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EARLY SYMPTOMS OF HIP DISEASE AND ÆTIOLOGY OF HIP DISEASE.—TREATMENT OF ABSCESS IN HIP DISEASE.*

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GENTLEMEN:—Among the earliest symptoms of the invasion of the hip-joint is a rigidity of the muscles of the thigh which is produced by the child's efforts to achieve an immobilization of the joint. The child realizes that every motion of the hip produces pain, and hence instinctively produces this involuntary action of the muscles. The methods of recognizing fixation of the joint are by watching the motion of the pelvis in the first place. By observing the crest of the ilium you may see the characteristic motion, while a still more delicate manipulation will show this fixation more clearly. If we move the healthy limb, the genitalia remain in the normal position, but if the affected side is moved, the genitalia are moved also in a direction corresponding to the movement of the leg on account of the rigidity of all of the muscles on that side of the body. Still another sign is the disappearance of the ileo-femoral fold or crease. The cause of the obliteration of this crease is muscular action together with a change in the position of the limb. The leg is drawn forward, and in this position the line is effaced. We can learn more of this disease by not touching the limb, but by noticing the motions of the child. If we ask the child to turn over you will observe that it will be done by the sound limb entirely, while the motions of the affected leg are guarded with supreme care. The "shoe and stocking" position is a capital way of making our diagnosis in the incipient stage. This is the position in which the

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ankle of one side is thrown across the knee of the opposite side. In doing this there is necessarily rotation of the leg. The child, if diseased, will be unable to throw the limb of the affected side in this position. If you ask her how she puts on her shoe she will say she does it by stooping down and putting it on at her side in such a position that rotation or any movement of the hip-joint will be avoided. There may or may not at this time be a swelling of the joint, usually not, because there is not apt to be any effusion or accumulation of pus at this stage. Another symptom, though not an infallible one, is pain in the knee-joint. Those who have studied their anatomy well, will remember that a branch of the obturator nerve runs to the hip-joint, and other branches extend to the knee-joint. Inflammation or irritation in one portion of this nerve will cause pain in other portions of the same nerve. Thus, as hip disease will give rise to pain in the region of the knee, so will pressure on the ulnar nerve produce tingling in the fingers more than any sensation at the point of pressure beside the olecranon process. Still it must be borne in mind that disease of a joint will give rise to pain in that joint itself. Over and over again has actual disease of the knee-joint been ignored because the physician believed that pain in the knee must mean hip-joint disease, and again has the knee been treated as the site of the disease when the pain present at that point only indicated a lesion elsewhere.

In hip cases, the mother will also call your attention to the fact that the child has night pains, and cries out in her sleep. During the night and more especially the early hours of sleep when the voluntary control of the muscles is overcome, they become relaxed, and the diseased bone is impinged upon by some motion of the child. As a result a muscular spasm occurs to recover immobility and this gives rise to severe pain, the child waking with a scream. One point more I wish to impress upon you right here. In making your diagnosis *do not hammer upon the knee or foot in order to elicit pain in the hip-joint.* The reason for this injunction is plain. There exists an ostitis or syno-

vitis here, and any traumatism will increase the intensity of the inflammatory action. I would emphasize this point most strongly, because I am convinced that it is a prominent factor in increasing the gravity of the disease. If one of you had a boil upon the nose I do not think you would ask some friend to pinch it in order that you might find out whether it hurt or not, and that you might be sure that pain could be produced. On the same principle do not hammer on a child's foot or knee to see whether it would give pain in a diseased hip-joint, but rather make all of the necessary movements in manipulation with the utmost gentleness and caution.

Causes of Hip Disease.—Before considering the treatment of this disease, it is necessary to speak of the subject of the causation. We may at the outset lay it down as a positive fact that in the great majority of instances that it is a tubercular disease, just as much so as consumption. It is analogous in many respects to phthisis, in that it is an inherited disease which has been lighted up by some traumatism. Among the many causes which have been assigned are falls, sprains, inadequate clothing, exposure to cold and dampness. These of themselves, however, would not produce such a terrible disease unless some predisposing cause existed in the form of a system full of tubercular deposits ready to be lighted up into inflammatory action. It is a well-known truth, that having a fact in hand we invariably ascertain to the best of our ability a known cause. If a child presents this condition, the mother will always ascribe it to some cause, which in itself is usually a trivial one. How many children suffer falls and blows with no such disastrous result following! The fact that, as a rule, there is a tuberculous disease of the bone, must not exclude from our mind that there are a number of cases where the disease occurs without any tubercular disease. It is a great comfort to the family to know that the trouble may result without the presence of this hereditary factor. We must allow a small margin to cover the comforting cases. From the fact that this is a tuberculous disease, it must be viewed in an entirely

different light from an acute synovitis or ostitis occurring elsewhere. We must view a manifested tubercular deposit as a malignant disease, I mean that the tendency is to destruction. A malignant tumor is one which menaces the patient's life; a tubercular deposit is malignant because it has a tendency to a destruction of the surrounding tissues, not only the bone, but the soft tissues as well. It is not malignant in the view that it tends to the destruction of the patient's life, and in this it differs from malignant tumors.

As to the sites of the disease. Having settled in our minds that it exists in the head of the bone, I must not overlook the fact that it does not confine itself to this point. Existing originally in the head, it is apt to pass on to the acetabulum. That there is a conjoined acetabular origin I am not quite prepared to say, but that acetabular disease does become associated we all know. The head being removed it frequently leaves in the acetabulum a tuberculous deposit which relights the inflammation and continues the old condition. Now the question will be asked, such being the case, why not resort at once to excision of the tuberculous deposit? The reason is that in a certain number of cases nature has resorted to her own expedients to eradicate the disease by absorption. In some cases the cure has gone on until the patient has a very good leg.

Acting upon this determination of nature to absorb the affecting deposit, there has ensued a plan of treatment known as the conservative plan, which aims at immobilization for a period covering the time of the presence of inflammatory action. The results accomplished by a persistent attention to this plan of procedure prove far more satisfactory than those obtained by recourse to surgical procedure. The shortening is less and the general usefulness is better in every way, provided the case is given the full benefit of this plan sufficiently early to be of service, and it be persisted in with proper judgment for an adequate length of time.

Conservative Plan of Treatment.—To illustrate the method of carrying out the conservative plan of treatment, I will bring before you the boy upon whom I two weeks ago performed infra-trochanteric osteotomy for the relief of deformity following hip disease. The method of immobilization used in this case is applicable to the treatment of the disease itself in its incipiency. Incidentally, I may say that his temperature on the day following the operation was 100° and since that time has ranged from 98° to 99⅖° indicating an entire absence of any inflammatory disturbance. I left the dressing intact for a period of ten days, and when I removed it it was perfectly clean and healthy. The great convenience of using the wire breeches is, that we can have the patient thoroughly immobile and yet have perfect access to every part. The wound is perfectly aseptic. You will observe that the shortening will amount to not more than one inch. By means of the elevation of the breeches upon stools or benches placed across an ordinary bed we can pass the bed-pan, and keep the patient in a good sanitary condition without moving the hip. Extension is obtained here by means of a rubber band applied on the side and attached to the foot-piece. By means of scales we can test exactly the amount of weight applied. In this case very favorable and satisfactory results have been obtained.

Treatment of Abscess in Hip Disease.—You will recall the little girl with the leg so flexed that it was with considerable difficulty that we brought her limb down in a horizontal position. You will remember, also, that I called attention to a swelling in the hip-joint. Her limb has been kept in a rigid position since. Her temperature rose on the evening of the 25th to 101⅘°, and our attention was called to the fact that something was wrong. Immediately we examined her carefully and found not a single, but multiple abscesses; one in the groin of the affected side, one on the side high up, and one posterior on the spinal column. These abscesses when opened gave exit to the characteristic tubercular pus, and the peculiar granulations pathognomonic of these tubercular cases

followed. Her temperature fell to 99⅕° and with but occasional slight elevations has since remained normal. This abscess on the back is not connected with caries of the vertebræ but is purely a tubercular deposit in the soft tissues which is breaking down. If there had been necrosis of the hip we would have removed the diseased bone at once. We have treated these abscesses as follows: First, they were washed out thoroughly with peroxide of hydrogen by means of which combustion of diseased tissue takes place. Following this is the use of the bichloride of mercury solution, 1 to 2000, which puts the parts in a chemically antiseptic condition. Then, more important than all the rest, is the use of iodoform, which is preëminently of all the germicides the one which acts advantageously in the treatment of diseases due to the bacillus tuberculosis. If this is dusted over, very little will reach the crevices where the germs lie. If we use the ethereal solution we are apt to have iodoform narcosis, and as well necrosis of tissues with which it comes in contact. Dr. Nicholas Senn advises the use of a ten per cent. emulsion of iodoform in olive oil, the advantage of which lies in the fact that a suspension of iodoform takes place so that we can have a definite quantity present; it fills all the crevices and the excess runs off, the iodoform thus coming in contact with the germs. Iodoform has a very disagreeable odor and attempts have been made to substitute iodol for it, but I am not satisfied with it, and I therefore forget the odor in the decidedly great advantage it possesses as a germicide for bacilli tuberculoso.

Favorable Result of Conservatism in Hip Disease.—The little child which is now before you has been carefully treated since the incipient stage by my chief clinical assistant, Dr. J. P. Mann. She was kept in bed for the first six months, during which time extension, fixation, and immobilization was maintained. When the symptoms warranted it, the child was allowed to get up and around, but was not allowed to use the diseased joint. She has been wearing a high shoe upon the sound limb, and used crutches in order to thoroughly protect the diseased joint.

The position assumed by the child must be noticed. Let us carefully examine the present condition by taking the sound limb first in order that we may have something to compare it with. I have no trouble in producing rotation on the sound side and showing you the entire absence of rotation upon the affected side. I will move the sound limb out or abduct it, asking you to notice the anterior superior spine of the ilium and the labia majora, and you will observe that they remain in a fixed position without the slightest indication of a change in their position showing that free motion of the head of the femur in acetabulum takes place. On the other side, I find there is an absence of motion of the joint as I rotate and abduct the limb. As I move the limb outwards you see that the mons veneris and the spine of the ilium move also. As the child turns over you can see how she guards her affected limb. Now looking at this patient you can see that the ileo-femoral crease is increased on the affected side and diminished on the well side. Hence, we cannot rely on this sign alone. Now let us observe the difference in length of the legs, and I will have you observe that there is an enormous amount of fallacy existing in the manner making measurements of the asymmetry of a limb. The points selected are usually the fixed bony points, but the difficulty in finding these points is so great that much error is apt to result. I usually determine the point of the anterior superior spinous process of the ilium and the external malleolus, and marking them, take my measurements from them, but in doing this I must avoid the danger of slipping my finger upward owing to the extreme mobility of the skin over these bony prominences. The position of the legs and as well the body must be straight. The better way is to corroborate by measuring from the umbilicus as a fixed point and swinging the other end of the tape-measure from one malleolus to the other. In this way the measurements will be more accurate and the avoidance of error facilitated. The very best and most accurate method is that in which the patient is made to stand, and while standing, thin boards of accurate and known thickness are slipped under

the foot of the short side until the pelvis is on a level with the floor. We can thus form an accurate idea as to the size of the sole required for the shoe.

I find in this case one of the most satisfactory results we could desire. There is a slight amount of rotation as I can feel by means of the great trochanter and the ischium, and there is also a slight amount of adduction and abduction. The limb is in a perfectly straight position, and that is what we wished to secure. I wish to show you now how a worse condition can be produced in such cases if care be not taken. If the limb is not maintained at right angles to the line of the pelvis when recovery takes place it may become ankylosed either bent outwards, or overlapping the other limb, the latter being one of the most serious deformities following hip-joint disease. Another mistake is to allow the child to lie in a bed which allows the limb to be flexed and thus thrown anterior to the body. As this child stands on the sound leg her affected limb hangs in the position of extension at right angles to the axis of the pelvis. In this position she does not use her limb, but a little later, when we are positive beyond a doubt that the disease is entirely arrested, we shall put the high shoe upon the affected leg and allow her to go without crutches. The result obtained in this patient is one of which anyone may be satisfied, for although seen in the incipiency the progress had been considerable, but was arrested without abscess, with a leg that will be a useful leg for locomotion.