ORIGINAL COMMUNICATIONS.

CLINICAL LECTURES ON SURGERY NOW IN COURSE OF DELIVERY AT QUEEN'S COLLEGE, BIRMINGHAM.

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[Reported by James Jaffray, Esq., and corrected by the Author.]

LECTURE VIII.

ON INJURIES OF THE HEAD.

GENTLEMEN,—On this occasion, I wish to direct your attention to the case of S. B., who was admitted into the Queen's Hospital, with severe injuries of the head, three days ago. He is 32 years of age, and is a very athletic agricultural labourer. He was riding on the shafts of his cart in the neighbourhood of Northfield, when by some accident he fell; a hook caught him, and he was dragged on the ground for some distance. Whether the wheels went over him, it is difficult to say. When he was admitted, it was found that the skin over the right temple was divided to the extent of five or six inches. The temporal muscle was also cut through—a pretty clean cut. On putting the finger to the bottom of the wound thus made, a fracture of the skull was detected in the squamous portion of the temporal bone. This was a fracture of the skull. There was also a long scalp wound, and a division of the temporal muscle, as I have said. In addition to this, he had fracture of the sixth and seventh ribs, and fracture of the second rib near the sternum, with a wound of the lung, for the whole surface of the chest was emphysematous. Such were the conditions of injury under which this poor man laboured.

Now we will examine his symptoms *seriatim*, and we will take for this purpose the dresser's (Mr. Williams) note of the case, which is a very good one, and make comments as we go on.

CASE. When he was admitted, he was suffering from the effects of shock; the skin was cold, the pulse small, frequent, and unsteady, and the pupils dilated; he vomited and passed two motions involuntarily. There was a condition approaching that of coma; but if you roused him, he spoke sensibly. He was evidently labouring under concussion of the brain, at the same time that he had fracture of the skull; but he had not compression of the brain, as none of the symptoms of compression, as I shall afterwards show, were present. The treatment adopted was the following. The head was shaved, and two or three straps were put upon the scalp wounds, merely to keep the flaps of the wound in position, not with the view of uniting them by the first intention, and for this reason—if suppuration had taken place, the object was to leave a vent for the matter. If union had been effected by the first intention, it is probable—as the formation of matter often results as a secondary symptom—that the wound must have been again opened; and its premature closing would, by preventing the free external discharge of pus, have disposed the latter to spread all over the scalp, favouring the production of erysipelas, so common as a secondary consequence of scalp wounds. It is well, then, always to leave a vent for what matter may be formed either superficially or deeply. This is of double importance where you have scalp wounds complicated with fracture.

Fractures of the skull are, or are not, accompanied by what is called depression of the fractured portion of bone: that is, a portion of the fractured bone may be driven in, and press upon the brain. When a piece of bone is depressed, it sometimes produces a train of symptoms known in surgical language by the name of "compression".

Now, I want you particularly to distinguish between

depression and compression. Depression is a driving in towards the brain of the fractured skull; compression is applied to a series of symptoms characterised by a total loss of consciousness, coma, stupor, stertorous breathing, paralysis to a greater or less extent, and the involuntary discharge of feces or urine, indicating that the substance of the brain is unduly and unnaturally pressed upon by bone, matter, or blood, and that this compression is the cause of the symptoms I have just mentioned. It is the symptoms of compression that determine whether we are to have recourse to the operation of trephining, which raises the bone, and relieves the compression.

In the case before us, the man did not suffer from any of these symptoms, although a piece of the bone of the skull was actually driven in, or appeared to be. The rationale of this is simple. You will remember that the flat bones of the skull are composed of two tables, an outer and inner, separated by a loose reticulated bony structure of greater or less thickness, known as "the diploe"; and it is quite possible that the outer may be depressed, and the inner tables not at all. This holds good of fractures of the frontal, occipital, and parietal bones; but it does not always hold good with respect to the squamous portion of the temporal, simply because it is a thin scaly bone. Here, if a fracture exists at all, it generally implicates both tables, and not one only. In the other cases, a certain amount of force would depress the outer, but it might not extend so far as the inner table. In the case of the patient under notice, there is great reason to believe that this is correct, because, although the skull was fractured, there were none of the symptoms of compression.

Now, having explained the important distinction between depression and compression, we go on with the details of the case, to show what were the symptoms, the treatment adopted, and the reasons for its adoption. The head was shaved, and cold cloths applied, the object being to prevent inflammation externally and internally. The pulse was fluttering and unsteady, and the extremities were cold. He was covered with blankets, and a hot bottle applied to his feet. He vomited, and was then ordered some tea. I should say, however, that the depression was so great, that some stimulant had been administered.

Now, without referring to this particular case, but speaking generally, it may be important to say a word or two on the exhibition of stimulants in such cases. When a man receives an injury of this kind, it is sometimes complicated with injury within the skull, such as the rupture of vessels, and the symptoms of compression follow, but not immediately. In the event of any of the vessels being divided within the skull, and bleeding going slowly on, the faintness arising from the shock is most favourable to the formation of a clot, and the consequent arresting of the hæmorrhage. Sir B. Brodie has before laid down this doctrine, that the state of faintness which occurs after injuries of the head should not be suddenly interfered with by the administration of stimulants; and for this reason—admitting that any injury to the vessels of the skull has taken place, this condition is most favourable to the formation of a clot. In this case, after the stimulant had been administered, the condition of shock remained for some time. It is always well to deplete in cases of this kind; and the reasons are manifest; but bleeding should never be had recourse to until reaction is fully established. It is very common to find that patients never recover from the shock; and when I spoke of giving stimulants in such cases, I meant that we should wait for a short time to see if there is any symptom of reaction; and then, if there is not, stimulants may be cautiously given. There are cases where a person receiving a blow on the back of the head, or a fall, suffers so much from the shock to the brain, that he dies without any reaction at all. I ordered the patient to have warm tea and gruel; and when reaction came on, he was to be bled as much as Mr. West, the house-surgeon, thought he could bear. Reaction came on about seven o'clock in the morning. He then appeared perfectly sensible; his skin was warm, and his pulse full and bounding.

Under these circumstances, Mr. West bled him from the arm to the extent of twelve ounces, but refrained from taking more, in consequence of the approach of syncope. Now, nothing can be clearer than that the bleeding was done at the proper time, and the amount just sufficient to relieve the patient, and no more. If the bleeding had been continued, and syncope occurred, he would have relapsed into the condition of shock.

In three days after the accident, then, we find the patient doing very well. Now, there are still a few things to which attention may very properly be directed in this case.

When I went to the hospital, one of the gentlemen said, "Shall you raise the bone, sir?" That implied a belief that the man was labouring under compression; but it would have been most injudicious to have raised the bone, because the man had no symptoms whatever indicating compression. Remember this, that you are never to have recourse to the operation of the trephine, unless you are sure that compression coexists with depression.

I may now just point out cursorily what are the chief forms of injury to the head. First, then, there is a simple fissure of the skull. Suppose a man received a blow or a fall, he may have a fracture of the skull without a wound of the scalp; and these are not generally discovered until after death. Second, there may be a fracture of the skull, with a wound of the scalp, but without the symptoms of compression. The case I have alluded to was of that kind. There is a third form, where you have fracture of the skull with a wound of the scalp, with a depression of a portion of the injured bone, but in which you have no symptoms of compression. In this case, your plan of treatment is quite clear. You have to treat the wound of the scalp according to the principles laid down, and to obviate the risk of inflammation of the brain or its membranes by depletion. You have then first simple fracture, without wound of the scalp, generally not discovered during life; secondly, wounds of the scalp, fracture of the skull, without depression; thirdly, with depression, but without the symptoms of compression; fourthly, with depression, and with symptoms of compression. In this last case, or in cases of compression generally, you should wait a little time before having recourse to the trephine, because you will sometimes find that the action of the brain itself, especially in young persons, will push up the depressed portion of the bone, so that it produces no injury. If you have no symptoms of compression, you would not have recourse to the trephine; but if you have fracture with depression and symptoms of compression, and these continue in spite of the depletory treatment, you must have recourse to the operation of trephine.

These are the primary aspects of the subject; but it is of great extent, and the secondary consequences are most important. We shall have an opportunity of saying something of them and their treatment in a future lecture. At present, I have merely entered upon the primary consequences of injury to the head, and the primary mode of treatment; and, before concluding, I would impress upon you a sentence extracted from a modern author, with whom I perfectly concur; and that is: "Never trephine a patient for a fracture of the skull, unless he be actually labouring under coma, paralysis, or other symptoms of compression, in an urgent and dangerous degree, and which have not been removed by depletion or the other treatment which would be likely to produce that effect."

Birmingham, September 1885.

[NOTE. The patient whose case is detailed in this lecture was discharged, cured, on August 3rd, having been admitted on July 11th. He has had no bad symptom of any kind since he left the hospital. L. P.]

PERISCOPIC REVIEW.

EPIDEMIOLOGY, HYGIENICS, AND STATISTICS.

REPORTS ON EPIDEMIC DISEASES IN AMERICA.

THE following are abstracts of some valuable reports on Epidemic Diseases, published in the last volume of the *Transactions of the American Medical Association*. The states from which reports were furnished, were those of Kentucky, Tennessee, Ohio, Indiana, and Michigan.

DYSENTERY.

Dysentery is reported as having prevailed in an epidemic form in various districts of the states mentioned. The type and severity of the disease varied in different districts and seasons.

In Ohio, Dr. S. G. Cary reports that dysentery is endemic in an extensive district between the valley of the Miami and the west line of Montgomery county. In the same district, and in other parts of the state, it was epidemic in 1849, 1850, and 1852. In the epidemic of the autumn of 1850, the principal symptoms were high and protracted inflammation of the rectum and colon, remitting fever, and biliary derangement from the commencement of the disease. Tormina, tenesmus, and retention of urine, were most constant and distressing symptoms. The disease was not generally fatal. In the other visitations of the epidemic, the discharges tended to become copiously hæmorrhagic as the case progressed; and the disease was less amenable to treatment.

Dr. C. C. Sams reports that in Highland county, Ohio, dysentery prevailed during the summer and autumn of 1852 as an epidemic. In many cases, the inflammation extended from the colon to the small intestines and stomach: these cases were difficult to manage, and sometimes proved fatal. The complications in some of the cases were curious. In one instance, the disease appeared in a stout middle-aged woman, a day or two before parturition, and continued with severe symptoms till its fatal termination, ten days afterwards, attended with puerperal insanity. In another case, the patient had passed a part of the summer in a highly malarious district, and had contracted an intermittent which had been broken up a few weeks previously to the attack of dysentery. Several days after the dysenteric symptoms set in, the intermittent returned. Each disease seemed independent of the other. The ague yielded to quinine; and the dysentery gave way in a few days to opiates and purgatives.

Dr. Sams remarks that, in the district for which he reports, dysentery seems to invade the country by stages. It prevails one season in a locality more or less extensive; and the next summer it seems to start from the edge of the district invaded the year before, and spread over a portion of country heretofore exempt; and so on again the following year. This progress in regular stages has been observed in Highland county since 1849.

In Belmont county, Ohio, dysentery prevailed epidemically in the summer of 1851, and continued till late in October. The symptoms were of a typhoid character, and the secretions were much deranged. The season was remarkable for drought. During the prevalence of the epidemic, the wind was nearly all the time from the south-west; and on the north-east bank of a creek in the vicinity of the reporter (Dr. E. Williams), and the upland for a mile or two distant, almost every family was attacked; while on the south-west bank, and the whole ridge adjoining, not a single case occurred. When the autumn rains came on, and washed away the decomposing matter, the disease immediately disappeared. It was thought that the unwholesome quality of the water for culinary and drinking purposes, and the offensive effluvia arising from stagnant ponds, were prominent agents in creating and extending the disease.

In Jacobsburg, Belmont county, Dr. John A. Weyer reports that dysentery was epidemic (not in a severe form) from 1st September to the middle of October 1852. A short time previous to its appearance, there were several very warm days, followed by very cool nights; and Dr. Weyer is inclined to believe this condition to have been the cause of the disease.

In Milton, Wayne county, Indiana, epidemic dysentery prevailed from July to November 1853. The deaths were 26 out of between 200 and 300 cases. The epidemic was, strictly speaking, an ileo-colitis; and in many cases the rectum was not seriously involved. The tendency to gangrene was very strong; and in some cases this condition was clearly manifest