

ON COMPOUND FRACTURE OF THE CRANIUM, WITH DEPRESSION.

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A SIMPLE record of facts in a concise and accessible form, unencumbered by hypothesis, has ever appeared to me the most valuable contribution that it is in the power of any medical man to make to the profession. The author of such a record contributes that which has a fixed and certain value, provided it be a correct, clear, and truthful description of what he has seen. Thus are supplied a number of important facts, which every physician and surgeon can study at his leisure, and reflect on for himself; and from which he may acquire a knowledge of phenomena, and of their relation to each other, almost in the same manner as if he had, at the bed-side of each patient, observed the symptoms, and noted the results for himself.

Medical hypotheses, and abstract general principles, form but precarious guides at the bed-side; and our practice, to be rational, and at the same time useful, must be grounded upon an extensive and correct knowledge of the natural history and pathology of diseases. The experience of any individual, however extensive his private and public practice—however prolonged his facilities for observation, is, after all, but limited and insufficient; and therefore, it is only upon a large number of facts, contributed by many observers, that legitimate principles, in medical science, can be founded. To assist, however humbly, in such a work, the following bed-side sketches have been written.

CASE I. When I was a student in Paris, a man, *ætat.* 28, was admitted into the Hôtel-Dieu, under the care of M. Roux; he had received a blow upon the head, cutting through the scalp, and fracturing the frontal bone, which exhibited very considerable depression. He was at first insensible; but shortly recovered sufficiently to walk to the hospital. He complained of pain in the head, which he asked to have dressed, in order that he might return to his employment; he was, however, desired to remain in the hospital, which he did for some weeks. He was only bled once, and kept upon a very low diet. The man never had a bad symptom, and perfectly recovered.

CASE II. Master W., a little boy, *ætat.* 10, in passing through the streets of Kensington, remained a short time to look at some men who were playing at quoits. One of the quoits struck him upon the left temple with considerable violence; he was immediately taken home, in a state of insensibility, and put to bed. When I saw him, with Mr. Carrick and Mr. R. J. Pollock, of Kensington, about half an hour after the infliction of the blow, he was cold and shivering; he was, however, quite sensible, and complained of sickness and pain in the head. Shortly afterwards, the contents of the stomach were ejected: the vomiting continued during the night. There was a large open wound of the scalp; and, on washing away the coagulated blood, a fracture, with considerable depression, was easily detected. The wound in the integuments was carefully brought together, and cold water was con-

stantly applied to the part, and to the head generally, which was shaved. Sumat hydrarg. chloridi gr. iv, statim.

18th, 8 A.M. Has passed a very restless night; complains of very great thirst; is constantly sick, and has great pain in the head; the skin is hot and dry; the tongue dry; pulse 120. To be bled to ζ viii, and to have ice applied to the head. \mathcal{R} . Sodæ sesquicarbonatis, \mathcal{D} i; syrupi aurantii, ζ i; aquæ, ζ x. Misce; fiat haustus, cum cochleari medio succi limonis Stiâ quâque horâ sumendus. *Evening*. The sickness is much abated. To take four grains of calomel at bed-time.

19th. Much the same.

20th. Complains of pain in the head; skin hot and dry; urine scanty and high-coloured; great thirst; looks towards the light with difficulty; has been very restless during the night; constantly complains of thirst. To take an aperient draught every four hours, until the bowels act freely, and to have four grains of calomel at bed-time.

21st. The bowels have been well opened; pulse 106; complains of a good deal of pain in the head; skin hot and dry; urine scanty. Continue the aperient mixture, and the calomel at bed-time, as before.

22nd. The pain in the head is evidently on the increase, and the wound in the scalp, which had been closed with adhesive plaster, looks puffy round the edges. There is considerable tenderness of the scalp, and great intolerance of light. A few punctures were made in the scalp by Mr. Pollock with a lancet, and a poultice ordered over the seat of the injury. Venesection to ζ vi. Continue the aperient mixture as before.

23rd. The skin is still hot and dry; pulse 100. There is intolerance of light, and some slight confusion of thought. Apply six leeches to the temple; six grains of calomel to be taken at bed-time, and an aperient draught in the morning.

24th. Has passed a good night; bowels have been largely evacuated. The wound looks much more healthy. The boy is cheerful, and wishes to have something to eat.

It would be tedious to detail the subsequent daily course of this case. He day by day continued to improve, and eventually recovered; nor had he, when I again saw him, several years after the accident, experienced any inconvenience from the injury. A considerable depression still remained.

I have seldom seen a more severe injury than this. The fracture extended from the edge of the frontal to the squamous portion of the temporal, and thence to the left parietal bone. The wound in the integuments was more than two inches in length; the scalp was much bruised, and the periosteum in several parts separated from the cranium; the depressed portion of bone was, at least, one inch and a half in length, and was driven below the level of the cranium more than the eighth of an inch. So evident was it, that a woman, who was standing by at the time the wound was dressed, remarked, that "the boy's head was driven in." The treatment, as above stated, was confined to cleansing the scalp, and, after shaving off the hair, very carefully bringing the edges of the wound together, and affording a slight degree of support with a bandage. The experienced surgeons who saw the case (Messrs. Carrick and Pollock), were fully alive to the importance of thus carefully closing

the wound, and excluding every particle of air; and the indications for subduing the inflammatory symptoms were promptly attended to as they arose. The boy was never left for more than a few hours without the superintendence of a medical man; a most important point in these cases, as a few hours may make the greatest possible difference in the treatment required. I ought to have stated, that the boy lost a large quantity of blood from a branch of the temporal artery, which was wounded at the time of the accident.

CASE III. A little boy was admitted into the University College Hospital, London, under the care of the late Mr. S. Cooper, for an injury of the head, received five weeks before. There was a fracture of the frontal bone, with considerable depression, and a wound leading down to it. The accident had been occasioned by a blow from the handle of a pump. As the boy was sensible, he was only bled and purged, and sent to bed. An antiphlogistic diet was strictly enjoined, and the head kept constantly cool with an evaporating lotion. No serious indisposition came on, and the lad soon got well, although a considerable depression remained. Mr. Cooper remarks, "I have seen many cases of depressed bone, with a wound of the scalp, do well without the use of the trephine."

CASE IV. A little boy named Lee, between four and five years of age, was playing in Tattersall's yard, Grosvenor-place, when the shaft of a phaeton fell upon his head, and the iron projection on the underside of the shaft, to which the harness is fastened, made an indentation in the child's head, dividing the scalp, and driving down the bone for more than a quarter of an inch. The little boy was stunned for a short time only; he then vomited, and in a few hours appeared in his ordinary state of health. The case was seen by Mr. Lane, of Grosvenor-place. Nothing worthy of record was done for the child; symptoms were anxiously watched for, but none appeared. A piece of bone, larger than a sixpence, exfoliated; and after the wound had healed, a considerable depression remained.

CASE V. George Ridley, an assistant groom in the stable of the late Earl Spencer, in removing some dung, was kicked upon the head. I saw the poor fellow, shortly after the injury had been received, in consultation with the late Mr. Wright, of Bawtry. There was a small wound upon the side of the head, about the size of a shilling, from which there was a considerable flow of blood. It was evident the wound had been caused by the heel of the shoe, which upon examination was found to be raised (or what the blacksmith terms "turned up"). This portion of iron had been driven through the scalp, with sufficient force to fracture the frontal bone; and the finger very readily detected the depressed portion. The man was stupid, and complained of feeling sick; the pulse was weak, and the hands and feet cold. The wound was washed, and carefully closed with adhesive plaster; the head was shaved, and the man sent to bed. In a few hours he complained of very great pain in his head; the skin was hot; pulse 100; he had been very sick. To be bled to ʒviiij ; cold water to be applied to the head; two grains of calomel to be given every six hours.

7th. The pain in the head is very severe. To have saline aperients; and evaporating lotions to be applied to the head. The bowels

have been well opened. *Evening.* He still complains of a good deal of pain in the head; the countenance is anxious; skin hot and dry; urine scanty; pulse 120. To be bled to ʒx . *Hæc nocte sumat pulv. scammon. gr. iv. cum hydrargyri chloridi gr. iv. Mane sumat haustum sennæ compositum.* Ice to be applied to the head.

8th. The pupils are dilated; and there is intolerance of light; great pain in the head; hot dry skin; great thirst; pulse 120. He has been restless during the night; the wound in the integuments looks tolerably healthy. To be bled to ʒxvi , and to have saline aperients with tartar emetic. *Evening.* The blood drawn in the morning is much buffed and cupped. He says he has much less pain in his head since the bleeding. To continue the saline mixture with tartar emetic, and to have five grains of calomel at bed-time.

9th. Has less pain in the head; there is some puffiness in the scalp, which was punctured in two or three places, and a poultice was ordered to be applied to it. Pulse 110.

10th. The pain in the head is extending to the right ear; there is less puffiness of the scalp. Pulse 100, still full and hard. To be bled to ʒxii .

11th. His mouth is a good deal affected by the calomel; he has much less pain in the head. Pulse 96; skin moist; urine much more abundant. This man was kept in bed, and very carefully watched for more than six weeks. He entirely recovered; a depression being very distinguishable over the part where the bone had been fractured.

CASE VI. Mr. P., at the age of 16, whilst riding down a steep hill, was thrown from his horse, and fell with very great violence on his head. When taken up, he was quite insensible; and a severe wound of the head was found to have been received. The surgeons called in, on examining the injury, found that the scalp had been divided over the right parietal eminence, and the bone below fractured. There was considerable depression. According to the admitted principles of surgery in those days, the scalp was divided on either side of the wound, and the fracture followed to its terminations with the most laboured care. What was next to be done, in a case like this, of compound fracture with depression, and symptoms of pressure upon the brain? The trephine must be used; and preparations were accordingly made for performing the operation, which, however, was happily put a stop to by the gentleman suddenly recovering his senses, and by the removal of all symptoms of concussion and compression. The question now arose, whether it were safe to leave the patient in his present condition, without elevating the depressed portion of bone? This was very quickly decided by the patient himself, who declared that no operation should be performed. He was therefore removed to his bed, and the wound allowed to heal; and, notwithstanding the additional scalping of the surgeons, it did so without any untoward symptom. Forty years have rolled away since the accident: the gentleman is now alive, and when I last saw him he had a depression of the right parietal bone, of about a quarter of an inch in depth, and an inch and a half long. He has never suffered any pain or inconvenience from it, and is the father of a numerous and healthy family: one of whom is in extensive practice as a surgeon, and drew my attention to his father's head.

CASE VII. July 1848. I was requested by my friend Mr. Raynes, a surgeon residing at Gringley-on-the-Hill, Nottinghamshire, to visit A. B. Two days before I saw him, a friend heated with wine had quarrelled with him, and unfortunately, in a fit of passion, had struck A. B. over the left parietal bone with a hammer, cutting through the scalp and causing a fracture with considerable depression, extending for more than an inch. Symptoms of inflammation, of a very severe character, had to be combated by active means. The man was kept in bed, and a bladder filled with ice and salt suspended over his head, which was shaved. The wound had been very carefully brought together with isinglass plaster, before I was called in consultation. The man was bled four times largely, and calomel was exhibited so as to affect the system. He slowly recovered; and, in three months, was able to attend to his usual avocations.

CASE VIII. This case will show the very great importance of strictly attending to diet for a long time after the infliction of injuries of this nature. Everything which has a tendency in any way to derange the system, must, for months after fractures of the bones of the head, be avoided, or the most fatal results may take place.

Mary Burton, a little girl, *æt.* 13, the daughter of a small farmer, fell down in her father's yard upon the edge of a stone trough. The integuments over the right temporal bone were wounded, and the finger could easily detect a fracture with some depression. The little patient was quite sensible. The plan of treatment already detailed was adopted; and in a few weeks the child was playing about, to all appearance as well as before her fall. Six weeks after the accident, in company with some young friends, the girl partook freely of sweet cake, ripe fruit, and home-made wine. Two days after this, she was seized with rigors, followed by great pain in the head, and the integuments over the original injury were so tender, that the slightest examination produced great pain. At this period I was called in consultation, to see the case, with the usual medical attendant of the family, Mr. Jackson. After very carefully examining the head, we were induced to direct our attention more particularly to the state of the alimentary canal. The face was flushed, the skin hot and dry; the tongue was covered with a thick white coat; pulse 120; pupils dilated. There was intolerance of light, and the slightest noise seemed to increase her sufferings. An emetic of sulphate of zinc was given immediately; after which six leeches were applied to the temples, and the bowels freely emptied by repeated doses of infusion of senna and manna, a powder of calomel and rhubarb having previously been taken. A lotion of spirits of wine, with water, was kept upon the head. When the bowels were unloaded, the pain and tenderness quickly subsided; and in a few days she was much better. The skin, however, retained a yellow hue; the child was languid, and seemed to care little about play or what was passing around her. This was removed by a few doses of grey powder and rhubarb at bed-time, and a little infusion of chirayta, with carbonate of soda, twice a day. This, and a strict attention to diet and exercise, gave us the satisfaction of again seeing our little patient quite restored to health.

CASE IX. James Betts, *æt.* 10, was endeavouring, in July 1841, to get upon a cart. He fell with his head between the cart and the wheel,

and was drawn onwards for some distance; his head acting as a wedge, and causing the wheel to be locked for some yards. The bone was *not fractured*, but the parts were much bruised. I saw him shortly after the accident; and although every care was taken, the symptoms were much more severe than in many of the cases of fracture with depression already mentioned. The scalp became tender and puffy, and nothing but early and free incisions prevented a fatal termination of the case.

Cases of a similar nature were well described many years ago by Mr. Pott. For example: a man receives a blow, as in the case of Betts, upon the head; he is perhaps stunned at the time, but soon recovers, and remains for some time apparently quite well. In a day or two he begins to feel pain in his head; he is restless; cannot sleep; he has a frequent, full, hard pulse. The countenance is flushed; the eyes red and ferrety; then he complains of nausea and rigors, followed by delirium, convulsions, or coma. If the part first injured be examined, a change is found to take place, step by step with the general symptoms already pointed out. An experienced practitioner, on looking at the wound, would describe without a question the state of the system; or the rigors and convulsions would, on the other hand, enable him to point out, even before the dressings were removed, what would be the condition of the wound. I have seen Sir B. C. Brodie do this repeatedly. If the tumid scalp be cut through, or rather if this have not been done sufficiently early, the contiguous pericranium is found separated from the bone; nor is this change confined to the pericranium only. The bone itself is altered in colour—it is of a dead white hue, and looks drier than living bone. If the bone be removed, it will be seen that the more important parts within the skull are implicated; the dura mater is found to be separated from the cranium, and often covered by lymph or puriform matter. Inflammation of the dura mater may be regarded as very rare, as a simple and idiopathic affection. The extensive experience of the late Dr. Abercrombie only furnished one case, and even that can hardly be regarded as a case of simple inflammation of the dura mater. There was pus upon this membrane, which adhered to the cranium, over a space as large as a crown-piece; and at that precise spot the membrane was ulcerated. An adventitious membrane also existed beneath the arachnoid, where it covers the brain.

I have a few more cases of Compound Fracture of the Cranium to record, which, with the observations they suggest, and the result of my own experience in the treatment of a very great number of similar cases, must be postponed to a future number of THE LONDON JOURNAL OF MEDICINE.

(To be continued.)

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