

CHAPTER XXX

INJURIES OF THE HIP-JOINT

THERE are cases in which the diagnosis between fracture of the neck of the femur, contusion of the hip-joint, and dislocation of the hip is difficult to make. I myself have had to deal with more than one such instance. The most careful and detailed examination, combined with thorough weighing of all the evidence obtained, was necessary. But, on the other hand, I am loath to say that in the clearest cases physicians still make frequent errors, which result in great damage to the patients—usually poor people. They are guilty of an error in logic, against which Pitha warns them in the following words: "Do not rest satisfied with the vague idea of a luxation; put the precise question to yourself, and find a *definite* variety of dislocation before you rest content." Pitha grasped at the very root of the evil. In practice, we always find that the physician in question was satisfied with the diagnosis of a dislocation. This clearly is modesty carried to the extreme. As much of the anatomical changes as are required to aid in the diagnosis are readily remembered by all. If the picture which we demonstrate on the skeleton is forgotten in practice, it may be recalled in the following way: Take a pencil and let it represent the leg in the vertical position. Stick a needle into the lower end in an antero-

posterior direction; it is to represent the axis of the foot. Into the upper end stick a needle directed from right to left, with its free end slightly raised, to represent the neck of the femur, and, if you care to, you may add a ball of wax, to indicate the head. Then place

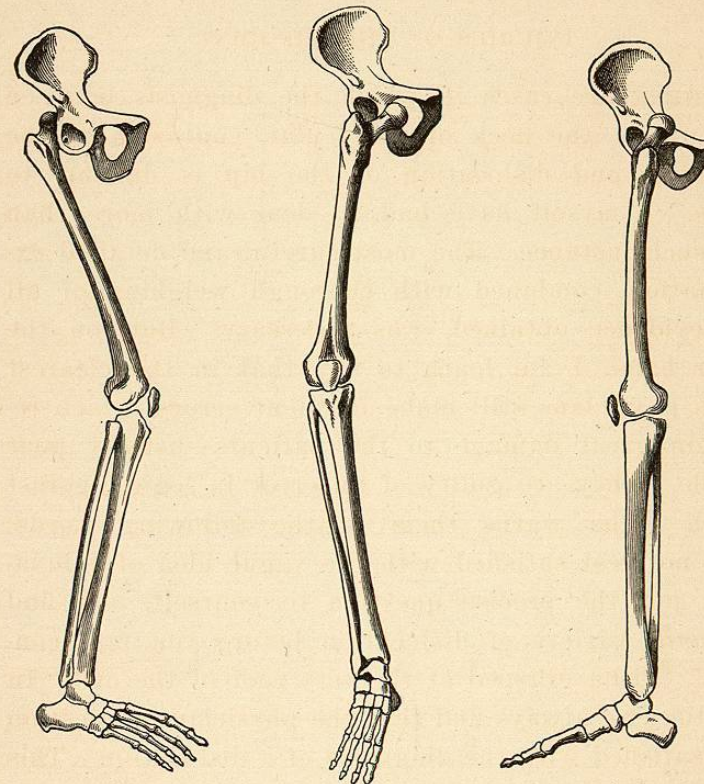


FIG. 42. Luxatio ischiadica. FIG. 43. Luxatio obturatoria. FIG. 44. Luxatio pubica.

the figure so that it corresponds exactly to the right or left leg. If the pencil is now rolled between two fingers, rotating about its long diameter, we see the following: As the head of the femur moves backward the anterior end of the foot's axis rotates inward; the ex-

tr extremity is rotated inward. If the head is directed forward, the foot turns out; the extremity is rotated outward. In other words, *in posterior dislocations the leg rotates inward; in anterior dislocations, outward.* If this seems too pedantic, bear in mind that you may find yourself in the unpleasant position of explaining this fact to an ignorant and refractory colleague.

Remember, also, that in dislocations in which the head lies above the acetabulum, the extremity is shortened; in those in which the head comes to rest below the joint cavity, the leg is lengthened. Finally, do not forget that the trochanter points to the situation of the head of the bone. If the trochanter is properly grasped, the direction of the head can be determined by projection.

Henry Bigelow, whose well-illustrated and useful book on Dislocations of the Hip-joint has been translated into German and is widely read, divides dislocations into regular and irregular forms. Regular luxations include those in which the ligament of Bigelow is intact, or only one of its bands has been ruptured, so that the position of the extremity is still influenced by the tension that this structure exerts. Irregular luxations are those in which the entire ligament is torn away, so that the dislocated head blindly follows the force exerted, without modifying influences. No matter if the expression "regular" and "irregular" is a happy one or not, it at least corresponds to the salient features of the dislocation. Irregular luxations presuppose the exertion of enormous forces, consequently they are uncommon. Typical dislocations are frequent. They require a definite, rational method of reduction. These accidents occur chiefly in the country and among

the working classes. I accept the classification of my teacher (v. Dumreicher), who was the first, in Germany, to recognise the methods of reduction. This classification divides dislocations at the hip into only three varieties: one posterior and two anterior. *In posterior dislocation*, the head of the femur rests upon the body of

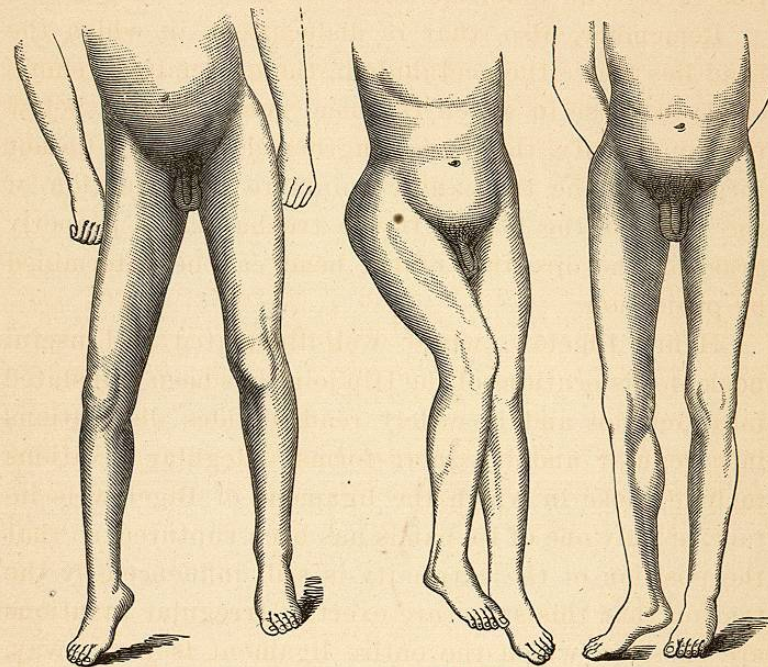


FIG. 45.
Luxatio obturatoria.

FIG. 46.
Luxatio ischiadica.

FIG. 47.
Luxatio pubica.

the ischium—therefore known as luxatio ischiadica—the limb is rotated inward, adducted, flexed, and shortened, so that the foot of the affected side comes to lie above the healthy one, and also crosses it. Practically it is unimportant whether the head assumes a higher or a lower position; it merely presupposes a greater or lesser degree of displacement. The thigh is flexed,

adducted, and rotated inward in all posterior dislocations. In *anterior dislocation*, the head rests either upon the horizontal ramus of the pubic bone—*luxatio publica*—or upon the thyroid foramen—*luxatio obturatoria*. In both, the lower extremity is rotated outward, but other differences are great. In the pubic dislocation the limb is materially shortened, extended at the hip, and the head of the femur is either *seen* or *felt* upon the horizontal ramus. In obturator dislocation, the extremity is not visibly shortened, the hip-joint is slightly flexed, and the head is *not palpable*. It lies deeply in the mass of muscles, and even the *trochanter is no longer visible*, as it now rests in the acetabular cavity. At the site at which the trochanter usually forms a prominence there is a hollow, and the mere sight of this depression, combined with the above-mentioned pathognomonic position, suffices to make the diagnosis.

We have discussed dislocations before other injuries, because they furnish the most definite symptoms; they are the completed pictures with which the other injuries are to be contrasted and compared. As the position of the limb is the most striking symptom, we will take it as our guide.

Let us assume that the injured person lies before us with the extremity flexed, adducted, and rotated in; these are the symptoms of a dislocation onto the ischium. In fractures of the neck of the femur the thigh may, but very rarely does, assume this position. If I had not seen it with my own eyes I would scarce have believed that the resemblance could be so close. The following signs will be found of value, in the differential diagnosis, on those occasions on which it may prove difficult:

1. In subjects of advanced age, a fracture of the neck is very probable, a dislocation unlikely.

2. The probability in favour of fracture is increased if ecchymoses occur over the trochanter, for these are most often due to a fall on the trochanter—which is a common cause of fracture of the neck.

3. The chances are still more in favour of fracture if the trochanter seems broadened. It would be a sure sign were it not for the difficulty in judging such an increase by palpation. Therefore, caution demands that this symptom should not be regarded as pathognomonic. The same remark applies to crepitus.

4. In fracture of the neck the gluteal region remains unaltered; in ischiadic luxation its outline is changed. The upper portion of this region is more flabby and relaxed, the lower portion bulges outward. (In cases of long standing the findings may be reversed, as the head secondarily assumes a higher position.)

5. In thin subjects, the region of the acetabulum feels *empty* in dislocation. If the resistance of the tissues immediately in front of the horizontal pubic ramus is tested by pressing downward with the fingers, the bony resistance normally offered by the head is found wanting.

6. When the head is felt, on rotation, rolling, deeply among the muscles of the gluteal region, it is *decisive*. If the patient is thin, it is impossible to mistake or overlook the head of the femur; if the patient is fat, it is more difficult to feel the head, but we must persevere until a positive conclusion has been reached.

If any doubt remains, examination under anæsthesia must be employed. The spastic resistance which persists in dislocation disappears to a great extent in frac-

ture, so that the limb can be straightened without exertion and without producing a snapping sensation.

Let us assume another case: The patient lies helpless with his limb everted, the knee- and hip-joints extended, with active motion impossible. This position, if shortening were also present, corresponds to a pudic dislocation. This variety may, however, at once be recognised or excluded. Merely palpate the body of the pubis and determine whether the head of the bone is there or not. Unless the swelling hides it from our sight, inspection alone will serve to recognise it.

The head is not found there, but lies immediately beneath the anterior superior spine of the ilium. The trochanter, as a result of the outward rotation, is somewhat posterior. This corresponds to an irregular dislocation—the *supracotyloid* variety, of which a number of cases are on record. If we assume that the head can not be felt, we are confronted by a fracture, by a contusion in which the eversion is accidental, or by a special variety of fracture of the pelvis.

This form is still known by the name it received from Malgaigne—double vertical fracture. A narrow but long piece of bone is broken out of the pelvis; it includes that part of the bone on which the acetabulum is located. The fragment rotates, to some extent, upon its long diameter, so that the limb is everted. If we follow along the iliac crest we come to a break in continuity, and the narrow middle fragment is found movable.

The possibility of fracture of the neck of the femur and of contusion have not yet been excluded. Positive knowledge that the patient's legs were of equal length before the injury was received, would at once exclude

contusion if shortening could be demonstrated. But as this is not always to be obtained, measurement of the length of the limb is not sufficient. Determine by measurement whether the trochanter is higher up or not. If the region is much swollen, and shortening inconsiderable, this symptom is inconclusive, and further signs of fracture must be looked for. In addition to eversion, pain, and loss of active motion, we find: 1. Crepitation, which, if well marked, is conclusive evidence in favour of fracture. 2. A peculiar phenomenon on rotating the thigh. If the neck of the femur is intact, each portion of the trochanter describes an arc whose radius is equal to the distance between a given point and the centre of the head of the bone. If the neck is fractured, the trochanter rotates about the long axis of the thigh, and the points describe smaller arcs. I may add, however, that it is not easy to elicit this sign. 3. The proof is more readily obtained if, after the pelvis is properly fixed, the relative position of the trochanter can be changed by alternately pushing the thigh upward and pulling it downward.

If the fracture is impacted, many of these points of differentiation no longer hold good. Experiments performed by Heppner and others have shown that impaction of the fractured neck into the trochanter results when the fracture is caused by a fall upon the trochanter. If the force acts in the direction of the long axis of the thigh, the neck is fractured, but without impaction. If in doubt whether the case is one of fracture or contusion, bruises in the trochanteric region and broadening of the trochanter would favour the diagnosis of fracture, and the case should be treated as such. In the course of a few days the impaction

yields and the diagnosis is then more surely arrived at. From a medico-legal standpoint this is important.

In the days when crinolines were worn, a well-known member of the demi-monde knocked down an old beggar with her crinoline. A fracture of the neck of the femur resulted. The case did not come before the courts; but, nevertheless, the question arose whether the beggar had sustained his injury by being thrown over, or whether the fracture had been caused by a misstep resulting from his attempt to get out of the way—i. e., through the pressure of the body weight suddenly brought to bear on the weakened neck of the bone, so that the fall was due to, and preceded by, the fracture. In similar cases, experience at the bedside and experiments would justify us to decide that the result was due to a fall, if bruising of the trochanteric region and impaction were subsequently found.

Obturator dislocation is characterized by immobility in the flexed position, with adduction, eversion, and a deep depression in the region of the trochanter. These signs are distinctive of this injury.

Dislocation of the head vertically downward upon the tuberosity of the ischium produces symptoms which also are distinctive. The most striking symptom is the *increase in length* of the limb, which is stiffly held in a median position. The head is not palpable, and the resistance of the neighbouring parts does not permit us to determine whether the acetabulum is empty or not. But the low position of the trochanter, combined with the rigid position of the limb, can be accounted for only by this variety of dislocation.

The anatomical reasoning which has been applied to traumatic hip-joint dislocations can not be applied to CONGENITAL DISLOCATIONS of the hip. This condition is found more frequently in the female sex. It may be unilateral or bilateral, and is first recognised when the child begins to walk. The head is outside

the acetabular cavity, and is located upon the dorsum iliæ, where it may plainly be felt. *In spite of this the position of the limb is not pathognomonic.* The gait, however, is characteristic, and the phrase "duck's waddle" (Entengang) defines it, if the condition is bilateral. Marked lordosis, and, as a result of this, strong tilting of the pelvis and broadening of the upper portion of the gluteal region, are the most striking symptoms when the child is standing. When the child takes a step forward, the trunk sinks and inclines toward that side on which the leg is being planted. If the child is laid down, the thigh, especially if flexed and adducted, may be moved up and down along the pelvis. These are the principal symptoms of this common deformity.