

CHAPTER XXXI

INFLAMMATORY PROCESSES OF THE HIP-JOINT

THE existence of a coxitis is frequently not recognised by physicians. It is true that the symptomatology of the disease is varied, and that the pathognomonic position of the limb may also vary; but, for that very reason, the essential diagnostic sign should not be forgotten. Therefore I will state at the outset, that this sign is *fixation of the joint by muscular action in the pathognomonic position*. These words should be learned by heart, for they include the whole lesson in a nutshell. Every experienced practitioner makes the diagnosis of coxitis as soon as he sees the position of the extremity, after he has determined that the pelvis *accompanies* passive movements of the thigh. To do this, place one hand upon the pelvis and with the other extend the thigh.

To prove that the fixation is due to muscular action is best accomplished by making small and cautious efforts at motion. These, as a rule, can be freely made unless the sensitiveness is extreme. The signs of rigidity are accompanied by the usual symptoms of inflammation. These are, swelling about the joint, tenderness, especially tenderness in the joint when the thigh is pressed upward against the acetabulum, etc. Of special importance is the mysterious referred pain—

i. e., pain felt in the knee, and sometimes at the ankle. It is readily understood that in a disease whose course extends over many years, various complications should arise, but the simple rule, above expressed, nevertheless holds good.

The pathognomonic position of the joint corresponds in most cases to the *position of rest*, and consists of moderate flexion, abduction, and rotation outward. This position is only evident when the pelvis is normally placed. By flexing, tilting, and rotating the pelvis, the patient may mask the position so that the two limbs lie parallel upon the bed. The compensatory movements take place in the healthy hip-joint.

By flexion is understood a forward movement of the pelvis about its transverse axis; by tilting, a downward movement about its antero-posterior axis; by rotation, a twisting about its vertical axis.

How is the pathognomonic position masked? As above, we take for granted that the thigh and pelvis form, so to speak, a jointless unit. In order to overcome the flexion, the patient must *flex* his pelvis till the limb rests upon the support. This movement betrays itself at once by the compensatory lordosis of the lumbar spine. To counteract the abduction the patient must *tilt* the pelvis downward upon the diseased side; this is at once recognised by the fact that the limb seems longer. Formerly, before Bonnet's time, it was thought to be actually lengthened, but by comparing the spines of the ilia on both sides, it is seen that the spine on the diseased side has descended a distance equal to the apparent lengthening of the affected limb. By comparing the measurements of the two sides from the iliac spines downward, it is noticed

that there is no lengthening, but in the advanced stages an actual shortening of the diseased extremity. Finally, the patient can conceal the eversion by *twisting* the pelvis—i. e., by a movement in the healthy joint about an axis parallel to the long axis of the body, just as the patient turns when changing from a dorsal posture to a position on his side. This movement is betrayed by the hollow found beneath the pelvis on the diseased side. As a rule, the patient omits this third corrective change and contents himself with flexion and tilting of the pelvis. In order to bring the pathognomonic posture into evidence, the following manoeuvre must be employed: Grasp the diseased limb and gently increase the flexion until the normal angle between pelvis and spinal column has been restored. This is attained when the back rests upon the support and the lumbar lordosis has been effaced. The thigh is then abducted until the spines of the ilium are at the same level, and finally, if the patient has masked the rotation, evert the extremity until both sides of the pelvis rest equally upon the examining table.

In Fig. 48, the patient lies with a lordosis of the spine, and with strongly tilted pelvis, in order to place

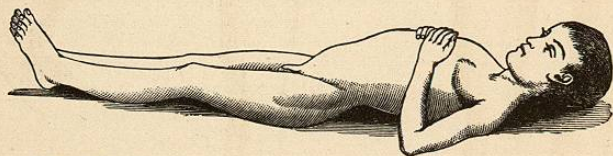


FIG. 48.—Lordosis and tilting of the pelvis in coxitis.

the thigh flat upon the table. Fig. 49 shows the trick unmasked, and also gives a view of the pathognomonic position in coxitis.

Fig. 50 represents a patient with the left half of

the pelvis markedly tilted downward in order to bring the two legs parallel. In Fig. 51, after the position of the pelvis has been corrected, the characteristic abduction at once becomes apparent.

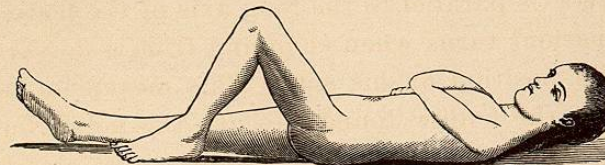


FIG. 49.—Flexion and abduction in coxitis.

Rotation of the pelvis can be demonstrated in a more precise fashion. In the normal position a frontal plane passes through the superior iliac spines of both sides. When the pelvis is rotated, a plane passing through these points no longer is frontal in its direction.

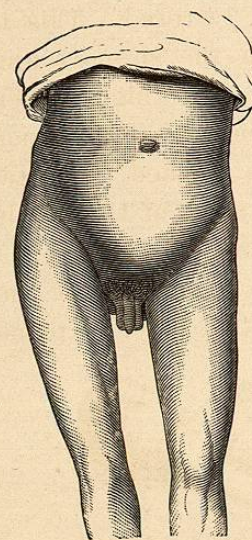


FIG. 50.

Tilting of the pelvis in order to bring the limbs parallel.

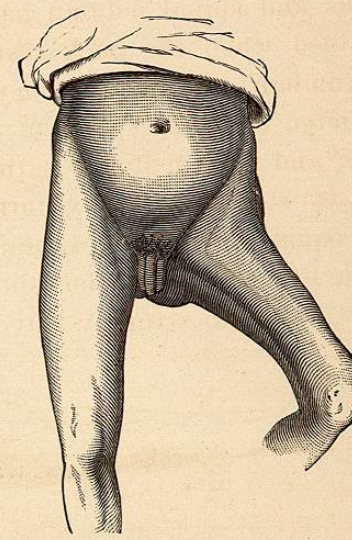


FIG. 51.

Correction of the compensatory tilting, showing the resulting abduction.

It has been mentioned above that the increased flexion of the pelvis is recognised by a lordosis in the lumbar spine. This means that

the position of lordosis attracts our attention to the increased angle of flexion. The increased flexion can be *directly* recognised by the fact that the sacrum no longer rests horizontally upon the table, but forms an angle, of varying degree, with this support.

Examine Fig. 49 and ask yourself: If the left leg were flexed to a right angle, what movements would the pelvis make upon abduction and adduction? Evidently, a movement of rotation. If Fig. 48 is kept in view, the question reads: If the left leg is extended, what movements would the pelvis undergo on abduction and adduction? The answer naturally is, Tilting upward and downward. In other words, the movement of the pelvis depends upon the position of the limb. If I abduct and adduct the thigh, which is flexed at an angle of ninety degrees, points along the thigh and also points taken on the pelvis (which moves with the thigh) move in a plane which is vertical to the axis of the body—i. e., referred to the pelvis, rotation. If I abducted and adducted the extended thigh, points taken along the thigh, and consequently points on the pelvis, move in a frontal plane—i. e., referred to the pelvis, an upward or downward tilting.

What movements must I make, with the thigh flexed at a right angle, in order to tilt the pelvis up and down? Whoever does not find the solution to this question at once does not understand the condition.

In another set of cases a different pathognomonic position is encountered—flexion, adduction, and inversion. The sick child draws up the diseased limb upon the healthy one, using the latter as a support, exactly like a splint.

Here we must determine whether this position was primarily present or only appeared later in the course

of the disease. There are cases of coxitis in which this position is assumed from the outset; in others, the first-mentioned position of abduction and eversion later is replaced by adduction and inversion. A rule that the so-called stage of apparent lengthening in the first position is followed by a stage of shortening in the second position, has been formulated. For many cases this holds good, but not for all.

In addition to the two typical positions of the limb, other postures are assumed in the course of some cases of coxitis. For instance, the flexion may increase to a right angle, or even to an acute angle. The abduction may grow so excessive that the thigh stands out at right angles from the trunk, and in other cases, although the flexion is scarcely noticeable, the eversion is strongly marked. In all cases, however, the muscular spasm, the fixation by the muscles, remains the most important symptom.

Next in importance to the above-mentioned symptoms is the proof that *actual shortening* has taken place. In the typical coxitis of childhood the shortening occurs early in the disease. It may be due to the following causes:

1. The trochanter may move upward if the neck of the femur assumes a more horizontal position.

The muscles which run from the pelvis to the femur work in two ways: they pull the femur upward, and also press it inward toward the acetabulum. As the head and neck of the bone are softened by the inflammatory process, and the muscles about the joint continue to press the head against the acetabular cavity (while they at the same time fix the joint), the neck gradually diminishes and grows shorter. The trochanter meanwhile is pulled up by the vertical component, so that the neck lies horizontal or even at an acute angle to the shaft, and is at a higher level than the head of the bone. This mechanism of

shortening is uncommon. The same result is more commonly due to a destruction of the head and neck by the disease.

2. The shortening may result from the so-called "wandering acetabulum." This is nothing more than an extension of the acetabulum in an upward and backward direction, as a result of the pressure exerted by the head of the femur. The shape of the cotyloid cavity changes from circular to elliptical, with its long axis directed from below and in front, upward and backward. The head, and with it the trochanter, move upward.

3. Secondary dislocation, either upward or backward, may have occurred. Gross changes may have taken place at the upper extremity of the femur: distortion of the head, shortening of the neck, or complete erosion of both, so that the trochanter now forms the upper extremity of the bone.

It is safe, as a rule, to assume a secondary dislocation, if the shortening is considerable; the case is positive, if the dislocated head can be felt outside of the joint. The secondary dislocations resulting from coxitis differ greatly from dislocations produced by trauma. The cause of this difference is recognised if the records made at the autopsy table are perused. One account reads, that the head and neck have entirely disappeared, that the trochanter has been dislocated upon the ilium. The limb is rotated inward. In other cases, in which the destruction has been almost as extensive and the trochanter moved upward, the thigh was found everted. In contrast to these cases, others are seen in which the head is almost entirely preserved, the neck somewhat shortened, but both plainly felt in the gluteal region.

Measurement of the limb is of the utmost importance in hip disease. It is the scale by which we judge the progression of the changes which take place in the bony constituents of the joint. It is both the proof of the presence and of the amount of destruction already done by the tubercular process, and is of decisive diagnostic importance in differentiating hip disease from other conditions. *Hysterical* women may imitate the picture of coxitis in all its details. The pathognomonic position, the muscular spasm, the tenderness, are all there. The condition may persist for months, but shortening does not occur. Only by continually taking measurements are we able to satisfy ourselves that no destructive process is going on in the joint. The condition is simply a neurosis. A deep *abscess*, which bathes the joint capsule, may produce complete rigidity of the joint. Even if the pathognomonic position is not quite characteristic, we suspect an atypical case of coxitis. It is only by proving that no shortening takes place that an important point in establishing the differential diagnosis is obtained.

Fixation of the joint is not peculiar to hip disease alone. As has just been stated, it may be due to an abscess in the vicinity of the joint. In other conditions it is also found, although in a modified form. In *psoriasis* the joint is flexed, and there is also a trace of external rotation. If the pelvis is grasped and the leg extended, the pelvis follows this motion; if attempts at inward rotation are made, the same holds good, but in all other directions movement is unimpaired. In *inflammation of the inguinal glands*, it occasionally happens that motion is impaired in all directions which increase the tension of the inflamed parts; but all other move-

ments are free. In contrast to the above, all observers agree that in inflammation of the bursa beneath the psoas—*bursitis iliaca*—extension of the hip is not impaired, although the bursa must surely be compressed as a result of this motion.

This condition may be diagnosed if a square, sharply circumscribed and fluctuating swelling is found in the inguinal region. The swelling is cut in two by the ilio-psoas, but communicates beneath the muscle. The swelling may grow so large that it extends to the spine of the ilium.

If the diagnosis of hip disease has been made, the next question to decide is, where the primary focus was located. The starting-point may have been in the acetabulum, in the capsule, or in the femur. We are, however, rarely able to determine this point. Only in those cases in which a severe exacerbation is followed by a spontaneous dislocation, which is very readily reduced, but recurs upon the slightest exertion of force, or even as the result of muscular action, are we justified in suspecting a distention of the capsule with effusion. This would point to involvement of the capsule, but does not exclude a focus in the bone.

Coxitis rarely occurs in adults. The symptoms are the same as in children. The increasing destruction, especially the abscess formation, points to the tuberculous nature of the trouble. Severe pain in the early stage confirms it. Less severe grades of destruction (shortening of the limb) also occur in *coxitis deformans*, but the fixation and the pain are less pronounced than in the tubercular form.

In the last few years a condition which was formerly considered a *healed* coxitis has been noticed. This condition has nothing in common with tubercular hip

disease. The leg is shortened, walking is painful, the pelvis moves with the leg in abduction; the onset is gradual. If the leg is everted, it is still easier to confuse the condition with a mild, healing coxitis with atypical position of the leg. We now know that these cases are the result of purely mechanical changes. The chief character of the change is a more horizontal position assumed by the neck of the femur (consequently true shortening). The arc of abduction is decreased. The condition is analogous to the static deformities (*genu valgum* and *varum*, etc.), and is known as COXA VARA.