very little discomfort, and that of a transient sort only, is caused, and absorption quickly takes place. As experience in serotherapy in other diseases bears out, the generous dose of serum, especially if given early, brings a readier and more complete response than do smaller and repeated amounts.

All the patients except five in due time had an urticarial serum rash of variable intensity—a not unexpected event, as this serum is not of the “refined” type. In my personal view a simple serum rash alone is not a wholly ill-starred happening. Temporary and varying irritation is inevitable, but I have noticed in other diseases in which serum is used that, in certain patients who hitherto have seemed to be hanging fire, after the urticaria has come and gone improvement appears to be stimulated and accelerated, owing possibly, I have thought, to the ensuing leucocytosis and its added defensive mechanism—a condition to be desired in the leucopenic state of a typhoid fever patient.

I would add that while serum in typhoid fever seems to possess undoubtedly high value, its use does not in any sense minimize the prime importance of efficient nursing attention as an aid to the patient's recovery.

Summary

Clinical results following the use of Felix's “Vi+C” anti-typhoid serum are described. Its efficacy appears to be prompt and very satisfactory in those states due to pure toxæmia. Hyperpyrexia is diminished in time, but this change is not so rapidly brought about. Complications such as pneumonia and hæmorrhage, when present before the start of serum treatment, do not seem to be mitigated.

I am indebted to Dr. W. M. Frazer, Medical Officer of Health, City and Port of Liverpool, for permission to publish these notes.

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Medical Memoranda

Prophylactic Penicillin

After a recent “incident,” many air-raid casualties were admitted to a hospital, including many with the usual grossly lacerated and contaminated wounds. As reports of the value of penicillin in preventing infection in battle casualties have been so favourable, five million units were speedily obtained by special messenger. Patients with more serious wounds were given 15,000 units (2 c.cm.) four-hourly by intramuscular injection, and, contrary to some reports, very few complained of the injections causing pain.* Previous experience of similar wounds led one to expect that infection of many of them was inevitable, even with the help of sulphonamides, but the absence of an inflammation in cases under penicillin control was astonishing.

Careful and thorough excision of a recent wound is, of course, the ideal procedure, but many of these cases, despite blood and plasma infusions, were in no condition to stand a time-consuming operation. In any case, some of the wounds were too deep and extensive for efficient débridement. The following is a typical case.

ILLUSTRATIVE CASE

A man aged 63, severely shocked, with multiple injuries, the most serious being a deep lacerated wound of the left buttock, from which blood was still trickling. This wound was plugged with gauze, and three hours later, after he had received two pints of blood and a pint of plasma, he was taken to the theatre. Exploration of the wound revealed extensive laceration of the gluteal muscles and comminution of the innominate bone in the region of the sciatic notch. From beneath the bony fragments a steady stream of arterial blood was escaping, presumably from the gluteal artery. As the condition of the patient precluded an extensive dissection to expose the torn vessel, efforts were made to seize it with forceps inserted beneath the bone, in the hope that diathermy applied to the forceps would thrombose the vessel. In any case, it was intended to leave the forceps *in situ* for a few days. However, efforts to seize the artery were unsuccessful, and, as the patient's condition was deteriorating, all that could be done was to plug the wound

with gauze moistened with flavine and to excise rapidly some of the damaged muscle. The first injection of penicillin was administered about four hours later, and subsequently at four-hourly intervals. It was anticipated that such an inadequately excised wound, in a very unfavourable situation, would become infected; therefore three days later the gauze was removed under general anaesthesia. To one's surprise and gratification there was no trace of infection—no redness of the skin, induration of deeper structures, or any discharge other than slight exudate of serum. Unfortunately, the arterial bleeding restarted on removal of the gauze, so replugging was necessary. Had it been realized that the wound was in a perfectly clean condition it would not have been interfered with. It is now proposed to leave the gauze plug *in situ* for several days, by which time the vessel should be occluded by natural means. If it is subsequently necessary to ligate the internal iliac artery the condition of the patient should have so improved that a major operation will cause little anxiety.

It appears that the bacteriostatic action of penicillin is so efficacious that in the near future, when supplies are available, its routine administration, time and circumstances permitting, will abolish the bogey of infection from traumatic surgery.

R. J. McNEILL LOVE, M.S., F.R.C.S.

Severe Fracture-dislocation of the Spine

This case is of considerable interest, as it shows a severe degree of fracture-dislocation of the spine in which practically complete recovery from paraplegia has occurred. Furthermore, the value of early suprapubic drainage is shown, as the restoration of bladder function was complete. It is also of interest in demonstrating how the spinal cord can escape damage in the presence of severe injury to the spinal column.

CASE HISTORY

The patient, a W.A.A.F. 22 years of age, was admitted five hours after her injury. She had been riding in a transport vehicle on duty when it suddenly overturned and fell down a slope. She had immediate pain in the back, and felt weak. Also she had no power in her legs. She was taken to the nearest hospital, radiographed, and given morphine. She was then transferred.

On admission the patient was pale, with a pulse rate of 100 and blood pressure 116/75; she complained of pain in the upper back

and of pins-and-needles in both legs. She had no power in the legs and was unable to pass urine. General examination revealed the following abnormalities. The bladder was palpable 2 in. above the umbilicus. The knee-jerks, ankle-jerks, and plantar responses were absent. Abdominal reflexes were normal. There was no movement below the knees, and no movement of the left quadriceps. She could tighten her right quadriceps and slightly adduct both thighs.

Sensation was normal down to the level of the eleventh thoracic nerve supply. She was hyperaesthetic to pin-prick at the level of the twelfth thoracic nerve, and below it she had diminished sensation to pin-prick and touch on both sides; there was no sensation on the sole of the left foot and left calf. Radiographs showed a severe fracture-dislocation of the twelfth thoracic vertebra (see Fig.).

Treatment.—The patient was first treated on a sorbo mattress, which was discarded on the fifth day for a plaster bed, in which she was more comfortable in every way, as small movements on the mattress caused considerable pain. Suprapubic cystostomy was

* When time and facilities permit, it is probably better to give penicillin by continuous intramuscular or sternal drip. One hundred thousands units a day sustains an adequate concentration of penicillin in the circulation.

performed by Mr. Broster, under local anaesthesia, 29 hours after the injury. On the third day sensation was improving, but there was no motor recovery. She had a slight haemoptysis and pyrexia due to injury of the lung, associated with fracture of the twelfth rib. On the fifth day open reduction was attempted, but was abandoned on account of her very poor condition, due to her injured lung. A plaster bed was made and mounted at once in the theatre. After six weeks she was moving all the muscles of her right leg and also the left toes. Up to this time attempts at open reduction were still contraindicated by her poor general condition. At the seventh week I inserted a graft, 5 in. by 1 1/2 in., from the tibia on to the right side of the three spinous processes above the injury and to the left side of the lower three spinous processes. She was nursed for twelve weeks in a plaster bed on her face. At the eighth and ninth weeks root pains were severe and were not controlled by morphine. They have not recurred since.

Exactly six months from the injury she was able to walk unaided and without any instrument. On the same day the suprapubic catheter was finally removed as bladder function was normal. The bladder had remained uninfected throughout.

I should like to thank Mr. R. L. Broster for performing the suprapubic cystostomy and also Dr. Arthur Sunderland, Mr. Citron, and Mr. Beer for their great help in this case. Finally, the patient is greatly indebted to the nursing and physiotherapeutic staff, especially to Sister Hopney for her help and for the nursing which this difficult case required.

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Thrombocytopenic Purpura and Tooth Extraction

The following case of dental extraction in a patient with thrombocytopenic purpura may be found of interest.

CASE HISTORY

The patient, a married woman aged 27, had been treated for profuse menorrhagia when 15 years old. Several blood transfusions did not improve the girl's condition, and finally in 1933 a subtotal hysterectomy was performed to prevent her dying from blood loss.

She was first seen in the Dental Department of St. Nicholas' Hospital, Plumstead, on June 22, 1944, with a note from an outside doctor requesting dental extraction and saying that the patient was a haemophiliac. She had complained of severe toothache for the last four weeks, the tooth involved being 18. There was a definite history of bleeding tendency—i.e., bruises appear after insignificant traumata, and small cuts bleed for days.

Haematological Findings.—June 26, 1944: R.B.C., 4,150,000 per c.mm.; Hb 86%; C.I., 1.04; W.B.C., 8,000 per c.mm.—polymorph neutrophils 80%, basophils 2%, lymphocytes 15%, monocytes 1%, Türk cells 2%. Stained film, normal. Platelets, too few for accurate counting, but about 4,000 per c.mm. Hess's capillary resistance test, positive; a good crop of petechiae. Coagulation time, 2 1/2 minutes (within normal limits); bleeding time, 1 1/2 minutes (normal 2 minutes); Prothrombin time, 19.4 seconds (within normal limits). The patient belongs to Group O, and was found to be Wassermann- and Kahn-negative.

In view of the above findings a condition of essential thrombocytopenic purpura was diagnosed.

Management of Case.—The woman was admitted to hospital on July 6. The next day, at 10 a.m., blood was collected from two Group O blood-donors, to supply lacking platelets; normal blood transfusion was given. Immediately afterwards, at about 10.15 a.m., a slow intravenous drip transfusion was started with the fresh blood, found to be compatible. At 1 p.m. premedication, consisting of omnopon gr. 1/3 and scopolamine gr. 1/150, was administered. At 2.15 p.m. the patient was ready in the operating theatre, the intravenous blood drip being continued. 5 c.cm. of pentothal sodium (0.25 g.) injected into the rubber tubing of the blood-transfusion apparatus was sufficient to induce satisfactory anaesthesia. The tooth was extracted; it was carious and septic. The tooth socket was then lightly plugged with gauze impregnated in freshly prepared 1 c.cm. stypten solution. A clot in the socket was seen to form about 5 minutes after extraction. No further bleeding from the gum occurred. At 4.30 p.m. the blood transfusion was stopped. The total quantity given was 800 c.cm.

On the morning of July 8 the red cells numbered 5,140,000 per c.mm., and the haemoglobin was 100%. Stained film, normal; platelets, 82,000 per c.mm.; Hess's capillary resistance test, positive but far less marked; coagulation test, 1 minute 40 seconds; bleeding time, 3 minutes.

The patient was discharged on July 9 after making a successful recovery without further blood loss. When I examined her on July 14 her condition was still satisfactory.

COMMENT

Dental extraction in a patient suffering from thrombocytopenic purpura should be considered a major medical and surgical problem. Admission to hospital or similar institution is essential, because it affords facilities for blood transfusion, general anaesthesia, and collaboration of dental surgeon, physician, and pathologist if necessary.

All haematological examinations were performed by Dr. Holman, assistant pathologist to the Lewisham Group Laboratory. Dr. A. I. Suchecki's assistance as the physician in charge was invaluable in connexion with this case.

JAMES W. WHITE, L.D.S.Eng.

Reviews

ANAESTHETIC PRACTICE

Fundamentals of Anesthesia: An Outline. Second edition. (Pp. 231; illustrated. No price given.) Chicago: American Medical Association Press, 1944.

The authors form the Subcommittee on Anesthesia of the National Research Council of the U.S.A. Their names are already well known and respected in British anaesthetic circles, and this book confirms that they are men of wide clinical experience. Throughout emphasis is laid on those fundamentals of anaesthetic practice that make for safety. Barely a page but contains a pithy gem of wisdom worthy of hanging as a text in anaesthetic rooms. Two typical examples are: "The good anaesthetist observes the whole patient, not just the head"; and "Noisy breathing is obstructed breathing, but obstructed breathing may not be noisy." The illustrations, though comparatively few for an instructional book, are all helpful: the diagrammatic ones in particular drive home their lessons with force. In the section on general anaesthesia the choice of a particular agent is rightly given second place to principles and method—a point of view as yet not fully appreciated in this country. In the section on local anaesthesia, techniques of doubtful practical value, such as trans-sacral and sciatic nerve block, are included. These are hardly "fundamental," and by their exclusion more space could have been devoted to procedures which are of accepted utility, like regional anaesthesia for abdominal operations. Here and there geographical bias is suspected; outstanding examples occur in the description of spinal anaesthesia. Heavy nupercaine, popular in this country, does not receive mention, and exception must be taken to the statement that the dosage of a spinal anaesthetic drug should be based on the weight of the patient.

The style is didactic and dogmatic—all to the good in a book of this kind. The predilection for tabulation—reminiscent of the "synopsis" style of writing in this country—makes the reading a little difficult but does not detract from its value. Doctors who, without special training, are likely to be called on to give anaesthetics will find this book a friend; the advice it gives is sound and can be followed with confidence. To the teacher of anaesthetics it should have no less an appeal; he will find in it many an aphorism that will delight and benefit his pupils. In addition it provides a concise and pithy summary of current American views on anaesthetics.

MEDICAL DISEASES OF WAR

Medical Diseases of the War. By Sir Arthur Hurst, D.M., F.R.C.P. Fourth edition. (Pp. 511; illustrated. 21s.) London: Edward Arnold and Co.

A book which attains four editions during the war has thereby proved its value, and stands in little need of commendation from us. Having reviewed the third edition comparatively recently (1943, 1, 321) we will confine our remarks to certain new features. Infective hepatitis is now the most important infection in the British Army, presumably due to a virus conveyed by droplet infection, sometimes by those suffering from subclinical attacks. Biopsy proves that it is a true hepatitis, the extensive necrosis found post mortem being due to subsequent autolysis. A curious feature is the ravenous appetite which may follow the initial anorexia. Stress is laid on the sensitivity of the liver to alcohol after an attack, and total abstinence for at least a year is urged, for even moderate amounts are liable to cause cirrhosis. Readers of this *Journal* are aware that Sir Arthur Hurst had very definite views on sciatica, and will not be surprised that the chapter on this subject has been written in his best controversial style. The introduction of sulphaguanidine has changed the treatment of bacillary dysentery, and attention is called to the fact that the intestinal lesions are not caused by the local action of the bacilli but by their toxins absorbed by the colon. Therefore the former treatment was to wash these out by salines as quickly as possible, and to neutralize them after absorption by antidyenteric serum. Now, however, as one can prevent the formation of toxins by destruction of the bacilli by chemotherapy, salines are unnecessary, though serum is still useful