

servable. The fibrinous casts of the renal tubes are often so purely homogeneous, that the idea seems naturally suggested that the limentary membranes may be strengthened and thickened by additions of this substance when it is circulating in excess. It is, however, certain that the filtering power of these membranes may be notably affected by variations in nervous influence. There appears to be a general accordance between the behaviour of the arterial coats and the capillary walls. In relaxed states of the contractile coat of the arteries, the capillary membranes are more permeable than usual, and *vice versa*. The relaxation of the latter may proceed to that extreme degree in which they allow blood-corpuscles to pass through the softened texture, and ecchymosis or hæmorrhage occurs. I have seen this twice in aguish disorder, as subconjunctival effusion.

12. The liability of the various organs and tissues to asthenic inflammation during the course of fever probably depends on their vital power having been so lowered by the action of the poison that a little hyperæmic afflux becomes a cause of irritation. The case is the same as when a part has been frost-bitten, and the circulation has been restored too rapidly. On the same ground, when the sympathetic is cut in the neck of a debilitated animal, severe conjunctivitis sometimes ensues, because the enfeebled tissue cannot withstand the stimulus of the hyperæmia, intensified by the loss of the influence of the vaso-motor nerves. The diarrhœa of intestinal typhoid, and its follicular deposits, seem to me to be well explained in this way.

13. An occurrence which I think is more frequent in malarious fever, but which Dr. Corrigan speaks of as not unfrequent in typhus, or rather as a sequela of typhus, of late years, is jaundice; the skin and urine being deeply tinged, though the flow of bile into the intestine goes on freely. In this case, it may be presumed that the hepatic plexus is paralysed, and the liver in the same state as the side of the head when the cervical sympathetic is divided. Bile is secreted in excess, and a secretion-flux takes place. This, however, would not occur if the vitality of the liver were much depressed; the result would be rather inflammation. Turpentine, which cures the jaundice, acts no doubt in the same way as when it arrests a gastric hæmorrhage, stimulating the relaxed vessels to contract through the medium of their nerves.

14. The treatment of fever is to be ruled essentially by discriminating observation of the predominant pathological state, whether this approach nearer to excitement and irritation, or to pure debility and asthenia. In the former case, it may be needful to bleed largely, as in tropical fevers (*vide* Dr. Copland, *Fever*, p. 930); to give tartar emetic and opium, as Graves did in typhus with violent delirium; or apply leeches to the temples, as Dr. Corrigan recommends in states of insomnia; or, as we so often do in the diarrhœa of typhoid, to leech the region of the cœcum, and give hydrargyrum cum cretâ and Dover's powder. All these are instances where lowering means are employed, with guarded caution, to quiet excited action. In the latter case, quinine, wine, and brandy, are to be administered freely, according to the requirement of the individual case. Dr. Stokes', Dr. Brinton's, and Dr. Shute's recorded experience is quite in accordance with my own. I may add, that I cannot but think the old idea that brandy and wine act beneficially by their stimulant effect on the nervous system, is far more satisfactory than the chemical notion that they act by affording a ready fuel to the respiratory process. It is the nervous system which most of all feels the effect of the poison; and it is reasonable to address our remedies chiefly to it.

15. In the treatment of pyrexia attending on local inflammation, it is impossible to prevent the effect while the cause continues. Any tonic or stimulant that could be administered to stay the paralysis of the vaso-motor nerves, would act injuriously as an irritant upon the inflamed tissue, impede excretion, and increase the existing mischief. Thus, in febrile eczema, arsenic aggravates the skin-disease and the associated pyrexia. As long as the inflammation is of sthenic character, we must apply our efforts to reduce it; in the case of eczema, we leech the skin, or apply lead lotion, and give saline aperients. When, however, the inflammation has become asthenic, or is so from the first, there is either no fever, or it will yield with the inflammation to tonics. Thus, non-febrile eczema is often cured by arsenic, which probably tones the cutaneous vaso-motor nerves, and so contracts the arteries of the inflamed part. The distinction between sthenic and asthenic inflammation, as to the effects of treatment, is all important, and seems sadly lost sight of in the blood-letting controversy.

NOTES OF CASES OF GUN-SHOT WOUND.

By G. NAYLER, Esq., Assistant Surgeon, Central India Field Force.

AMONG the large number of wounded occasioned by the operations of the field force at Jhansi, a considerable proportion consisted of gun-shot cases. The opportunity was afforded me of witnessing many of them soon after their admission, and of watching their progress from day to day. On being subsequently transferred to the Field Hospital, they came under my care. As these cases constitute a class of injuries not often met with in civil practice, I have ventured to give the notes of some, taken at the bed-side, as well as the *post mortem* appearances.

To Dr. Ward, Surgeon of the 3rd European Regiment, under whom the following patients were admitted, I am indebted for much information and assistance.

CASE I. *Gun-shot Wound of the Chest; Ball Lodged.* P. Williams, aged 20, was brought into Hospital at 8 a.m. on April 3. A bullet had entered the chest close to the inner border of the scapula, and about an inch above its spinous process. No further trace of the ball could be detected on examination. The patient complained of some pain in the vicinity of the wound, but did not appear to suffer much distress. The pulse was 80, soft; there was slight dyspnoea. He was ordered to have an ounce of saline mixture every four hours, and spoon-diet. Lint and bandages were applied to the wound.

April 6. The lint was removed, and simple water-dressing was substituted. Slight suppuration now commenced. No other medicines than salines were given, except an occasional dose of castor oil, as he was progressing favourably, until

April 10. He was now suffering from much pain, referred to the right side of the chest, and to the left scapula, where the pain appeared to be fixed, and the part tender. Pulse quick, skin hot. Pain was felt in taking a deep inspiration. He lay on the right side. He had much thirst. Low diet was ordered; three dozen leeches were applied to the region of the left scapula; and a saline effervescing draught was given every four hours.

4 p.m. There was dulness on percussion over the posterior aspect of the right lung in its lower and middle portions, and also over the left scapular region, extending in a line to this spot from the right side. Little air was heard to enter in these situations; but in the front of the chest the breathing did not seem to be affected. He still lay in the same position. The pulse was quick; the thirst was urgent. Two dozen leeches were applied between the scapulae. A pill of three grains of calomel and half a grain of opium was ordered to be taken every three hours; and the saline draught was continued.

April 11. He had not been able to obtain much sleep. He said that he felt easier, and could breathe more freely. The skin was cool; the tongue was rather furred. A purgative draught was ordered.

April 12. He was much better to-day, and able to sit up. Respiration was free; there was no pain on making a full inspiration. There was some dulness near the wound and towards the left scapula; elsewhere, the respiration was free. The tongue was cleaner; the skin quite cool; the bowels freely open. The gums were beginning to be slightly affected. The pill was ordered to be taken at bed-time only.

April 13. He had a comfortable night. His gums were sore; and an alum gargle was ordered.

April 15. He was progressing favourably, and was ordered to have three ounces of wine, and half diet.

April 17. The patient was doing well. A tonic draught was prescribed.

April 19. Recovery was taking place rapidly. He complained of pain between the scapulae; and near the inner border of the left, the bullet could be felt, but not superficially enough to warrant cutting down to it. A poultice was ordered to be applied to the part.

April 21. The bullet was still felt; but not more distinctly. In a day or two afterwards, no signs of the ball could be perceived; and the patient has been regaining his usual health up to the present date (May 20). He says that he feels some stiffness in the loins now and then. The aperture of the wound is closing, with slight discharge.

CASE II. *Gun-shot wound of the Chest; Ball Lodged.* W. Hutchinson, 3rd European Regiment, was admitted April 3, with a wound caused by a bullet, situated two and a half inches from the sternal end of the right clavicle, and one inch below

that bone. I did not see this patient on admission; and am indebted to Dr. Ward for the following details:—

In the immediate neighbourhood of the wound, the aperture of which was directed inwards, emphysema was clearly marked—the peculiar crackling sensation being communicated to the hand on the least pressure. The patient was very faint when admitted, and complained greatly of pain in and around the wound. There was much anxiety of countenance, and urgent dyspnoea, and a very full pulse. A pledget of lint was immediately applied to the part, and well secured by a figure of 8 bandage. A small quantity of brandy and water was given in the first instance; he was directed to be kept as quiet as possible, to have low diet, and to take an effervescent saline draught every four hours, and an anodyne at bed-time.

April 4. He was much better; the countenance was more natural. He said he had been in much pain until an early hour in the morning; since which time he had felt easier. He breathed quietly; the pulse was slightly quicker than natural; but readily compressible; tongue quite clean; bowels regular.

April 5. He was doing well, and sitting up in bed. The same treatment was continued.

April 7. The lint and bandages were removed this day. There was no sign of emphysema. The wound looked healthy; suppuration was slight. There was no dulness. Water-dressing was applied.

April 10. The case was progressing favourably; there was free discharge.

April 14. He was doing well. The medicines were omitted, and a pint of porter daily was ordered.

April 17. The patient's state was the same. He was ordered to have tonic draught three times a day.

April 21. The discharge was less; and the man's general health was very good. He has continued to improve up to the present time (May). The movements of the arms are well performed; and the health is excellent.

CASE III. *Ball Lodged in the Chest; Death on the Fifth Day; Post Mortem Examination.* C. Eaton, aged 22, was admitted on the morning of April 3. He had been struck at the storming of Jhansi by a musket-ball, which penetrated the front of his chest on the right side, at a point nearly midway between the sterno-clavicular articulation and the nipple. He complained much of pain, referred to the situation of the wound, and on inspiration. His countenance was anxious; he felt very thirsty; pulse quick, but not feeble. The course of the ball could not be traced. He was directed to take an ounce of saline mixture with an eighth of a grain of tartar emetic every four hours. Low diet and soda water were ordered; and water-dressing was applied to the wound.

4 P.M. He had been very sick from the medicines which were now ordered to be taken every six hours. He was still in much pain, and had coughed up some blood and mucus. The catheter was used. An anodyne draught was ordered to be taken at bed-time.

April 4. He had rather a restless night. He said he felt easier; but there was still much anxiety of countenance. There was considerable dyspnoea; breathing was scarcely audible over any portion of the right side of the chest. It was heard in excess, with increased resonance on percussion, on the left side. Pulse weak; he was able to pass urine; the bowels were open. The saline mixture was continued without the antimony; and the anodyne was ordered to be taken every night.

April 5. He said he felt better. The pulse was slightly improved, soft on pressure. The breathing was the same as yesterday. The countenance was less anxious. He was very weak in the night until 12 P.M., when some brandy and water was administered; after which, he rallied considerably.

April 6. There was no change; the pulse was very low. Wine was ordered to be given him occasionally.

April 7. He had a tolerable night; but sank fast in the day, and died at 10 P.M.

POST MORTEM EXAMINATION, ten hours after death. The body was well formed. On the right side of the chest, on separating the integuments and fascia from the ribs, a quantity of offensive air escaped by the external opening. The pleural cavity was found to contain a large amount of serum mixed with blood; and the surfaces of the pleura were densely coated with recent lymph, which was deposited here and there in delicate bands, uniting those surfaces. On the anterior aspect of the lung, sufficiently large to admit the little finger, was seen the aperture of entrance of the ball; which, after traversing the chest in the antero-posterior direction and

fracturing the sixth rib, was finally lodged in the front surface of the scapula, between the subscapularis muscle and the bone, an inch and a half from its inferior angle. The lung was much contracted, dark red, and solid throughout—no portion of it being able to float in water. The canal, which the ball had traversed, being laid open, it was found almost black, much resembling in colour coagulated blood, and rough and hard to the touch. The lung of the other side was healthy.

CASE IV. *Gun-shot Wound of the Back or Chest; Ball Lodged in the Vertebral Columns; Death on the Third Day; Post Mortem Appearances.* W. Cox, aged 35, a fine powerful man, was admitted on the morning of April 3, with a bullet-wound in the centre of the right scapula. The patient on admission was lying on his back, unable to move, with complete loss of sensation and motion in the lower extremities. There was dyspnoea, with pain and tenderness over the costal cartilages of the right side. The pulse was quick, but soft. He had great thirst. Saline mixture was ordered to be taken every four hours; and water dressing was applied to the wound.

4 P.M. He said he felt easier. The breath-sound was heard in front of each side of the chest; the respiration was chiefly abdominal. He was unable to pass urine without the aid of the catheter. He was ordered to have an enema, and an anodyne at bed time.

April 4. The patient had passed a tolerable night. A small quantity of fæces had been brought away by the enema. There was slight tympanitis of the abdomen; but no pain on pressure.

April 5. No change of symptoms had occurred. He had been restless during the night. The bowels were confined. There was dulness on percussion in the right side. The tympanitis had much increased. A pill of five grains of calomel and the same quantity of extract of hyoscyamus was ordered to be taken at bed-time.

April 6. There was much dyspnoea; and dulness over the whole of the right side of the chest, with increased respiration on the left side. The patient seemed to be in a good deal of distress. The pulse was low. The bowels had been moved; the fæces were dark and offensive.

A change took place at 5 P.M.; and he expired an hour afterwards.

POST MORTEM EXAMINATION, fourteen hours after death, made by Dr. Ward and myself. On laying open the thorax, about two pints of serous fluid flowed from the right pleural cavity; there were also slight deposits of lymph on both aspects of the pleura. The lung was considerably collapsed, and of a dark red colour, inclining to a greenish hue. When it was removed, the track of the bullet could be plainly seen, forming a distinct groove on its back part. The ball was found to have at first taken an oblique direction, the internal opening corresponding to the space between the fifth and sixth ribs, at a distance of two inches from the spine. From this point, its course was almost horizontally inwards, grazing the posterior surface of the lung, and penetrating the sixth dorsal vertebra. The portion of the spinal column containing this vertebra was afterwards carefully removed, and its canal laid open. The cord was found to be completely disorganised, with extravasated blood on its surface. The bullet was lodged in the body of the vertebra, close to the canal, but not penetrating it.

Transactions of Branches.

CAMBRIDGE AND HUNTINGDON BRANCH.

A CASE OF GUN-SHOT WOUND OF THE CHEST.

By W. H. HOLE, Esq., Surgeon, Wisbeach.

[Read July 8th.]

THERE are occasionally cases occurring in general practice which seem to vary, as it were, the monotony of every-day life, in the treatment of which we feel a more than ordinary degree of interest; and may perhaps be pardoned for indulging in a little professional pride if our efforts have been crowned with success. I have often thought how comparatively few cases of this kind are recorded by medical men for the benefit of others; for we must all admit that we frequently meet with diseases of an anomalous character, in which our treatment