EARLY COMPLICATIONS RESULTING FROM RETAINED BONE FRAGMENTS IN A CASE OF GUNSHOT WOUND OF THE HEAD.

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THE following case of gunshot wound of the head presented some features of interest:

Pte. G. was admitted in the early morning of November 5th suffering from bullet wound of the head. He was unconscious and collapsed; the pulse was imperceptible, temperature subnormal, and respirations shallow. He was very cold and evidently suffering from shock. The scalp wound was about 3 inches long, of the gutter type, and lay antero-posteriorly in the left parietal region. It was very dirty and jagged, with blood clot and brain tissue escaping from it. His right arm and right leg were paralysed.

First Operation.

He was put to bed, infused subcutaneously with normal saline, and the wound was dressed. In the evening his con-

dition had improved and it was decided to operate. Under chloroform the edges of the wound were excised, the wound was well washed with normal saline and explored. There was a fissure fracture 2 in. long in the left parietal bone, about 1½ in. below the superior longitudinal sinus, with two fissures radiating from its posterior end; the dura was lacerated and the brain tissue oedematous and broken down. The brain was explored by finger, half a dozen small bits of bone were removed, and the edges of the wound in the cranium were cut away to expose the free edges of the dura. The wound was washed with normal saline and closed by suture. A flap had to be cut from the upper surface (Wallace method) to allow the edges to be brought together. A rubber drain was placed under the flap down to the opening in the dura and left for twenty-four hours.

Next morning the patient's condition was much improved, and he recovered consciousness towards evening.

He continued to improve, and eleven days after the operation all signs of paralysis had disappeared. The wound had healed by first intention, the edges of the flap were covered by healthy granulations, and there were no signs of hernia cerebri. He was able to sit up in bed and untie his bandages, and was shown "fit for evacuation."

On the evening of November 17th he complained of frontal headache, but was relieved by aspirin. He slept well during the night, but on the evening of November 18th there was a slight rise of temperature, and he again complained of headache. The following day he was drowsy, lay on his right side, his head covered and bent on his chest, his legs drawn up, and frequently complained of the pain in his head. This condition continued for the next four days.

During the night of November 21st his temperature rose to 104° F., and in the morning he was very dull and apathetic, but showed no definite symptoms. He vomited about midday. There was no optic neuritis, and the pupils were normal. There was no hernia nor increased pressure in his wound.

Second Operation.

Lumbar puncture showed slightly increased pressure; the cerebro-spinal fluid was examined by Captain Buckell, pathologist, who reported:

"Cerebro-spinal fluid is turbid; total white cells 200 per c.cm.; polymorph leucocytes 91 per cent.; lymphocytes 9 per cent. No organisms seen on direct examination. Cultures on tryptic agar and trypsin agar both sterile."

A small incision was made along the line of union of the original wound, from which a little clear fluid escaped. There was a slight hernia of the brain outside the dura, but not above

the level of the cranium. In the hernia there was a small opening, which led into a cavity about the size of a walnut. This cavity was full of clear fluid, and lying in it were two small pieces of bone ½ in. by ¼ in. These were removed and the wound sutured; a drain was left in for twenty-four hours.

The next day the patient was better, but was still dull and complaining of slight headache.

Recovery was gradual, with occasional headache. He was evacuated to the base a fortnight after the second operation. He was then quite well, showing no effects of his injury. The report received from the base previous to his evacuation to England stated that "there were no ill effects from head injury observed while patient was in this hospital. No symptoms."

The necessity for the examination of the brain for foreign bodies, and their removal, is a subject of some controversy among the surgeons who are working in clearing stations. In their report on gunshot wounds of the head Lieutenant-Colonels Holmes and Sargent state:

It seems extremely doubtful if surgical intervention other than that necessary for the drainage and the healing of the wounds diminishes appreciably the risk of later complications or can modify except in a harmful direction the course of these cases from the functional standpoint.

Our records also show that many patients with foreign bodies lodged deeply in the brain recover, and are scarcely more liable to serious complications than men in whom the brain has been merely exposed and lacerated.

In the case here reported the patient was making an excellent recovery until he was interrupted by a serious relapse, which was relieved by the second operation. If the pieces of bone which were then removed were the

cause of the relapse—and this seems a fair conclusion—it points to the necessity for removal of any such foreign bodies at the first opportunity. If this course had been carried out at the first operation the case would probably have made an uncomplicated recovery.

I should like to express my thanks to Lieutenant-Colonel H. H. Norman, R.A.M.C., for permission to publish this case, and to Captain Richards, D.S.O., for his advice and help.

REFERENCE.

¹ *Journal of the Royal Army Medical Corps*, September, 1916.

COMBINED SUSPENSION AND EXTENSION APPARATUS FOR COMPOUND FRACTURES ABOUT THE HIP.

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SEVERE wounds of the buttocks and wounds of the upper third of the thigh, with high fracture of the femur, unfortunately common in this war, are among the most unsatisfactory that the surgeon has to deal with and the most distressing to the wounded themselves.

As regards buttock wounds, the patients from choice will always lie on their faces; this is the position in which they are sent from the field ambulances to the casualty clearing stations, and at this early stage it is certainly the best. But when, as invariably happens in shell wounds of this region, sepsis is firmly established, the advantages of dependent drainage practically necessitate the patient lying on his back. Pressure on the wound thus produced retards healing and often causes almost intolerable pain. In addition, it makes the dressing of the wound difficult, tedious, and painful, while the same may be said of the use of the bedpan, care of the back, and other details of nursing. Especially is this so when fracture of the sacrum, ischium, or upper extremity of the femur is a