were observed in the arm, but, on watching closely for a little time, an occasional slight twitch was observed. Occasional sighing was also noted. There was no cardiac murmur. She improved very little as an out-patient during two months' treatment, and there gradually developed distinct choreic movements in the right arm, without much weakness. She was then admitted into the county branch of the Hospital, and rapidly improved; the movements in the right arm ceased, and the left arm became much stronger, without preventing distinct choreiform spasm; the power of grasp increasing in three weeks from 0 to 17 kilogrammes.

CASE V.—L. W., aged 7, was brought to the Queen Square Hospital in February 1879, with the statement that he had, during the previous two months, gradually lost the use of the right hand. The hand was found to be distinctly weaker than the left. There was no inco-ordination of movement; and, at first sight, no choreiform movements. Close observation, especially when he was holding an object with the right hand, detected a slight occasional twitch. Strychnia was given, and he gradually improved; power increasing, and the spontaneous movements ceasing to be observed. In two months' time, he was well.

These cases speak for themselves, and it is hardly necessary for me to point out their chief characteristics. The age at which the affection may occur is that at which chorea is the most common, seven to fifteen years. As a rule, gradual loss of the use of one arm alone attracts the attention of the friends. In some cases, the sudden dropping of objects, so characteristic of the imperfect muscular control of chorea, is noted early. In rare cases, slight clonic spasm occurs in the affected arm at first, and passes off subsequently. The loss of power may be very great and real, or it may be much less than the loss of use of the limb would suggest. In these cases, there is rather inaction than paralysis. The affection is usually confined to one arm; there is no hemiplegic weakness; no paralysis of face, tongue, and leg. Both arms may be affected, but one is always weaker than the other. Close and continued observation will generally detect an occasional slight choreic twitch, even in the arm which is weak, but often more conspicuous in the other arm, which is the less weak, or even strong. Sometimes, slight clonic contractions may be noted in the legs. The affection may pass off without choreiform movements being more conspicuous. Frequently, however, these subsequently came on; and they may even be more marked as the power in the arm becomes greater.

Whenever a child of this age suffers from gradual loss of power in the arm, and presents no weakness in face, tongue, or leg, the disease, as far as I have seen, is always chorea. If the nature of the case be suspected, confirmatory evidence—slight occasional spasm—if looked for, will commonly be at some time detected, either in the weak arm or in the other.

The course of these cases is often tedious; and, as the choreoid movements may increase as the weakness passes off, the patients often seem, to the friends, to be getting worse when really getting better. I have never seen this form pass on into severe general chorea.

ON FRACTURE OF THE NECK OF THE HUMERUS, AS A COMPLICATION OF DISLOCATION OF THE SHOULDER.*

By EDWARD H. BENNETT, M.D.,

Professor of Surgery in the University of Dublin; Surgeon to Sir Patrick Dun's Hospital.

THE examples of fracture of the neck of the humerus, occurring as a complication of dislocation of the head of the bone, which I present to the meeting, are of interest for their rarity, and, more particularly, for the light which they throw on the mode of production of this accident.

The difficulties of diagnosis and of treatment, which attend this complicated injury, render it desirable that every opportunity should be availed of that may extend our knowledge of its pathology; I need not, therefore, offer any apology for occupying the attention of the meeting for a few minutes, while I point out the leading features of five examples which our Dublin collections contain. The first question which arises in the study of the injury has reference to the order of the occurrence of the fracture and dislocation. Which takes place first—the fracture or the dislocation? Sir Astley Cooper answers, without hesitation: "This accident generally occurs in the following way. A person falls and pitches with violence on his shoulder, or a heavily laden carriage passes over it. By the first impression of the accident, the os humeri is dislocated; and, by a second, the neck of the bone is broken, and the head detached and lodged in the axilla." Sir Astley

does not assign any reason for this assertion; nor do I know that any case is recorded in which the second cause which he describes has been observed: the passage of a heavily-laden carriage over the shoulder. On the contrary, Malgaigne states distinctly that the cause of the accident has in every case been a fall, probably on the shoulder. Delpech, who first recorded with accuracy a case of this kind, proved, by dissection, not only the possibility of the fracture of the anatomical neck of the humerus, but also the possibility of dislocation of the humerus backwards—facts resting, in his day, on doubtful evidence. He discusses the question of the order of occurrence of the two lesions; and expresses the opinion that the first step is the production of the fracture—the second, the dislocation. "The fracturing force itself, and some chance movements of the arm, are sufficient to produce the dislocation." It is curious to observe that the opinions of Delpech and Cooper, so directly opposite, have been based on the examination of instances of the fracture in which the dislocations took place in opposite directions: in Delpech's, backwards; in Cooper's, forwards.

The explanation offered by Delpech is, that the bone, already rotated inwards by some accidental circumstance of the fall, strikes against the ground—so that the outer margin of its head bears the shock, while the inner rests against the contour of the glenoid cavity; that so the fracture of the anatomical neck is determined, and is followed by the protrusion of the head of the bone through the capsule. Such explanation might readily apply to cases in which the head of the bone is dislocated backwards; but, if we consider the more numerous cases of fracture with dislocation forwards, this explanation fails; for, in these cases, the head of the bone cannot be compressed between the ground and the glenoid cavity. If such were the mode of production, we should expect, in some recorded case, to find comminutions of one or both fragments present; but I find no mention of this condition; it is absent from the specimens before us. Malgaigne avoids this question in his detailed account of the injury; in his chapter on luxations, complicated by fractures in general, he disposes of it thus: "It is very difficult to define exactly the mechanism by which the two lesions, dislocation and fracture, take place; to determine whether the two lesions are simultaneous, or which precedes the other; whether they are due to direct or to indirect injury."

Dr. R. W. Smith, in treating of "fractures of the humerus in the vicinity of the shoulder-joint", omits all mention of this fracture. He describes at length one of the specimens which I now exhibit, and concludes that it is an impacted intracapsular fracture—a conclusion which, I think, a comparison of the specimen with the others on the table, will demonstrate to be incorrect.

The study of the recorded cases, in which dissection has verified the injury with the detailed examination of these specimens, leads me to conclude that the combination of injuries is due to a constant cause, and that this cause acts after the dislocation has occurred. My first specimen suggests this cause, and also its time of action. In this, a recent intracoracoid dislocation, in which the head of the bone has been left undisturbed in its dislocated position, there exists a partial fracture of the humerus in the part of the anatomical neck which is applied against the border of the glenoid cavity of the scapula. It will be seen, at a glance, that the fracture has been produced by pressure of the bone against the edge of the glenoid cavity; and that, from its extent and position, the fracture must have occurred after the bone had been dislocated. This specimen I obtained from the body of a man who fell twenty feet into the empty hold of a vessel, lighting on the kelson. As he tripped and fell, it was noticed by his fellow-workmen that he had the hand of the injured side in his breeches-pocket. He died of injuries to the head within three days, the dislocation remaining unreduced. It will be noticed that the coracoid process has also been broken by the pressure of the humerus against its tip. In the dissection, no superficial injuries of the coverings of the shoulder were visible, only the deeper lacerations, and ecchymoses due to the dislocation. It is interesting to note here that, in Delpech's case, it was ascertained that the injury was caused in a limb which was maintained in a constrained position fixed to the side. In my case, a more powerfully acting force might have extended the fracture, so as to detach the head, with portion of the bone beneath it—leaving, however, the great tuberosity intact. My next two specimens present fractures of this kind. In both, the head of the humerus is in the position of intracoracoid dislocation; while, in each, the path of fracture starts from the anatomical neck, between the great tuberosity and head, and so passes obliquely through the upper extremity of the bone; instead of following the anatomical neck exactly, the fractures pass through the bicipital groove, so having the lesser tuberosity attached to the head. In one, but a very little piece of the shaft has been detached with the dislocated head from its posterior and internal side; in the other, a longer splinter, just two inches in length. In the first, the long tendon of the biceps muscle was buried in the

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Cambridge, August 1880.

bone; in the second, it appears to have avoided slipping between the fragments. In both these specimens, the fragments have united perfectly; and in the first of them, the union has extended—so that complete osseous ankylosis of the dislocated head with the scapula has occurred. Except for these unimportant points of detail, these specimens are identical; viewed from the front, they appear absolutely so. These belong to Trinity College. My next illustrations, two in number, have been kindly exhibited by the Royal College of Surgeons in Ireland.

The first is, I think, identical in character with those I have already described, only I speak with less confidence of it, for already it has been described in detail by the late Professor R. W. Smith, in the chapter to which I have referred. He speaks of it in connection with the extreme displacements that occur in impacted fractures within the capsule; but I think that, while it wants the characters of an impacted fracture, it can be readily seen that its proper place is amongst the group that I am discussing. I quote Dr. Smith's description.

"The head of the humerus has nearly altogether abandoned the glenoid cavity, and lies beneath, but principally internal to, the coracoid process; it forms an obtuse angle with the shaft, and is placed rather below the level of the summit of the great tubercle; it is rotated on its axis in such a manner as to be directed forwards, and to such an amount, that scarcely any of its cartilaginous surface is to be seen posteriorly. An irregular deposition of new bone, which has passed upwards, so as to be applied against the inner side of the coracoid process, covers the anterior and nearly the entire of its surface. This remarkable displacement of the head of the humerus appears to have been the result of a fracture traversing its anatomical neck; and, having been thus detached, the head of the bone seems to have been driven forcibly against the broken surface of the lower fragment and against the tubercles, for there is unequivocal evidence of a second fracture implicating these processes. This second lesion passed obliquely downwards and inwards from the summit of the greater tubercle, through the upper part of the bicipital groove at the inner surface of the shaft, about two inches below the head of the bone. The shaft of the humerus (with which the greater tubercle was continuous) was drawn upwards considerably, and the glenoid cavity was occupied by the tubercle, and by the outer and posterior part of the broken neck of the bone. Those portions of the scapula and of the humerus which were in contact were exceedingly rough, and destitute of cartilage, with the exception of the upper part of the glenoid cavity, which was in contact with the remains of the deformed greater tubercle. The superior fragment (which included the lesser tubercle) was displaced inwards, most probably by the action of the subscapularis muscle. The tendon of the biceps ceased where the fracture traversed the bicipital groove; the capsular ligament had not been torn, but it was thickened, and had contracted abnormal adhesions to the bone."

If from this description we remove the idea of two distinct fractures, one of the anatomical neck, and a second traversing the tubercles, we have before us, in the one fracture starting at the summit of the greater tubercle, and passing by way of the bicipital groove downwards and inwards along the shaft for two inches, conditions identical with the second and third specimens which I have shown. It appears, then, unnecessary to assume the existence of an impacted intracapsular fracture, of which even the author I have quoted admits that the traces are lost. He says: "It is no doubt true that, with the exceptions above mentioned, the exterior of the bone furnishes but little evidence of a fracture having existed; but this will not seem surprising when we recollect the length of time which elapsed between the receipt of the injury and the death of the individual."

I have, lastly, to exhibit this specimen from the collection of the College of Surgeons of Ireland, which, though long in the museum, has escaped notice, even by Professor Smith. The catalogue contains the following account of it. "A dried preparation of the shoulder-joint, the exact nature of which is a subject of much difference of opinion, some regarding it as a specimen of old unreduced dislocation on the inferior costa of the scapula, others on account of the misshapen state of the joint, and the irregular masses of bone thrown all around, considering it as more probably a case of old chronic disease. History unattainable. Professor Kirby."

In this specimen, as in those I have submitted, the greater tuberosity of the humerus, continuous with the shaft, rests in the glenoid cavity applied against its lower part, while the upper part of the cavity is porous from the atrophy which results from disease; the head of the bone, deformed no doubt, but easily traced, is displaced downwards, and rests in a socket which is well polished by use, formed on the inferior costa of the scapula. Here we have a rare form of dislocation of the head of the bone, somewhat in position agreeing with the variety of subglenoid dislocation described by Sédillot—the humeral head placed directly on the inferior costa, without inclination to either sub-

scapular or infraspinous fossæ. The lesser tuberosity appears to have remained connected to the shaft as in the recorded cases, where the line of fracture has followed the anatomical neck with accuracy.

Before closing my paper, which was thus far composed before I had the opportunity of learning Mr. Eve's views regarding these injuries, submitted by him this session to the Royal Medical and Chirurgical Society, I have to thank him for his courtesy in sending me the manuscript of his paper, which is not as yet printed. In the condition of the joint which he has described, the several details correspond very closely to those of my case of incomplete fracture; the condition of detachment of the periosteum in place of a rupture of the capsule, strictly so called, which he describes as existing, will probably explain the statements made, that the capsule was intact in such cases as that of which I have borrowed Professor Smith's description; how could it happen that the head of the bone would pass into the recess between the coracoid process and clavicle, unless either the capsule gave way, or its attachment to the periosteum? Yet we find one, preoccupied with the idea of intra-capsular impacted fracture, using such description. While Mr. Eve inclines to the view of Delpech as to the order of occurrence of the fracture and dislocation, or rather to the idea of the simultaneous production of the two injuries, referred to by Malgaigne, I prefer the opinion of Cooper, that the dislocation takes place first, then the fracture. While it is possible that direct force may produce the injury in certain dislocations, the absence of comminution in any case seems to put this cause aside. I think that a more probable cause is to be found in the constrained position of the arm fixed to the side, or otherwise, while the dislocation takes place; that thus muscular action, with the continued effect of the fall, determines the fracture, in all cases the result of the wide action of the glenoid bone. This explanation certainly applies to many anterior dislocations, in which it is difficult to conceive direct force to be capable of producing the fracture. I may express my opinion thus: Fracture of the upper extremity of the humerus, occurring as a complication of dislocation, commences at that part of the anatomical neck which rests, after dislocation has taken place, against the border of the glenoid cavity. It is caused by pressure of the humerus against the sharp edge of the glenoid cavity, probably resulting from a constrained position preventing the separation of the elbow from the side, as in ordinary dislocations. While the fracture starts at the anatomical neck, and may follow it strictly, it commonly passes obliquely into the shaft, detaching the lesser tuberosity with the head. The fracture is neither comminuted nor impacted.

OBSTETRIC MEMORANDA.

VERSION IN NEGLECTED SHOULDER-PRESENTATION.

I SEE, in the JOURNAL of April 2nd, a note under the head of Obstetric Memoranda, of a "Method of Facilitating Version in Cases of Neglected Shoulder-Presentation", by Mr. Donaldson; and I think the suggestion worthy of adoption in cases where version is impossible. Some years ago, whilst attending at a farm-house, I was witness to a case of very difficult parturition in a sheep, where the procedure recommended by Mr. Donaldson was carried out on both fore limbs. I was, at the time, much struck with the ease with which it was effected; and had determined, should a suitable case present itself, to put it into practice in the human subject. Fortunately, cases of that kind are by no means common, and I have not had an opportunity of trying it. Mr. Donaldson does not mention whence he got the idea; but it is not improbable that he was aware of the practice in sheep and horses. From the ease with which it is effected, it seems to me worthy of trial in any case where the child is dead and version impracticable, and it affords a ready means of overcoming the difficulty.

JAMES McNAUGHT, M.D., M.R.C.S.

A FRAGMENT OF EXPERIENCE IN THE FREQUENT AND UNFREQUENT USE OF THE FORCEPS.

I WISH to record the following facts connected with the frequent and infrequent use of the forceps, with the results to mothers and children in two such sets of cases. During the years 1875-76, one of the midwives of the Royal Maternity Charity attended 396 cases, in 33 of which the forceps was applied; a rate of about 1 in 12. The midwife who attended these cases was very old; she was an excellent midwife. Dr. Barnes will remember her well; as, when he was physician to the Charity, he was frequently called on by her to use forceps. The patients of her district largely consisted of Jewesses and Irishwomen. Both these peoples are intolerant of pain, impatient, excitable, and commonly make frequent solicitations for "assistance". It was from