PUNCTURED FRACTURE OF THE SKULL; SYMPTOMS OF COMPRESSION FOR THIRTY-FOUR DAYS; OPERA- TION; RECOVERY.

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THE case now recorded is of considerable surgical interest on account of the serious nature of the injury, the depth to which a portion of bone had been forced by the blow, the suppuration extending over six weeks, the comparatively slight symptoms of compression and cerebral irritation, and the complete and rapid recovery after operation. The notes of the case are as follows:

On January 16th, 1894, Mr. P. J. De C., aged 43 years, was thrown from his horse, and alighted head foremost on a recently metalled road. He picked himself up, and although experiencing a certain amount of pain from wounds in his forehead and inconvenience from the accompanying hæmorrhage, was able to walk home; and at no time was there any giddiness nor unconsciousness. For the account of his condition from the date of the accident to February 19th, 1894, I am indebted to Dr. Hill, of Dursley, who kindly sent me the details. He saw the patient shortly after the accident, and found a lacerated wound on the right frontal eminence about an inch in length, extending down to bone, and bleeding copiously. In the middle line of the scalp, and at the anterior termination of the sagittal suture a second lacerated wound was seen. Here a distinct depression could be felt in the bone. The wound on the right frontal eminence healed up, but that on the vertex refused to do so. A small sinus discharging pus was left, and at the bottom of this a little loose bone could be felt. The patient was strongly advised by Dr. Hill to have the wound explored, but as he felt no serious inconvenience he decided to wait. Finding, however, that the discharge continued, he came to town. I saw him on February 19th, the thirty-fourth day after the accident.

The condition was then as follows: The pupils were widely dilated, and reacted badly to light: the pulse was 58, slow and full; the speech was deliberate and hesitating, the mind was clear, and the memory good. There was slight blurring of both optic discs. There was no paralysis anywhere. At the anterior extremity of the sagittal suture a discharging sinus, situated in the middle of some scar tissue, was seen. On pressure a few drops of pus oozed up, and from an inspection of the dressings I should think that about 1 drachm of pus was discharged in twenty-four hours. At the same time an oval depression in the bone could be felt. On probing the wound some small pieces of dead bone were encountered. The second wound, that on the forehead, was soundly healed. The temperature was normal. The patient was advised to be operated on at an early date.

On February 20th an incision was made through the scar tissue of the vertex wound, and three small portions of bone, lying close to the integuments, were removed. The edges of the aperture of the skull were then examined, and a small fracture of the inner table was found, the splintered portions of which were taken away. As the depression in the skull was an inch in its longest diameter, a considerable piece of bone must have been missing. Search was then made for this piece. The dura mater was not seen at this stage, but was separated from the bone by a mass of blood clot and granulation tissue. This was scooped out, and lying more than half an inch below the surface of the skull a considerable piece of dead bone was found. It was oval in shape, and measured seven-eighths by half an inch. The dead fragment comprised both inner and outer tables of the skull, and was apparently pressing between the cerebral hemispheres, pushing them apart. The dura mater was seen to be intact. The skull, however, must have been exceedingly thin, as the fragment was in no place more than one-eighth of an inch thick, while in parts it was almost paper-like in consistence. The wound was sutured, leaving a small aperture for drainage.

On February 21st the pulse had risen to 78 per minute, the

speech was no longer hesitating, the pupils no longer dilated, and they reacted readily to light; the temperature was normal. On the next day there was slight giddiness, which was relieved after giving a purgative. The wound subsequently healed rapidly, the optic discs became quite clear, and the patient went home well in all respects on March 9th, and has remained so since.

REMARKS.—The peculiar features of this case are the serious nature of the injury and the fact that it was attended by what seemed to be such apparently slight symptoms, but which were in themselves of serious import, the patient, I take it, being in danger of meningitis or intracranial abscess at any time; the depth to which the separated portion of bone was pushed—from half to three-quarters of an inch; the complete and rapid relief afforded by the operation. That the symptoms were not more pronounced was due to the position of the fracture, the bone pressing in between the hemispheres, and therefore not being so placed as to give rise to paralytic symptoms. In any case, the circulation in the superior longitudinal sinus must have been impeded, but no effects seem to have followed.

A CASE OF AURAL PYÆMIA WITHOUT SINUS THROMBOSIS TREATED BY LIGATURE OF THE INTERNAL JUGULAR VEIN AND PLUGGING OF THE LATERAL SINUS.

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THE subject of aural pyæmia, though much has been written on it during the last few years, is still of great surgical interest, and still contains several unsettled problems. The treatment of this condition when, as in the present case, unaccompanied by thrombosis of the lateral sinus, has not yet received as much attention as those in which the indications for interference are more obvious and clear. The fact that my own case was not successful in its ultimate result is, I think, an additional excuse for its publication, since there is no more useful guide to success than the records of previous failures, accompanied by an account of the conditions which determined the result. I record the following case in hope that it may prove useful in that way.

A female child, aged 4 years, eleven days after the onset of a severe attack of scarlet fever, developed on June 11th, 1894, double otorrhœa, which was both preceded and followed by much pain. On July 25th an abscess appeared over the left mastoid, from which an incision two days later evacuated several drachms of foetid pus. At this time pain had ceased, but the child looked thin and ill, and had a yellow earthy complexion. On August 1st she was seized with a sudden rigor, with much lividity. The temperature rose to 103°, and she vomited several times. The following day severe rigors occurred at 5.30 A.M. and 6.30 P.M. Both were followed by repeated vomiting. On August 3rd the temperature fluctuated between 98° and 101°, but there was no rigor. On August 4th, at 4 A.M., a most severe rigor occurred, during which the temperature rose to 106°. This was followed by much collapse and vomiting. Although there were no local indications of sinus phlebitis or thrombosis the general symptoms pointed so clearly to aural pyæmia (venous absorption) that I decided to ligature the internal jugular vein on the side which the mastoid abscess indicated as probably the seat of the most severe ear mischief. Accordingly at 3.45 P.M., August 4th, I ligatured the vein on the left side just above the omohyoid muscle with fine silk in two places, and divided it between the ligatures. The vein showed no sign of inflammation or thrombosis. The wound having been sutured without drainage and protected from infection as completely as possible, the left mastoid antrum was next opened by removing a sequestrum which lay immediately over it in the suprasternal triangle. The removal of a thin layer of bone with the gouge then exposed the sigmoid sinus, which being rendered tense by the previous ligature of the jugular vein was easily recognised. It showed no sign of inflammation, and on being incised bled profusely. This was checked by a pad of gauze placed over but not actually entering the sinus. The operation was borne well. The following morning, August 5th, the aspect was much improved and the temperature normal. At 12 P.M. the temperature rose to 100°, with a slight rigor. The evening temperature was 101°.

August 6th. The patient was not so well. At noon chloroform was given, and the head wound dressed. On removing the plug, free hæmorrhage occurred from the lateral sinus. A narrow piece of carbolic gauze was therefore stuffed downwards right into the sinus in order to induce coagulation.

August 7th. She was very drowsy all day. The evening temperature was 105°, and there was slight puffiness about both eyes. The neck wound appeared to be healing without reaction. No rigor or vomiting had occurred since August 5th.

August 9th. On removing the plug from the sinus, a very foetid brown