TWO CASES OF UNREDUCED
AND
TWO CASES OF REDUCED
DISLOCATION OF THE HIP.

BY

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THE first three of the following cases have special value of their own :—the third and fourth corroborate the opinions expressed in my paper on “Dislocations of the Thigh,” in the sixtieth volume of the Medico-Chirurgical Transactions.

CASE 1. *Impacted fracture of the neck of the right femur with old unreduced dislocation of the right hip.*—James H—, æt. 75, about three hours before admission into the Middlesex Hospital on August 12th, 1881, slipped down on some stone steps, falling upon his right hip.

On admission the patient could not move the right thigh, which was somewhat flexed and slightly adducted, though the leg and foot were everted. The whole limb was shortened.

Manipulation caused so much pain that an anæsthetic was given before making further examination. The trochanter was found less prominent and higher than natural. Behind the trochanter the head of the bone could be felt on the dorsum ilii, but it gave the impression of being neither so round nor so smooth as normal. Passive movement was very limited. There was swelling of the upper part of the thigh from extravasation. The limb was steadied in a long splint and the patient put into bed. Subsequently we ascertained that many years ago he had dislocated the same limb, that the dislocation was not reduced, and the limb had ever since been deformed and shortened, but that the foot had not turned outwards *before* the accident which led to his coming into the hospital.

On August 17th I again examined him under an anæsthetic, and whilst trying, slowly and gently, to extend the limb, a crack was heard by those around, and at the same moment I felt the femur give way at its neck. The limb could now be placed parallel with the other, and on letting it go all the symptoms of fracture of the base of the cervix femoris became apparent. The Liston splint was reapplied, and moderate extension was kept up by means of a perineal band.

On October 10th he was discharged, wearing a plaster bandage, with the fracture united and the limb in a good position.

In this case I believe that there had been an impacted fracture at the base of the neck of the femur, and that by manipulation it became unimpacted. Thus is explained the association of flexion and adduction of the thigh with eversion of the limb and the presence of the head of the bone on the dorsum ilii. Advantage was taken of the fracture to correct the deformity of the dislocation, and the patient was thereby placed in a better condition than before his recent accident.

Though I would not fracture the cervix femoris intentionally in a case of old dislocation, I would suggest in such cases, if the deformity is marked, the shortening

considerable, and the mobility slight, and if the patient is not very old or otherwise a bad subject for operation, that subcutaneous division of the neck of the femur might safely and advantageously be performed with a view to correct the more serious inconveniences of dislocation.¹

The next case shows how much may be done in a young and energetic person by perseverance and exercise, towards minimising the drawbacks of an unreduced luxation of the hip.

CASE 2. *Unreduced dorsal dislocation of the hip with remarkably good movement of the limb.*—Francis F—, æt. 25, a discharged soldier, was admitted into the Middlesex Hospital in December, 1881, having been sent to me by my friend and colleague, Dr. Fowler. The patient, a well-educated and very intelligent man for his station in life, wrote the following account of himself while in the hospital:—"In the early morning of October 12th, 1880, at the Manoorie Barracks, Poona, I fell from a height of twenty-five feet by walking, when in a state of somnambulism, through a window which opened down to the floor. I was found lying on the ground where I had fallen, and was carried to hospital about 2.30 a.m. in an unconscious state, and so remained until the next morning. The surgeon-major, whose patient I became at first, formed the opinion that there was fracture, with displacement of the trochanter upwards and outwards. For ten weeks hot fomentations were applied to my hip, and during this time the limb became short; then a long splint was applied for four days and four nights, and thus the knee, which was becoming bent, was straightened. I was examined by four or five surgeons at different times; one

¹ I was not aware when this paper was read that Dr. H. G. Rawdon had *excised the head of the femur* in a case of unreduced dorsal dislocation of the hip, the result of typhoid fever (*vide* 'Liverpool Medico-Chirurgical Journal,' January, 1882, p. 22). I have since witnessed the performance of the same operation by Mr. W. Adams for unreduced dorsal dislocation coming on during fever. In each case the operation was followed by an excellent result.

diagnosed dislocation of the femur with the edge of the socket chipped. After this an operation was performed by pulleys used across the other thigh, but without any result. They gave me chloroform for this, but did not get me completely under it. Other attempts were made, both with and without pulleys, to reduce the limb. When first discharged from hospital, viz. in the early part of March, 1881, I walked very lame, but after taking to swimming I gained more and more use of the limb. On June 12th I arrived at Netley Hospital with other invalids, and was examined on several occasions by Surgeon-Major Tobin, A.M.D., and Surgeon-General Longmore, C.B., whose opinion was dislocation of the femur and chipped socket."

This account is confirmed by the reports which I have received from the Secretary's office at Chelsea Hospital, and from Professor Longmore at Netley.

The notes taken of his condition whilst in the Middlesex Hospital are these:—There is $1\frac{3}{8}$ inch shortening of the limb, and the top of the trochanter is thus much above Nelaton's line. On forced passive flexion and circumduction there is fibrous creaking felt and even heard. The head of the femur is felt on the dorsum ilii, and between the head and the trochanter the neck is easily traced. There is felt the characteristic hollow behind the large vessels in the groin from the absence of the resistance offered by the head of the femur when in its normal place; the edge of the acetabulum itself can be felt at the top of the thigh in front if the fingers are well pressed in. The buttock is flattened, and the fold of the nates a little fallen.

The voluntary movements of the limb are almost perfect. When the patient stands with the sole of the foot flat, but a little raised, he looks quite straight, the shoulders and hips being level. Whilst standing he can flex his thigh beyond the right angle, and whilst lying down and stripped he can with the aid of his hand make his knee touch his shoulder of the same side. Standing

he can separate his legs a distance of upwards of forty-eight inches; lying down the sound limb can be abducted thirty inches before the pelvis moves, and the dislocated one twenty-three inches.¹ Adduction and rotation are almost if not quite perfect; the dislocated limb can be swung across either in front of or behind the sound one. Extension is complete, and when he walks the toes are directed nearly if not quite straight forward. He walks, however, with a peculiar gait, which is something between a roll, a twist, and a jerk. The only other defect is an inability to commence to stand on the displaced limb alone, but having once balanced himself he can continue for a little while to stand upon it without support, but not very steadily.

I made an unsuccessful attempt under chloroform to reduce by manipulation. I tried the usual movements twice, but the bone did not seem to approach the socket, and a good deal of fibrous cracking was produced. The interval of fourteen months since the accident, and the excellent movement of the limb, prevented me from making any very forcible efforts at reduction.

At my first examination of the patient I expressed the opinion that there had been fracture of the rim of the acetabulum, and subsequently direct dislocation on to the dorsum ilii. My reasons for so thinking I stated to be: (1) the nature of the accident, viz. falling from a height upon the feet whilst walking with the limbs, stiff as they usually are, in a state of somnambulism; (2) the absence immediately after the injury of the characteristic symptoms of dorsal dislocation, and their slow development whilst the patient was lying in bed; (3) the suspicion which the first surgeon who examined him expressed, that there was a fracture with displacement upwards and outwards of the trochanter major; (4) the free mobility of the thigh, which is more likely to be acquired if the head of the

¹ The amount of abduction was measured by the distance between a straight line through the middle of the body continued to the feet, and the internal malleolus of the abducted limb.

femur rests immediately on the dorsum ilii than if it mounts upwards over the obturator internus and pyri-formis muscles.

The case offers I think an illustration of the way in which dislocation of the hip may be overlooked in spite of careful examination soon after the accident. If violence which would cause dislocation when the thigh is *abducted*, be inflicted on a limb which is not *abducted* but adducted and extended or even partly flexed, the margin of the acetabulum must break before the head of the femur can be displaced from its socket. And unless the violence which breaks the margin of the socket is also sufficient to force the head of the femur at the same time quite out of the acetabulum, the head may be retained against the broken edge but still within the capsule, being caught as it were between the detached fragment and capsule on one aspect and the broken socket on the other. In this position the head of the femur is ready at any moment to be jerked, or gradually and after a longer or shorter time to be drawn by muscular action out of the socket on to the dorsum ilii or on the ischium as the case may be. The practical lesson such a case seems to teach is to apply a splint and keep up extension in any person in whom the nature of the accident or the condition of the limb suggests, even remotely, the possibility of fractured rim of acetabulum.

The extraordinary motion of which the limb of this man is capable is no doubt in part due to his youth and athletic activity (he was instructor of gymnastics), and to his persevering efforts to regain the use of it. But it is in part, I think, the result of the character of the luxation. The head of the femur, being in immediate contact with the ilium, has doubtless by this time formed for itself a shallow cavity on the bone under cover of the muscles; and the muscles by strapping the head down assist in steadying it; whilst the neck of the femur is controlled by the detached edge of the capsule (*i.e.* by the margins of the aperture through which the head of the bone escaped).

Whereas when the head of the femur rises over the rotator muscles, as it does in indirect dorsal dislocations, *i.e.* dorsal dislocations unaccompanied by fracture, then the neck of the femur is wound upon and bridled by the untorn segments of the capsule.

CASE 3. *Thyroid dislocation of the femur ; reduction by manipulation.*—Arthur S—, æt. 29, a fireman, was driving a fire-engine, and on entering a street which was partly dug up, some one flashed a light across the road and startled the horses. The engine came violently in contact with a lamp-post, and the patient was thereupon thrown from his seat on to the pavement, forwards. He alighted on his knees, “chiefly on the right, and on the helmet and stretched out hands.” He was taken at once to the Middlesex Hospital and admitted on October 5th, 1879.

The right thigh was flexed on the trunk to about 60° and could not be straightened ; the foot was slightly everted ; the trochanter major was sunken, and nearer the central line of the body than the trochanter of the other side. The head of the femur formed a hard projection at the junction of the perineum and thigh, and could be felt resting against the arch of the pubis at the junction of the rami of the pubes and ischium. It could be made to rotate in its new situation by rotating the limb. The tendon of the adductor longus was stretched very tightly across the front of the head of the bone. On placing the other limb in a position as nearly as possible similar and then measuring both limbs from the anterior spine of the ilium to the top of the patella, about 1½ inches of shortening was found on the dislocated side. Passive flexion was free, and slight voluntary flexion possible ; but extension was impossible and any attempt at it caused severe pain. There was a large patch of ecchymosis on the inner side of the right knee, and a smaller and less well marked one on the inner side of the left. The patient was brought fully under ether and reduction by manipulation attempted by

the house surgeon. The leg was flexed on the thigh, and the thigh on the trunk; the knee pushed as far as possible over to the middle line, and the limb circumducted inwards and quickly extended. When let go the thigh was found to be dislocated on to the dorsum ilii.

The manipulation proper for dorsal dislocation was then employed, but during circumduction the house surgeon kept up extension on the thigh with his hand under the ham. With a distinct snap the head of the bone re-entered the socket and the passive movements of the limb were at once natural. At the end of the third week the patient was discharged quite well.

In this case the dislocation was of the thyroid variety, but the head of the bone was displaced further inwards towards the perineum than is usual, though it did not absolutely reach the perineum. It is commonly stated that in thyroid luxations there is from one inch and a half to two inches of lengthening of the dislocated limb, but the general accuracy of this statement may be well questioned. The lengthening, I believe, is more apparent than real, and is due to the very considerable tilting of the pelvis, which in this variety of luxation is very marked and altogether more extreme than in any other form of hip dislocation. Probably the *real shortening* in this case was greater than usual because the head of the bone had passed to the extreme verge of the thyroid foramen and was close to the perineum. Mr. Holmes¹ has described a case of obturator dislocation in which the injured limb, though it looked longer than the other was really shorter; and Mr. Rivington² another, in which, though there was apparent lengthening, there was real shortening of from one half to three quarters of an inch.

CASE 4. *Dorsal dislocation of the hip; reduction by manipulation.*—John P—, an active labourer, æt. 24, was admitted into the accident ward on January 5th, 1882,

¹ Holmes, 'Med. Times and Gazette,' Oct. 27th, 1877, p. 455.

² Rivington, 'Lancet,' vol. i, 1878.

with well-marked dorsal dislocation of the right hip. He was engaged in picking away earth for the foundations of a wall when a quantity of the earth fell upon him, and partly buried him in a sitting or, more properly speaking, a squatting position. When extricated, his right lower limb was painful and useless.

On admission, immediately after the accident, he was in considerable pain; the right limb was $1\frac{1}{8}$ inches shorter than the left, and presented all the symptoms of a dorsal dislocation, except that, as the leg was somewhat flexed upon the thigh, the inverted right foot was at some distance from the left foot. This position of the leg was doubtless the result of the tension on the hamstring muscles and on the sciatic nerve. The trochanter on the right side was nearer by half an inch to the anterior superior iliac spine than on the left. The hollow behind the vessels in the groin, as felt by dipping the fingers, was extremely well marked. The head of the bone was very plainly felt in its new position on the dorsum.

A mixture of chloroform and ether was given at once, and the house surgeon undertook at my request the reduction by manipulation. The first attempt was unsuccessful owing to the outward circumduction and rotation not being quite decisive enough. A second attempt, during which I kept my fingers on the head of the femur, and when it had reached the lower edge of the acetabulum, gave it an inward and upward pressure, was quite successful; the head of the bone re-entering the acetabulum with a distinct snap. He made a quick recovery.

In this case the ease with which the head of the bone could be felt travelling downwards at the back of the acetabulum, and that too without any marked resistance being experienced by the operator, amounted almost to an actual demonstration that the bone was retracing the course along which it had been displaced.

The facility with which the head of the bone reaches the dorsum from a position below the acetabulum is

shown by Case 3. The first attempt at reducing it by manipulation converted the thyroid into a dorsal luxation. Indeed, the cases in which either pubic or thyroid dislocations are converted into posterior dislocations afford another argument in support of the theory that in all dorsal and so-called ischiatic luxations (uncomplicated by fracture) the head of the bone reaches its final position indirectly and secondarily, and after leaving the acetabulum in a downward direction. In escaping from the socket the head of the femur passes through the thin part of the capsule, and may take an inclination backwards towards the *tuber ischii*, or inwards towards the pubes, according to circumstances. But its course is essentially a downward one in the first place; whilst the rent in the capsular ligament, though usually limited to the thin portion, varies, as I have elsewhere plainly stated, with the degree of upward or backward displacement.

And here I would reply to one or two of the remarks on this subject in a paper in the sixty-third volume of the Society's Transactions.¹ It is unnecessary for me to allude to several of the criticisms contained therein; but with reference to the statement that, "in order that the head of the bone may be thrust through the inferior portion of the capsule, over the cotyloid notch, the thigh must be *abducted* in the extended position," I would reply that extension forms no part of the necessity. And when the writer adds that "this is totally at variance with the opinions of Sir Astley Cooper, Hamilton, and Bigelow, who teach that flexion with adduction is the position in which dislocations backward occur," my answer is that, setting aside the question whether this is or is not a correct summary of the opinions of these distinguished men, the object of my paper was to show that this opinion, so far

¹ Two cases of direct dislocation backwards of the femur, with fracture of the rim of the acetabulum; with remarks on the mode of production of dislocations backwards; by Fred. S. Eve, F.R.C.S., 'Med.-Chir. Trans.,' vol. lxiii, p. 51, 1880.

as regards *adduction*, is generally, if not always, wrong. Also I cannot agree with the writer's views of abduction, nor with the conclusions he draws therefrom; and I believe that a very simple experiment would convince him that he was in error when he argued "it will be found impossible to straddle the legs widely apart, that is, abduct them, while the feet are inverted."

Of the nine museum specimens tabulated in the paper referred to, six of them had been described by me; one in my published paper and five in some MS. notes of all the specimens of hip dislocations contained in the London museums up to January, 1877, and which I lent to the writer before he had prepared his paper for the Transactions. All these specimens had been well considered before I ventured to publish my opinions. The other three cases in the table were added to the St. Thomas's and St. Bartholomew's Museums after the date of my paper. Two of them support my views, as they are direct dislocations with fracture of the acetabulum. The third is Sir W. MacCormac's. I cannot admit, for reasons I have elsewhere stated, that either of the cases which the author calls *direct dislocations without fracture* in the least invalidates my arguments—arguments which were based, not on experiments alone, but on anatomical grounds, on the consideration of the accidents which cause dislocation of the hip, and on the mechanism and success of the method of reduction by manipulation.

It is inconsistent to speak of a dislocation on to the tuber ischii, or one in which the head of the bone leaves the acetabulum below the level of the obturator internus tendon, as it did in Mr. Wormald's and Mr. Adams's¹ cases, as examples of "direct backward dislocations."

¹ Mr. Adams's specimen has recently been dried and added to the Hunterian Museum. It was for a very long time preserved wet in the preparation room, but never placed in the museum. I saw it in its wet state. The capsular ligament was torn in exactly the manner I have described as being commonly the case. No specimen could possibly afford stronger confirmation of my views.

Direct they can be, but they are necessarily "downward and backward," not simply backward in their directness and direction; and to reach its new situation the head of the femur passes over the shallow part of the edge of the acetabulum and through a rent in the thin part of the capsule.

This is what I have contended for:—(1) that in all the ordinary dislocations backwards *without fracture*, whether they are spoken of as "dorsal" or "sciatic," or, as Bigelow styles them, "dorsal above" and "dorsal below the obturator internus tendon," the head of the femur leaves the acetabulum in a downward direction through a rupture of the thin part of the capsule, and emerges therefore below the internal obturator tendon; (2) that herein we have the *rationale* of the success of the methods of reduction by manipulation; and (3) that *posterior as well as anterior* dislocations occur whilst the limb is abducted.

Since my former communication on this subject to the Society I have carefully searched through the Musée Dupuytren in Paris, which is comparatively rich in hip dislocations, and the museums at Montpellier, Bordeaux, and Toulouse. I had previously examined all the museums in London, and have since re-visited several of them. And this I can say is the result of my search: that, with one exception, there was no preparation in any of these museums, nor in the museums of Dublin¹ or Manchester,² which tends to refute in the least the above assertion, though there are several which strongly confirm it. The exception is Sir W. MacCormac's case, in which the head of the bone was forced through the capsule twice, first downwards through the thin portion

¹ To Mr. W. Thomson I am indebted for information respecting the specimens in the following museums in Dublin, viz. Trinity College, College of Surgeons, the Richmond Hospital, Mater Misericordiæ and Dr. Steevens's Hospitals.

² To Mr. Fred. A. Southam, of Manchester, my thanks are also due, for looking through the museum at Owens College.

of the ligament, which is rent in the usual manner, and then through the back of the capsule above the tendon of the obturator internus. It is the exception which proves the rule. The specimen is a very remarkable one and shows the two openings, separated by a broad unbroken band of the ischio-femoral portion of the

a. Unbroken band of the capsule.
b. Obturator internus muscle.

capsule, as is seen in the very accurate drawing by Mr. Noble Smith, and I am indebted to the kindness of

Sir W. MacCormac, and of Mr. Stewart the curator of St. Thomas's, for permission to draw it.

The man was seventy years of age and the dislocation occurred thus :¹—"Whilst at work in an iron foundry, a metal casting, ten hundred weight, fell upon him. The mass was at the time partially suspended in a crane, one end resting upon the ground, when the tackle gave way and the man was thrown violently on to his knees upon a wooden block, between which and the metal the abdomen was forcibly compressed. The patient, an intelligent man, described how the casting first struck his hip, and that he subsequently felt himself twisted round towards the prone position during the act of being crushed." The effect of the blow was to dislocate the left hip, and the effect of the compression was to cause several feet of intestines to exude through a rent in the walls of an old inguino-scrotal hernia.

If the specimen and the description of the accident are taken together, it is clear that the head of the bone was first of all driven through the lower opening in the capsule by the blow on the hip which knocked the man on to his knees ; but afterwards, whilst the lower end of the femur was resisted by the ground, and as the metal casting twisted his body round towards the prone position and crushed it downwards, the head of the femur was, so to speak, overtaken by the pelvis and forced straight backwards through the upper opening in the capsule between the pyriformis and internal obturator muscles.

¹ 'St. Thomas's Hospital Reports,' vol. ii, p. 143.