DISEASES OF THE HIP JOINT—III

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Before considering a scheme for the diagnosis of diseases of the hip joint, let us remember, in the first instance, what diseases of this joint occur in (a) children; (b) adults.

Children.

The earliest common disease of the hip joint to be found in children is probably that of congenital dislocation of the hip joint. In the textbooks one reads about the condition of acute syphilitic epiphysitis. This may be seen no doubt in syphilitic departments, but is not usually seen in the average hospital or private work. Congenital dislocated hip may be recognised after a few months, though more commonly it is not recognised, at least by the parents, until the child starts to crawl, and is usually brought up to be diagnosed by the doctor at about the end of the first year of life. Between the ages of three and ten the next diseases to be considered are those of tuberculosis and pseudocoaxalgia, and at a slightly later period—between ten and fourteen—an adolescent coxa vara makes its appearance. At any time in the growing age secondary pneumococcal and streptococcal infections of the hip joint may occur during the course of a disease in one of the other systems caused by these bacteria.

Adults.

The diseases of the hip joint to be considered in adults are (1) osteoarthritis, which is the commonest cause of arthritis of adults; (2) tuberculosis; (3) toxic arthritis; (4) the end results of a congenital dislocated hip (C.D.H) of childhood, or a Perthe hip of adolescence. Whilst among the rarer conditions which have to be remembered is that of avascular necrosis of the head of the femur following fractures of the neck of the femur.

SYMPTOMS OF DISEASES OF THE HIP JOINT

Let us examine the symptoms in relation to their causation under the above headings of Children and Adults.

In Children (infants) the mother probably notices that her child does not crawl in a proper manner (C.D.H.), or that its hip joint appears the wrong shape or contour (C.D.H.). At a later stage the mother may notice that the child is unwilling to put the foot to the ground, or if it does so it tends to walk on tip-toe and drag the foot. These symptoms may be diagnostic of an early tuberculosis of the hip joint. The mother may notice that the child walks with a limp, suggesting a sprain, mild rheumatism, infantile paralysis, C.D.H., or an early tubercular hip.

Pain in the hip joint arising in the course of an acute illness suggests a secondary metabolic infection by the causative organism; pneumococcal, streptococcal and staphylococcal infections occur.

Children (not infants). By far and away the commonest symptom to be complained of by the mother in connection with her child is that of limp. This limp may be present the whole time, or may be intermittent. It may be aggravated and accompanied by aching after play, such as in cases of early psuedo-coxalgia, or it may be present the whole time in cases of tuberculosis. The deformity caused by the muscle spasm protecting the hip joint in cases of tuberculosis may produce some degree of flexion or adduction deformity, thus throwing into greater prominence the trochanter, so that the mother may complain that she has noticed that the child's hip has become prominent.

In arthritis of the hip joint, as in tubercle, muscle spasm protects the joint, and therefore the limp is more often complained of than pain. Such pain as there is in a T.B. hip is an ache, worse at night. Occasionally, abscesses connected either with the hip joint, sacro-iliac joint, or lower lumbar spine may come to the surface around the hip joint and trochanter causing prominence of that part. Pain in the hip or thigh in the growing child may be due to muscular rheumatism.

Adults.—Adults probably complain of pain and stiffness of the hip joint rather than of the limp. It is difficult to make a diagnosis from either pain or stiffness separately, but the following points may be helpful in making a spot diagnosis.

In tuberculosis the pain is progressive, and is probably worse at night, giving rise to "night cries." Limp is present with some fixed flexion deformity due to muscle spasm, whilst the patient may look seedy.

In cases of an old C.D.H. or pseudo-coxalgia the patient will probably inform the examiner that he suffered from hip joint trouble in childhood; that he has always had a slight limp, and now it is the pain rather than the limp which has brought him to seek further medical aid. This pain is caused by an increase of the mechanical arthritis due to the deformation of the head of the femur, at a time when arthritis of the joint due to vascular degeneration is usually commencing.

In some cases of osteoarthritis a patient may have a considerable limp, but does not complain of much pain. On the other hand, he may have considerable pain with very little limp. The limp
in osteoarthritis is probably due to interference with the mechanical arrangement of the hip joint due to bony changes, whereas the pain is, in the early stages, due to contracture of the soft tissues about the hip joint rather than to the bone irregularities; though, in the later stages when the process has gone on to eburnation of the articular surfaces, the mere pressure of standing on the hip joint will cause pain further aggravated by movement. Thus, a diagnostic point of importance is that pain caused by osteo-arthritis is relieved by rest and non-weight bearing, whereas in tubercle the pain tends to be constant.

In cases of avascular necrosis there will always be a history of injury producing the fracture.

EXAMINATION

All patients complaining of pain in the hip joint should, wherever possible, be completely stripped and should be made to walk, run, hop, and jump. The examiner should note especially if the limp is due to shortness of the limb or muscle guarding about the joint. He should note wasting of the muscles, especially the gluteal and thigh muscles. Closer inspection should be made to note redness and inflammation suggesting suppuration about the hip joint. Remember also that a psoas abscess and a psoas bursitis will give rise to inflammation in front of the hip joint.

Palpation of the Hip Joint.

Palpation with the thumb pushed well into the area of the hip joint will reveal whether the head is in or out of the acetabulum. In cases of congenital dislocation in infants it is easy to feel the head lying behind the acetabulum. Tenderness of the hip joint on palpation is marked in suppurative processes. Telescoping of the hip joint is a useful sign in suspected congenital dislocation. This is found by flexing the knee and hip, the examiner placing the thumb of one hand into the acetabular region, whilst with the other hand he grasps the knee and attempts to lift the leg into the air, when it will be found that there is laxity in the hip joint.

Measurements.

The examiner should measure the bad leg in comparison with the good one, taking as his first measurement the distance from the anterior superior iliac spine to the internal malleolus. Then he should take the measurement of the apparent shortening or lengthening as measured from the umbilicus to the malleolus. The presence of shortening is indicative of dislocations of the head or erosion of the head or acetabulum. It should be noted that often the true shortening is greater than the apparent shortening, on account of the fact that the patient may hold the leg with some fixed abduction which is nature’s way of compensating the shortening. Lastly, after examining the affected hip joint the patient’s other side should be examined to note whether the disease is mono- or poly-articular. Very often this may be the deciding factor in the diagnosis. It should be noted that tuberculosis more often than not is an unilateral affection, whereas osteoarthritis is more likely to be a polyarticular affection.

Special Movements.

In C.D.H. there is often a full range of movements. In tuberculosis there may be gross limitation of movements when the disease is well advanced, but in the early stages certain movements only may be painful and restricted, namely, the extreme end of flexion and internal rotation. In Perthe’s disease there is usually spasm at first, though, after treatment or should the patient have rested for a week in bed before presenting himself for examination, this protective spasm may be absent, and the diagnosis of this condition may then have to be made on the history of the patient and on X-ray appearances.

In coxa vara there will be limitation of abduction and internal rotation whilst the leg may lie in a fixed deformity of external rotation. In osteo-
arthritis rotary movements are the first to be lost, though it is the loss of full extension which causes most of the pain that brings the early case for examination.

**X-RAY EXAMINATION OF THE SUSPECTED HIP JOINT**

The examiner should, in the first instance, look at the general contour of the bones concerned in the hip joint. He should note the presence of head, neck, and proper shape of the acetabulum. He should then note the general density of the X-ray shadow; in the case of a poor X-ray an X-ray of the sound side should be at hand for comparison, since in cases of decalcification such as seen in tuberculosis the examiner may at first sight consider that it is the X-ray which is poor, forgetting the process of decalcification. Having confirmed that the head is in its socket and not displaced as in a C.D.H., that the head is present and not disappeared as in a gross tuberculous case, that there is no old fracture as would be seen in a case of avascular necrosis, or that the general appearance of the hip is fairly good as compared to the gross irregularity seen in cases of Charcot's disease, he should then examine the shadows of the bones in greater detail, making deductions from his observations.

**Shape of Head.**

Irregularities of the head should be noted, destruction being seen in flattening found in Perthe's disease, and all degrees of distortion or lipping in osteo-arthritis and tuberculosis.

**Density.**

One of the earliest signs of tuberculosis as seen in the X-ray is a general haziness of the head and neck. It should be remembered that this is a process of decalcification, and may alter within a few months of treatment. This appearance is also seen in the X-ray of a person who has been in bed for some long period and in cases of rheumatoid arthritis. The reverse, that is the trabeculi of the head standing out in greater prominence, is seen in cases of early rheumatoid arthritis before the stage of decalcification. A dense shadow of the head is seen in cases of osteo-arthritis and Paget's disease. In cases of avascular necrosis an X-ray examination at about the fourth to sixth month will show that the head and central part of the neck casts deeper shadow than the outer half of the neck, showing that there has been a retention of calcium in the head and inner part of the neck.

**Joint Space.**

The width of the joint space between the acetabulum and head should now be compared with the normal. An increase of this gap is found in Perthe's disease, a diminution is found in osteo-arthritis and tuberculosis.

**Lipping.**

Lipping is seen in osteo-arthritis and may be shown merely as extra beaks of bone like spurs thrown out at the ends of the articular surface of the head or, in cases where the arthritic process has gone on for some time, such as the end result of an old Perthe's disease, the normal round shape of the head becomes grossly distorted very often to a mushroom appearance where more of the head lies outside the acetabulum cavity than lies within.

It should be noted that, except in the case of much osteophytic formation, diminution of the

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**Diagrams illustrating X-ray changes.**

Coxa vara.

- Early
- The Head is starting to slide
- Later
- The head has slipped

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Diagrams illustrating X-ray changes.

Late Arthritis.
From an old Perthe's Disease.
Note large Head.

Congenital Dislocation of the Hip.
Head out of Acetabulum. Note that it is smaller.

Perthe's Disease.

Early.
Note that the Head is Dome Shaped.

Late.
Note the Fragmentation.
range of movement of the joint bears no relation to the new bone formation, most of the limitation being due to soft part thickening.

**Cysts.**

Small cystic areas are often seen in the head and acetabulum lip in osteoarthritis.

**Cavities.**

Cavities are seen in tuberculosis and are distinguishable from cysts by being irregular and by a hazy area of decalcification around them.

**Erosion.**

Erosion of the head is seen in tubercular or any suppurative arthritis, and may be localised or involving the whole of the articular surface.

**Distortion.**

The head in an old reduced case of C.D.H. and Perthe may appear large, flattened, and distorted.

**Angle of Neck.**

The examiner should note the angle made by the neck at the shaft. This angle, which is normally about 120 degrees, becomes less in conditions of coxa vara.

Hypertrophic or Osteoarthritis.

**DEDUCTIONS TO BE MADE FROM THE HISTORY AND EXAMINATION OF THE PATIENT**

Consideration should be paid to the following together with the physical signs and X-ray appearances.

1. **Age.**—For instance, at about the age of 10–14 Perthe's disease is found; in middle life and onwards osteoarthritis is found.

2. **Duration.**—A short duration of symptoms suggests Perthe, or coxa vara in children, or tuberculosis in adults, whereas a long duration suggests an osteoarthritis.

3. **Trauma.**—A history of trauma would suggest a coxavara in children of the adolescent period. In the elderly person even mild trauma may produce a fractured neck of femur. A history of a slight trip up or fall some time ago followed by limp may disclose an unrecognised fractured neck of femur.

4. **Presence of spasm and pain** denotes an inflammatory process such as would be found in tuberculosis. Spasm with little pain suggests a Perthe. Limp with pain but no spasm suggests an osteoarthritis. Shortening is not specifically diagnostic, though the presence of some inches of shortening must suggest dislocation or destruction of the head, an old fractured neck, or an old suppurative arthritis.

**SUMMARY**

It is very difficult, if not impossible, to come to the correct conclusion as to the cause of an arthritis until an X-ray is seen. The following special oddities around about the hip joints should be considered on account of the fact that they give rise to signs and symptoms analogous to hip-joint disease.

1. Psoas spasm in appendicitis.
2. An inflamed psoas bursa.
3. Tearing of the insertion of the gluteal muscles in the region of the trochanter.
4. Anterior polyomyelitis giving rise to weakness of the gluteals resulting in a limp.

Whilst, as has been noted above, a patient who has sustained an impacted fracture of the neck of the femur may walk about with some pain and limp before seeking medical advice.
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