PROVINCIAL MEDICAL & SURGICAL JOURNAL.

CASE OF DISPLACEMENT OF THE VERTEBRÆ CURED BY EXTENSION.

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Presented at the Anniversary Meeting of the Provincial Medical and Surgical Association, at Norwich, August 20th, 1846.

In the eleventh volume of the "Transactions of the Provincial Medical and Surgical Association," is published a paper on the employment of extension in the treatment of fractures of the spine. This paper contains a case of displacement of the vertebræ, treated by Mr. Crowfoot, the author of the communication on this principle, of which the following is an abstract :—

"On the 5th of July, 1839, Anthony Callow, aged 42, by occupation a coachman, whilst driving a carriage through a covered gateway, was caught by a beam on the back of his neck, as he was in the act of stooping forwards, and the horse rushing on, he was bent completely double. On the removal of the poor fellow from the box of the carriage, his lower extremities were found to be *perfectly* paralysed. On an examination of the back there was discovered a great deformity about the ninth, tenth, eleventh, and twelfth dorsal vertebræ, occasioned by an increased posterior curvature; the spinous processes of the ninth and tenth vertebræ were divided from each other considerably beyond their usual distance, the body of the ninth vertebra having been forced forward, whilst that of the tenth projected backwards. The abdomen became almost immediately distended; the ability to empty the bladder was lost, and there was a *total* deprivation of the power of voluntary motion and of sensation in the lower extremities. No doubt existed in my own mind, nor in those of my son, and of the respectable professional men amongst whom I have the happiness to live, who were present, that displacement of the bones of the spine had taken place, and that there was pressure on the spinal chord. There was too much reason to fear that this case would terminate, as all similar ones which I had seen had done—fatally. Unwilling, however, to leave the poor fellow, who had but recently left my own service, without making some decided effort to relieve him, we determined to try the effect of cautious extension, and I applied it in the following manner :—

"After the bowels had been emptied by an enema, and the bladder by the catheter, a broad and well-padded belt was passed around the chest, and under the arms, and it was fixed from behind to a strong

staple at the upper end of the frame of the bed; another equally broad and well-padded belt was buckled round the body, just above the pelvis; this latter belt had two very strong straps attached to it, one before, the other behind, each having a strong iron ring at its extremity; these straps were brought between the thighs, care having been taken to avoid pressure on the penis and scrotum, and made fast to the pullies. A gradual but considerable extension was now made, whilst some slight attempts were made by the pressure of the fingers to aid the replacement of the bones. The deformity of the spine was evidently diminished by the extension, whilst the pressure on the posterior tractus of the spinal chord was so far relieved, as to permit an almost immediate restoration of a certain degree of sensibility in the parts below the injury, where it had been entirely lost; but there was not the slightest return of the power of voluntary motion. An important point had, however, been gained, and a hope was excited that the spinal chord, partially relieved as it was, might gradually accommodate itself to the still altered form of the bony canal, and ultimately resume its functions, provided proper means were used to retain the amended position of the bones, and to obviate the inflammation which could not fail to follow such an accident.

"The patient was placed on his back on a firm bed in such a manner that his *fæces* could be removed without his being disturbed, and the most perfect rest was enjoined. For the first nine or ten days from six to ten ounces of blood were daily taken away from each side of the spine, alternately, with great relief to the feelings of the patient, who was most cautiously raised on his side by the sheet for the purpose, and afterwards as cautiously replaced on his back. The catheter was introduced two or three times a day for about a fortnight, when its use was no longer required. At this time the patient was accidentally seen by my old and valued friend Mr. Dalrymple, of Norwich, who was not very sanguine as to the ultimate success of the treatment, though well satisfied with what had been already accomplished. The case went on favourably; the patient steadily improved, and at the end of three weeks he could slightly move the great toe of the right foot; in a few days after, that of the left foot, and gradually this power extended over the other muscles of the lower extremities and pelvis. At the end of two months from the time of the accident, Callow was able to support himself upon his legs with but little assistance; he slowly recovered the use of his lower limbs, and at the end of a twelvemonth was again able to mount his box, and take care of his horses. Horse

exercise, or walking any great distance, is apt to produce pain in the loins, and some degree of numbness in the limbs, but he is otherwise in perfect health, and is one of the best grooms in the country. There remains still some degree of deformity about the injured part, and an unusual separation between the spinous processes of the ninth and tenth vertebræ."

The subject of this case was presented at the recent meeting of the Association at Norwich, and Mr. Crowfoot, in submitting him to the examination of the members present, took occasion to make the following remarks on the treatment pursued, and on the subsequent progress of the case :—

All the ancient writers, he observed, from Hippocrates to Ambrose Paré, recommend the system of extension in the treatment of fracture of the spine, while every writer of the present time had not only not recommended extension, but deprecated its employment as dangerous. In the course of his practice he had had three or four cases of fractured spine, and in these cases he had done formerly what he had seen done by others,—he had endeavoured to foretell according to the situation of the fracture, what length of time the person would live, and that was all.

In the present case the man had been a servant of his own, was a married man, with a family of children. Mr. Crowfoot had become acquainted with the ancient writers on this subject, and looking to his previous want of success, had determined to employ the mode of treatment they recommended. The first thing to ascertain was, whether there was a fracture. This he should have no difficulty of proving to the meeting, for happily, in the town of Beccles, there was that really gentlemanly feeling among the medical men, that if any one had a peculiar case he was happy to shew it, and to ask for aid in a case of difficulty. Such had been the case in the present instance. The man was sitting on the box of a lofty carriage driving a pair of horses, and had turned into a gateway under a building unaware of the nature of the entrance, for though the building ran horizontally, and though in driving under the gateway there was plenty of room, the ground rose so rapidly, that there was only room for him to pass by stooping; and in going under, being unable to stop his horses, he was bent completely down, causing a fracture of the dorsal vertebræ. The man was taken off the box perfectly paralysed, there was deformity resulting from the displacing of the bone in the dorsal region of the spine.

Mr. Crowfoot had sent to his medical brethren resident in the town, and of those who kindly attended, he was happy to say two were then present in the Hall. These gentlemen had seen the case, and witnessed the treatment throughout its whole course. He had explained his views on the subject to them, and his intentions as to the mode of treatment, in which they quite accorded, feeling it to be a hard thing to leave the man to his fate, without an effort being made to save him.

He would observe, that before he began the extension the man was completely paralysed, both to sensibility and the power of motion, one of his limbs might have been cut off and he would have remained unaware of it, for no pinching produced any effect on him. The

extension was made in the way described in the published account of the case.

After the extension, the deformity was diminished, but not entirely removed; and so far the pressure was taken off the spinal cord, by bringing the bone into a better position, and by removing the arch of the displaced dorsal vertebra from the body of the one beneath it,—so much was the pressure taken off the posterior tract of the cord, that before he ceased to make the pressure, a certain degree of sensibility was restored to the man—so far restored, that on pinching him he sensibly felt it in parts of the limb. There was not, however, the slightest improvement in the power of voluntary motion. It was encouraging that they had achieved so much in relieving the deformity. The next thing was to set him in the best position they could, and to keep the bones in an advantageous state, so as to prevent that inflammatory action which was certain to be set up in the spinal cord in an accident of that kind, and which, he believed, was more commonly than not the cause of death. Of course the possible advantages of extension in spinal accident must depend on the degree of injury which the spinal cord had sustained, for, if one vertebra was pitched so far over another so as to destroy the texture, no good could be done, but they could never be sure of this being the case, and even in such instances extension could do no harm, while there was a possibility of its doing good.

His friend, Mr. Humphrey, of Cambridge, had brought some specimens of fractures of the dorsal vertebra, and they would afford lucid illustrations as to how such fractures took place. They would find, in one case, that the superior dorsal vertebra had been thrown forward, and had crushed the body of the adjacent vertebra, and still left such a space, and only such a space, for the spinal cord, that a cedar pencil might be passed down the canal. In that case the man lived nearly twelve months, till a bony deposit took place in the part, but he had since died from a febrile attack. That man remained paralysed. The bone was not drawn into its place, as Mr. Humphrey would kindly describe. They would see that the canal was still left perfect in the parts exhibited, the section not having disturbed it.

Mr. Crowfoot then proceeded to describe his mode of treatment. He was obliged to use the catheter three times a day for a fortnight. For eight or nine days he had taken from six to eight ounces of blood daily, to prevent any fatal action coming on, and by keeping the body open, in three weeks the patient began to move the great toe of one foot, and gradually and steadily he got power over the other muscles.

The man had gone on improving: he had seen him that morning, and he stated that he had ridden seventy miles in a day since the accident. On examining the body they would see there was a partial deformity of the spine still remaining, and they would find they could lay two fingers between the spinal processes, the superior one being tilted up by the body of the other vertebra giving way.

Two gentlemen present had witnessed the treatment, and he would thank them to correct him if he had erred in his statement. He alluded to Mr. Davey and Mr. Francis, to whom he would be obliged, if he had said anything incorrect, to set him right. His great wish was to state this case accurately, in order that the

gentlemen present might be satisfied that there had been a displacement of bone, and that all the modern writers on surgery might revise their opinion on this subject, when cases of this kind occurred.

Mr. Crowfoot here referred to "*Haller's Medica Artis Principes post Hippocratem, et Galenum*," published at Paris, in 1647, in which there were some wood-cuts, shewing the position in which the patients were placed, and the mode of extension. They were placed prone, and he was not sure that the ancient one was not the preferable one. Such was his treatment of this case, and he thought it was one of such importance, that it should not rest on his unsupported testimony. The man who had got quite well was in the adjoining room, and might be brought into the hall.

Mr. Francis, of Norwich, testified to the correctness of Mr. Crowfoot's statement.

The man who appeared to be in good health was brought into the hall, and examined by the gentlemen present.

The President said, if no one had any remarks to make on cases of spinal fracture, he would offer a few observations. He recollected well, that after this man's recovery, he happened to be travelling in the neighbourhood of Beccles, and his postilion was this very patient. The subject of spinal fracture was one on which he was not particularly prepared to speak, otherwise than by the experience and good opportunity which many years had afforded him. He regarded the way in which Mr. Crowfoot had brought forward this patient as attended with this good effect. There were thousands of cases of great interest which occurred in the experience of the profession, but the mischief was, they were not kept at hand for the purposes of illustration. After this demonstration, and the inspection of the specimens produced, those present would have this case so impressed upon them that it would be remembered for the rest of their lives. It might be a question how far extension was available. Mr. Crowfoot had referred to cases in which success could not be expected, though there could not be any objections, even then, to extension being made. Mr. Crowfoot had alluded to that destructive compression of the spinal marrow, in which extension could do no good; the fibrous sheath might be torn, also the delicate membranes, vascular and arachnoid, lacerated. If, in addition to such lacerations, the parts were compressed as in a vice, displacing the nervous tissue, and leaving only the cellular remaining, of all of which injuries specimens were exhibited in the room, he presumed, that where the injury to the nervous texture was to this last degree, the nervous matter compressed and destroyed, the destruction of the patient might be considered inevitable; at least, he did not believe there had been any evidence of recovery under such circumstances. That such a destructive compression of the nervous texture did take place he would be able to demonstrate, as well as that the delicate membranes that envelope the spinal marrow were often lacerated; and if any of the coats of the spinal marrow were ruptured or torn up, surely in these cases they would expect inflammatory action to succeed, rendering them more dangerous; the treatment by bleeding locally from the part itself, when the patient was dorsally recumbent, was open to an objection which Mr. Crowfoot had fortunately surmounted; but, it would generally be found, that to move the patient

daily to abstract blood was very dangerous; therefore, the placing the patient upon the chest which Mr. Crowfoot referred to, was to be strongly recommended and well considered.

A case of laceration of the external or fibrous sheath was shewn in a preparation, as well as of the deeper and more destructive injuries.

The President proceeded further to explain the nature of the case referred to by Mr. Crowfoot, from the specimens exhibited. From one of these it appeared the delicate membranes were ruptured, but the nervous substance was half torn through without the rest being displaced; possibly, the President observed, this patient might have recovered, but in another instance which he pointed out all the nervous matter was crushed, and the cellular tissue only was remaining, and here was a case in which recovery could not be expected. There were a few further remarks he would beg leave to submit, because he did not know they had been demonstrated; they referred to the way in which the displaced bones shewed themselves,—that the superior vertebra was always thrust forward, and the lower vertebra went backward. This was a uniform rule, he had half a dozen specimens there shewing this, and the result was that the narrowing of the bony canal was affected by the body of the inferior vertebra coming near to the posterior processes of the vertebra above,—that was the uniform rule in all these specimens. He had another specimen which he exhibited, which occurred to a girl who fell from a tree, and fractured the odontoid process; the particulars of the case could not be now stated, but after some days of quiet she suddenly turned, and instantly expired, the spinal marrow being compressed by the displacement of the bone. This suggested to him, that where the odontoid process was fractured, it became essential not only to caution the patient, but also to have recourse to mechanical aid by splints, to secure a fixed position. He ventured to make these observations as no other gentleman had taken up the subject.

CASE OF DISSECTING ANEURISM OF THE AORTA.

By W. H. RANKING, M.D., Physician to the Bury and Suffolk General Hospital.

TO THE EDITOR OF THE PROVINCIAL MEDICAL AND SURGICAL JOURNAL.

SIR,

As I regard a weekly journal, such as the *Provincial Medical and Surgical Journal*, especially adapted for the extempore record of cases which present features of unusual interest, either from their rarity or from their involving points of importance as regards diagnosis or treatment, I beg to send you for insertion at your convenience, the following case of dissecting aneurism of the aorta.

I am, Sir,

Yours sincerely,

W. H. RANKING, M.D.

A man, aged 57, of intemperate habits, came under my charge as out-patient of the Suffolk General