obtainable after each injection showed a steady increase of its antimycotic powers. Such tests are carried out as follows: The lethal dose of a standard streptococcus culture having been ascertained, similar quantities of culture are mixed *in vitro* with various proportions (a) of normal ass serum, (b) of the serum to be tested. On injecting these mixtures into animals of nearly equal weights it is readily demonstrable that while the control mixtures are almost uniformly fatal, those containing the prepared serum in proper proportion are practically innocuous. A maximum of one-hundredth of a cubic centimetre of serum should neutralise an otherwise lethal dose of streptococci.

6. It has been demonstrated that streptococci may remain in the blood of an animal for several days after their introduction. To ensure their absence from serum intended for clinical use, it is therefore imperative to remove all chance microbes by filtration through porcelain. In actual practice Chamberland filters are used, and the serum is made to pass through them by pressure furnished by liquid carbonic acid gas. The actual pressure required need seldom exceed one of about 70 lbs. to the square inch, such a pressure being conveniently secured by using one of Uhlmann and Keutgen's regulating valves in connection with the cylinders of compressed gas.

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PRESIDENTIAL ADDRESSES

DELIVERED AT THE

ANNUAL MEETINGS OF THE BRANCHES

OF THE

BRITISH MEDICAL ASSOCIATION.

MEDICAL DEFENCE AND THE METROPOLITAN
COUNTIES BRANCH.

*Delivered at the Annual Meeting of the Metropolitan Counties
Branch, June 23rd, 1896.*

By HENRY T. BUTLIN, F.R.C.S., D.C.L.,

Treasurer of the Association; President of the Metropolitan Counties
Branch

GENTLEMEN,—Taking this chair for the first time, it is customary for the President to deliver a short address, choosing for his subject any matter which may seem to him likely to prove of interest to the members. Under ordinary circumstances, I should have selected an indifferent subject; but seeing what grave matters at this moment occupy the minds of many members of the Association, and that I have been officially engaged in their consideration, it would be almost an affectation on my part on such an occasion as this to turn from political matters to some surgical or general subject. I therefore propose to speak of Medical Defence, especially in its relation to the Branches. But, before doing so, let me embrace this opportunity of thanking you for the honour you have done me in electing me as your President.

Shortly after I became a member of the Council of this Branch, I was sent up by the Branch to represent it on the Council of the Association—a mark of confidence which was repeated until my appointment to the Treasurership rendered it no longer necessary that I should be re-elected as a representative. Although since that time, now nearly six years ago, my interest in the Association has naturally been wider and larger, my interest in our Branch has not been in any way impaired, and when any question likely to affect the Branches has come before the Council or the Association, the influence which it might exercise on the fortunes of this Branch has been strongly before my mind. When, therefore, it was proposed to nominate me for the Presidency of the Branch, I gladly accepted, for I regarded the invitation as a remarkable proof of your esteem. At the same time, I could not but feel that the coming year is likely to be very critical to the fortunes of the Association, and consequently of the Branches.

Hitherto the Association has dealt only with the larger questions connected with our profession, with collective interests, with Bills in Parliament affecting our profession, and the relations of our profession with the public.

Now, it is proposed that we shall deal with individual interests, shall take up the defence of individual members, and even proceed to attack persons who practise illegally. In such a change of policy it is more than probable that our