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.

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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.