tions were washed off the valves of the heart, they would be carried into the blood and plug up the vessels; they thus might lead to the destruction of any part, as of the brain or a limb, by the occlusion of the artery proceeding thereto. A case of this kind is now known by the term embolism. It was also stated by Dr. Kirkes, that the fibrinous masses just spoken of as occurring in the kidneys and spleen were also owing to small particles of fibrine blocking up the smaller arterial twigs; and he also showed that, with these formations, the blood was necessarily deleteriously affected, and that the patient suffered from symptoms of pyæmia. Now, it has so happened that the first named facts contained in the doctrine inculcated by Dr. Kirkes have received the attention of the profession; but the latter have been too much disregarded, although equally important. The case of plugging of a large vessel and its effects are so manifest, that the case of blood-poisoning by smaller particles of disintegrating fibrine have been much overlooked except by a few pathologists, who have now and then published isolated cases of the affection. Thus cases by myself and others may be found in the *Transactions of the Pathological Society* and in the *Guy's Hospital Reports*. I might say that Dr. Kirkes and myself had, some years ago, some interesting correspondence on the subject.

In an ordinary case of pyæmia, death is most frequently due to a poisoned state of the blood, without any sufficient disease of a vital organ to account for the event; but we have no difficulty in pronouncing upon the character of the disease, from the peculiarity of the symptoms and the existence of a wound on the surface of the body. In the case, however, of pyæmia of the arterial system, arising from infection at the centre of the circulation, no such manifest cause may exist; and, after death, when the fibrinous masses or infarctions are found in the viscera, they are believed to be inert, and the valvular disease is considered sufficient to account for all the symptoms and the ultimate issue of the case. Sometimes, however, the cardiac distress is but slight, whilst the symptoms of blood-infection are most marked, and then we begin to gain an insight into the importance of this variety of embolism. Thus, in a case which I published in the *Transactions of the Pathological Society* four or five years ago, the man had gangrene of the leg from the impaction of a plug of fibrine in his femoral artery; but, previous to this, he had several attacks of severe illness, accompanied by pains and swelling of the joints called rheumatic, but which were in reality of a pyæmic origin.

In the case of ordinary pyæmia, an abscess may form in the brain, lung, or other organ, and so lead to death; but far commoner is it for these organs to show a lesser disease indicative of the morbid process in operation, whilst death is due directly to the altered state of the blood. So, in embolism, there are the striking instances of the embedding of a plug in a vessel, leading to the destruction of the organ which it supplies; but there are also the other cases where the changes in the organ merely point to the blood-infection which is the real cause of the fatal issue. Why in one case the symptoms are more severe than in another, may be due to the state of softening or disintegration of the fibrine. In one case the deposits are hard; in another they may have softened into a creamy fluid. I had until lately held the opinion that the material into which fibrinous matter softened was not true pus, but only pus-like; for, if examined by the microscope, no cells are seen; and that, if true pus were found either at the source of infection in the heart or in the viscera, endocardial ulceration must have taken place, and the tissues beneath must have been involved. In the present case, however, there was no proof of this deep-seated implication of the tissues; but yet the spleen and brain contained actual and well formed abscesses. I have never before seen so true an example of pyæmia from such a cause.

I wish you principally to remember the fact that the blood may be infected from disintegrating fibrine in the heart; and that all the symptoms of pyæmia may result, as violent rigors, followed by sweating, great prostration, sallow skin, pains and swelling of the joints, etc. (See the case of Dr. Ray, in the *JOURNAL* for March 7th, 1868.) I do not know that suppuration is necessary to the production of rigors, although it generally implies the introduction of a deleterious substance into the blood. Some of the most striking instances of this were those related in the *London Hospital Reports*, in which transfusion of fluid into the veins was performed. I have very little doubt that many of the symptoms which we witness in heart-disease are really due to the state of the blood, although overlooked from the greater attention given to the condition of the mechanism of the heart. Thus, in this very case, the patient is said to have had rheumatic pains and swelling of the joints, but these were probably pyæmic; and, carrying my memory back to other cases where death occurred after rheumatic endocarditis, I believe now that death was due to blood-poisoning, although at the time we thought the derangement of the affected valve sufficient cause for the event. In other diseases, too, it may give us a clue to the occurrence of certain

symptoms; as, for instance, in scarlatina. Here there is the well-known rheumatic affection constantly occurring as a sequel to the disease, and at the same time endocarditis. Also, on *post mortem* examination, as I have elsewhere shown, these fibrinous masses already mentioned may be found.

The purport of these remarks is that, in endocarditis or valvular disease of the heart attended by the presence of vegetations or fibrinous coagula, a blood-poisoning may occur, giving rise to all the symptoms of pyæmia; and also that these may exist to a lesser degree in the form merely of pyrexia, prostration, pain in the joints. The facts are pathologically known, but are not sufficiently recognised from a clinical point of view, owing to the attention being too exclusively confined to the mere deranged mechanism of the heart.

I would also say that these symptoms by no means imply a fatal result. They come and go; the proof of this being found eventually in the cicatrices and remnants of deposits met with in the organs of the bodies of those who have died with heart-disease.

ON THE TREATMENT OF INJURIES AND OF CERTAIN DISEASED STATES OF THE ABDOMEN.*

BY GEORGE MAY, SENR., ESQ.,
Consulting-Surgeon to the Royal Berkshire Hospital.

I AM induced to ask your attention to a few remarks on injuries and certain diseased conditions of the abdomen, in connexion with the interesting case of extrauterine foetation reported at our last meeting.

If a sufferer from wound or injury of the abdomen escape the perils of shock and hæmorrhage, Nature exerts her conservative powers; and, if not molested, she is often herself equal to the struggle. The first important condition she evokes is the *functional rest* of the injured parts. The body and limbs assume an easy relaxed posture, respiration becomes thoracic, and the stomach refuses food. The next important condition is the deposit of lymph around the injured parts, circumscribing the mischief, and preparing for consecutive reparative action. This vascular action (adhesive inflammation) is essential, and vitally conservative.

In following the leading of Nature, the surgeon will endeavour to avert all disturbing influences, and not actively intermeddle if she is equal to her work. Keeping in mind the great principle of rest, the stomach should be kept as little occupied as possible, and such aliment supplied in small quantities as may yield the least residuum, as beef-tea, etc.; and in certain cases the stomach should be wholly at rest, and nutrition be effected entirely by the rectum.

As a rule, the bowels should not be disturbed, and inaction may be permitted for several days. Exceptional cases will not permit this advantage to be secured. The bladder should be kept relieved in the way easiest to the patient. In addition to this, what are the resources and pretensions of medicine in these cases? All of us will agree, I think, that we may look with hopeful confidence to opium, administered in one or other of its multiplied forms, either by the stomach, the rectum, or the skin. Soothing applications, warm and moist, as linseed-meal poultices with laudanum, may be applied continuously or with intermissions, as may be agreeable to the patient. A few leeches may be usefully applied to any part in pain; and the lancet, though now only very exceptionally used, is perhaps too indiscriminately rejected. Purgatives should be avoided as much as possible; and mercurials are open to special objection, as, in addition to their purgative powers, they tend to arrest the deposit of lymph, on which the safety of the patient essentially depends. A certain period must necessarily elapse before the new material is organised, during which a modified attention to these principles of treatment will be needful.

In illustration of these views, I will recall to your recollection some cases of sphacelus of the intestine, and also of hæmorrhage from the stomach, rectum, and bladder, most of which have been noticed here on former occasions. Three cases of sphacelated intestine have fallen to my care; two recovered completely, and one survived eight months.

In the year 1842, a young man, aged 16, suffered from inflammation of the cæcum, with tumour (typhlo-enteritis). He had fecal vomiting; and, after a few days, diarrhoea supervened, the motions having an intensely foetid odour. A portion of intestine, between five and six inches long, and embracing about one-sixth of the cylinder, was passed *per anum*; the patient gradually recovered, and remains at the present time quite well. This specimen was presented to our museum, but

* Read at the Reading Pathological Society, December 1867.

is unaccountably lost. The case was attended also by our late lamented friend Dr. Pritchard Smith. A few months ago, a lady, about 60, passed through similar conditions—painful tumour in the cæcum, with fecal vomiting, followed by the characteristic fetid evacuations, containing many shreds of organised tissue. She entirely recovered, and remains well to the present time. The first case was treated chiefly by opium. In the latter case, in addition to opium, the stomach was kept wholly at rest, and nutrition was supported by the rectum. Linseed-meal poultices were kept continuously applied to the entire abdomen for three or four weeks, with great comfort to the patient. This case was under the joint care of Mr. Young of Henley.

The third case was that of a gentleman, about 65 years old, who had persistent constipation for a considerable time, with enormous fecal accumulation, which resisted treatment. At length, by repeated injections of water, the bowels were emptied. This was followed by prolonged diarrhoea, with fetid evacuations. He complained of tenderness on the left side of the abdomen, and was occasionally much discomforted by loud and long continued borborygmi. He was kept entirely recumbent, sickness and faintness occurring on the least attempt to raise himself. The stomach would not retain food. He was supported wholly by beef-tea injections, repeated every three or four hours, to which were added wine or brandy, as more agreeable to his feelings, and which he regulated himself, sometimes anticipating his meal from symptoms of exhaustion. He continued in this way, without loss of flesh, for eight months, when symptoms of perforation supervened, and he sank in a few hours. The *post mortem* examination was made by Mr. O. C. Maurice. It disclosed the loss of a considerable portion of intestine on the left side of the abdomen; the continuity of the canal had been preserved by adhesion to the neighbouring viscera, and the breach was nearly repaired by new tissue. A very small thin spot, however, had burst, after which he rapidly sank. This case was jointly attended by Dr. Noad of Wokingham.

Three cases of *Hæmorrhage from the Stomach* have fallen under my notice (hæmorrhage from presumed ulcer). One died, and two recovered. A lady vomited a large quantity of blood, florid and clotted, and this hæmorrhage recurred repeatedly. No other morbid condition could be detected. Treatment proved unavailing, and she died. A *post mortem* examination revealed a small ulcer of one of the gastric vessels; the stomach was otherwise healthy. The two other cases were similar in character. The treatment of both these consisted in keeping the stomach at rest, empty, and in supporting wholly by the rectum. No further hæmorrhage occurred in either case, and both recovered.

Hæmorrhage from the Rectum.—A lady, aged 40, had hæmorrhage from the rectum to a large extent, which recurred after each action of the bowels. The source was high up, and could not be seen; and injections failed to relieve. She lay unconscious for some time, and death seemed inevitable. It was determined to keep the bowel at rest as long as possible; and, with this view, beef-tea, in very small quantities, was swallowed, and nothing else allowed, the object being to avoid intestinal accumulation. A nurse passed the catheter at suitable intervals. After thirty-two days, the lower bowel was emptied by injection of water, and no further hæmorrhage occurred. This case was attended jointly by Dr. Cowan about twenty years ago, and the lady is still living.

Hæmorrhage from the Bladder in a Gentleman about 60.—On *post mortem* examination, a very small ulcer was seen to have opened into a vessel near the entrance of the right ureter; there was no other disease. If this case had been correctly diagnosed, and the bladder kept empty by means of a tube, the ulcer might have healed; it could not readily do so under its constantly varying natural conditions.

About four years since, a lady, aged 30, was in seriously impaired health, emaciated and jaundiced, having suffered from repeated attacks of intense pain in the right hypogastric region, with vomiting. She had been accustomed to take large doses of opium, followed by aperients, mercurial and other. The attacks increased in frequency and severity. She was considered to have gall-stones; and the prognosis to be unfavourable. As no abnormal change could be detected on examination, the pathological condition was assumed to be congestion, with neuralgia, affecting principally the duodenum, and caused by errors in diet. The indications seemed to be, to keep the organs in partial rest, and to remove all causes of irritation, both dietetic and medicinal. With this view, she was directed to take small quantities of food at each meal—chicken and mutton to be passed through a mill and mortar, to the consistence and almost the smoothness of cream, and her bread to be carefully powdered. All vegetables were forbidden. This plan was rigidly adopted, and all medicines were withdrawn. There was no recurrence of pain, and her health and vigour were gradually restored. She persisted with this dietary for six months, and then gradually withdrew the restrictions. She continues to be quite well.

I have seen analogous cases; and, although not quite an infidel as to

their therapeutic treatment, I confess I have little faith in it, unless accompanied by a rigid adoption of the principles I have feebly sketched. I believe they will be found to have extensive application both in medicine and surgery.

We are deeply indebted to Mr. Hilton for the development and illustration of this important principle of treatment, in his able and interesting lectures at the London College of Surgeons.

REPORTS OF MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS OF GREAT BRITAIN.

ST. MARY'S HOSPITAL.

FRACTURE OF THE SPINE: DEATH.

(Under the care of Mr. HAYNES WALTON.)

MR. MILNER MOORE, Resident Registrar, has kindly sent us the following very interesting case.

Thomas Jones was admitted into the hospital, under Mr. Walton's care, December 12th, 1867. On the morning of his admission, he was at work in a gravel-pit, when a great body of the earth gave way, falling upon and burying the lower half of his body. He remained quite insensible for about half-an-hour, during which time he was dug out. He was immediately brought to the hospital. On examination, he was found to have sustained a severe scalp-wound, commencing just above and outside the right eyebrow; it extended across the forehead, over the bridge of the nose, directly over the left eyebrow, and curving round the head reached to within an inch of the occipital protuberance. There was, moreover, a separate laceration, six inches long, of the left eyelid. He complained of pain, especially on being moved, in the back, and lay in a very helpless state, not being able to turn or move in bed. On being lifted upon his side, in the lower dorsal region a distinct depression could be felt in the spinal column, and above and below it a sharp angular prominence. The lower extremities were cold, but the sensation in both legs was accurate, and he could feebly semify the legs; but when they were touched he complained much of "pins and needles" and much aching. Mr. Field, house-surgeon, brought the edges of the scalp-wound together, and put in sixteen silk sutures, and cold water dressing was applied. As a precautionary measure, he was placed upon a water bed. On the following morning the symptoms were much the same. The numbness and tingling of the legs continued. He had micturated voluntarily several times during the night. He had had very little sleep. Pulse 78. Temperature in the popliteal space 98.4. On the 14th the whole extent of the scalp-wound had healed, there being only a point of suppuration at the hole where the suture had been put in. He could flex the left leg and move the toes of the same side. There was very slight movement in the right leg. There was emphysema on the right side of the thorax in front, and several ribs were found to be broken. He had pain in the back when moved. He coughed frequently, and had pain in the chest. He could move the toes of the right foot and flex the left knee. Pulse 100. Respiration 32. Temperature in the popliteal space 98.6. Tongue creamy. He micturated freely. The bowels were not opened since admission. He was ordered twenty minims of tincture of opium and an ounce of water, to be administered every night if necessary. Beef-tea and milk were given *ad libitum*, and a mixture containing twenty minims of tincture of sesquichloride of iron thrice daily.

On the 16th December he was rather weaker, and his chest-symptoms were more troublesome; moreover, he had been delirious on the previous night. His cough was very bad, and the expectoration was purulent and tenacious. The tongue was whitish and dry; pulse weak, 104. He was ordered to take an ounce of compound squill mixture occasionally. Percussion in the front of the chest gave normal resonance; coarse, crepitant rhonchi were heard all over the right side. He still complained of tingling coldness of the extremities. After this he remained rather stationary, although certainly there was more movement in both extremities. He then became much worse; marked symptoms of pneumonia came on; there were rusty and sanguineous sputa, with difficult expectoration, and dull percussion over the whole of the right side of the thorax, and occasional sonorous râles. The tingling in the leg continued pretty much the same throughout; and sometimes he could almost draw the feet up to the thighs. Micturition continued perfect, and he had entire control over the bladder. He was delirious every night. Brandy and port wine were given freely, and an opiate at