A CASE OF X RAY DIAGNOSIS OF A CHRONIC CEREBRAL ABSCESS SECONDARY TO FRONTAL SINUS SUPPURATION.

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THE patient, a private on the Reserve list of the 2nd Battalion Royal Warwickshire Regiment, was sent to the Ear and Throat Hospital by Mr. Beatson Hird on account of the persistence of discharge from a fistulous opening in the right frontal region, in the lower part of a depressed scar above the inner end of the right eyebrow. The history was as follows. In April, 1913, the patient attended the eye department at the General Hospital with symptoms of acute inflammation in the right frontal sinus. He complained of pain, and in the upper part of the right orbit there was an inflammatory swelling, which was incised by Mr. Hird. Carious bone was detected in the orbital roof, and through a necrotic area a probe could be passed into the right frontal sinus. The patient was sent to the surgical side, where a radical operation was performed on the right frontal sinus, the particulars of which have been supplied by Mr. H. H. Sampson, resident surgical officer. The right frontal sinus was a shallow one. Its entire anterior wall was removed, and also the mucous lining of the sinus, in a state of polypoid degeneration, showing that the cavity had been the seat of chronic disease with a recent acute exacerbation. There was no sign of caries on the posterior wall. An opening was found through the median partition into the left frontal sinus. Drainage into the nose was attempted on the right side, and the edges of the wound were kept apart, but in spite of this the discharge continued externally from the lower part of the wound.

Reproduction of skiagram showing site of abscess injected with bismuth paste.

At a subsequent operation an area of carious and necrotic bone was found in the centre of the posterior wall of the sinus, and by its removal the dura was exposed. Purulent discharge still continued from the wound.

In September, 1914, the patient was admitted to the Ear and Throat Hospital for further treatment. No evidence of disease was observed within the nasal cavities. After determining the upward and

inward direction of the fistula it was decided to make use of Beck's bismuth paste to demonstrate, if possible, the source of the discharge. For this purpose a small amount of it was injected in a warm fluid state through the fistula and was retained for the most part. Radiograms then were made on two occasions in postero-anterior and lateral directions, and with some surprise it was seen that the bismuth had collected in the right frontal lobe of the cerebrum. (See illustration.) Under an anæsthetic a flap was raised along the lines of the former incision to expose the right frontal bone, where an opening was found about the size of a shilling exposing the dura. The bone edges were smooth and the surrounding bone was healthy in appearance. The fistulous track from the lower part of the skin incision led to an opening in the dura surrounded by granulations at the upper edge of the hiatus in the bone, and sinus forceps inserted through it allowed about a drachm of pus to escape. Resistance to the passage of the forceps was felt at a distance of 2 inches from the surface. After removing bone around the fistula a strip of gauze was inserted into the abscess cavity. Through an opening in the median partition between the frontal sinuses several small polypi were removed from the left sinus, and the passage into the nose made wider on that side. The right infundibulum had become obliterated. The external wound was left open and the discharge of pus continued for four weeks, but ceased when the gauze drain finally was removed and after an application of silver nitrate had been made to the granulations around the opening in the dura. The wound now is closed, and the patient remains in good health.

It is interesting to note that the patient's general state gave no indication of the presence of a cerebral abscess, owing, no doubt, to the absence of pressure from retention of the contents. The fistula allowed discharge to overflow, but the drainage had been insufficient to permit closure of the abscess cavity until the operation remedied the condition. The case illustrates the use of bismuth combined with an X ray examination in localising the site of the abscess before operation, and its value as an aid to diagnosis of an otherwise obscure source of a purulent discharge.

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A NOTE ON SOME CASES OF GUNSHOT FRACTURE.

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SINCE shortly after the beginning of the present war beds both at the Hampstead and the Orthopædic Hospitals have been occupied by wounded soldiers. Among the many cases of wounds of various kinds a considerable number have involved fracture of one or more bones. In studying the fractures we have had valuable help from the radiographers, Dr. Stanley Melville at the Orthopædic Hospital and Mr. Cyril Thatcher at Hampstead. It seems worth while to put on record a few of the more typical cases.

CASE 1. *Fracture of the ulna by rifle bullet* (Fig. 1).—As shown in the radiogram the fracture is typical of the damage done to a bone when it is struck vertically by a modern conical bullet travelling at a high velocity; there is a central space, and around it many fragments displaced