SURGERY

WAR, RAILWAY, INDUSTRIAL, GYNECOLOGICAL, OBSTETRICAL AND UROLOGICAL.

LATENT MANIFESTATIONS OF SYPHILIS IN AND ABOUT JOINTS*

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That syphilitic joint disease is not so often recognized as other joint diseases, and that the proper treatment will give uniformly good results, has been brought more and more forcibly to the attention of the writer during the last few years. Each year this diagnosis is made in a larger proportion of cases at the Orthopedic Clinic in the Touro Infirmary. Dr. O'Reilly reports in the Orthopedic Clinic at the Washington University Hospital from January 1, 1912, to February 1, 1913, that 10 % of the cases seen were syphilitic arthritis.

It is very rare that a patient is referred with the probable diagnosis of a luetic disease, for these cases are usually classed as rheumatism, infectious arthritis or tuberculosis.

That there is no definite pathological picture of syphilis seems to be unquestioned, and Ely says: "The appearance of the pathology of syphilitic, tuberculous and atrophic arthritis and many other arthritic conditions are precisely the same." We must, therefore, make this diagnosis tentatively by exclusion and then prove it by methods to be discussed later. Most writers feel that the characteristic lesion is an osteochondritis. This was well described by Parrot and is believed by Bradford and Lovett to be the most common form of hereditary syphilis, and that when a synovitis occurs it is sec-

ondary. The bone is thickened at the epiphyseal line and there is lameness of the limb, and sometimes even uselessness. This condition is seen very early in infancy and in childhood, and often the children develop the luetic joint manifestations at the time of puberty.

According to Tubby, this type is a recurring synovitis with chronic inflammation of the surrounding bone. Periostitis is the most common bone manifestation of syphilis.

In the acquired type, Patton describes the earliest form as arthralgia and says that this may occur early, even while the secondary rash is present. Multiple joints are often affected. The second stage is an acute or chronic synovitis coming without warning, usually accompanied by pain and some elevated temperature. Motion does not increase the pain. The third stage is a gummatous osteitis, and is a cause of secondary affections of the joints.

We see two classes: cases in which the bone or cartilage is primarily diseased, and cases in which the disease is spread into the joints from the surrounding parts.

When the disease is primarily in the bone or cartilage it results in much more damage to the joint. Patton says that the main diagnostic point in syphilitic chronic synovitis is absence of pain and interference with motion, and that pain when present is worse at night; but if a careful examination is made usually some limitation of motion can be detected in this stage.

A gummatous affection of the synovial membrane is described which looks like the acute type, but later gummatous masses may be felt; no fluid, but irregular lumpy thickening of the synovia.

Syphilis also causes osteo-arthritic changes. Swett and Stoll feel that hereditary syphilis is often the cause of spurs on the os calcis.

According to Wegner, the usual order of the joint involvement is as follows:

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1. Distal end of femur,
2. Distal end of tibia and fibula,
3. Proximal end of tibia, and
4. Proximal end of femur, fibula and humerus.

In the differential diagnosis the history plays an important part. In this connection the fact that patients deny having had syphilis should not be given much weight. Some people contract syphilis apparently without ever knowing anything about the initial lesion. If the patient is a married woman her obstetric history should be gone over carefully, as miscarriages are common in this disease. Multiple joints are often affected, and the subjective symptoms are not in proportion to the joint involvement. Pain at night is believed by some authors to be pathognomonic, but the absence of this symptom proves nothing. The writer feels with Fraenkel that the x-ray is probably our most important diagnostic aid.

Fraenkel describes a typical x-ray in the hereditary type as follows: "A heavy, broad, homogeneous, irregularly-jagged, band-like shadow at the epiphysio-diaphyseal junction, well-separated from the diaphysis and jagged toward the epiphysis. Beneath this is a band showing increased penetration by the rays which gives the impression of a break in the continuity of the shaft."

In the acquired type we get various

x-ray findings, the most constant being a periostitis of the bones entering into the joint.

These are fusiform subperiosteal overgrowths. And sometimes we see the so-called Codman blister. This represents, according to Brown, a small area in which the infection is particularly severe, and the periosteum overlying it seems to be elevated from the bone.

Later in the process we get the gummatous changes well shown in the x-ray. There is often a good deal of destruction of the tissue, and the gummatous masses may at times completely fill the joint. In these cases the diagnosis of tuberculosis is often erroneously made.

Patten believes that the gummatous process begins in the synovial membrane and extends to the bone.

In the writer's experience the Wassermann reaction has been negative in a large

Case II

Note the eaten or punched-out appearance of the left sacro-iliac joint as compared with the right.

Elbow joint in the same patient.

per cent. of his cases and the fact that this reaction is negative in a given case means very little. This fact has been noted and commented upon by Cofield, Boorstein and Fisher. The Wassermann reaction shows only that there is an excess of lipoidal sub-

FIGURE III

This shows very well the luetic appearance of the epiphyseal line. Note also the changes in the epiphysis of the femur.

stance in the body and occurs in other diseases than syphilis. The fact that we get a negative Wassermann, therefore, simply means that the amount of lipoidal substance is about normal.

The joint manifestations of the disease usually take place in the late secondary and tertiary stages and in latent syphilis.

The one diagnostic aid other than the x-ray which seems most constant and one about which very little has been written is the luetin test. This is a pure culture of the *treponema pallidum*; several strains are used in the manufacture of the product, and it is injected intradermatically. According to Noguchi, it is a specific for syphilis and occurs most constantly and intensely in the tertiary and latent stages of the disease. It is often absent in primary and secondary syphilis, probably due to the fact that there are not so many antibodies in the system at that time.

Noguchi says that in congenitally syphilitic infants it is less marked than after many years' duration, when the reaction becomes more pronounced and constant. The test which has been used always, and which can be relied upon when all others fail, is the therapeutic test, and in all cases when a positive diagnosis of some other condition can not be made, and the x-ray and luetin are negative, syphilitic treatment should be given to the point of toleration.

Lyons feels that a positive luetin reaction can be found in non-syphilitic patients taking mixed treatment due to the action of iodids. Noguchi says: "The luetin reaction is but little affected by this treatment, but that salvarsan does change the reaction."

Certainly this reaction should be tried as well as the Wassermann in all suspected

cases and when it is positive syphilis usually exists.

These cases seem to show that all the large joints may be the seat of the disease. The knee joint is very commonly affected.

In the differential diagnosis tuberculosis, infectious arthritis and hypertrophic arthritis must be considered. In children rickets and scurvy must also be ruled out.

CASE REPORTS

Case 1.—Mrs. E. S., age 27.

F. H.—Good.

P. H.—Always well. Two children. No miscarriages.

P. I.—For several months has complained of pain and stiffness in the right knee. Had to stop work on account of stiffness and marked swelling.

P. E.—Motions of right knee possible from 160 to 100°. No tenderness. X-ray shows infectious arthritis. Luetin positive. Wassermann negative.

Treatment.—Mixed treatment started.

November 3, 1917.—Very much better; only slight limp. Motion from 170 to 80°. "606" advised.

Case 2.—Mrs. M. L., age 32. November 23, 1917.

F. H.—Negative.

P. H.—Always well. Three children. No miscarriages.

P. I.—Five months ago began to have pain in

left hand and arm, and later in right elbow and lower part of the back. No treatment.

Physical Examination.—Motions of right elbow possible for 90-160°. All motions of both hips painful. Spinal motions limited and painful. Wassermann + + +. X-ray left sacroiliac joint shows suspicious luetic arthritis. Mixed treatment started.

November 6, 1917.—Much relieved. Pain in back less. Motion of right elbow improved. To continue the mixed treatment.

Case 3.—Miss M. O., age 15. January 18, 1917.

F. H.—Negative.

P. H.—Negative.

P. I.—For the last two months, pain and swelling of the left knee and left elbow. Pain does not grow worse.

P. E.—Left knee presents synovitis. Circumference left knee 12 inches; right knee 10½ inches. Motions for left elbow slightly swollen, not tender. Wassermann + + +. X-ray: luetic osteitis of condyles of left femur and elbow joint.

Treatment.—Mixed treatment.

August 2, 1917.—Improving. Treatment same.

November 1, 1917.—Has not returned to Clinic since August 2, 1917.

Case 4.—Mr. L. C., age 48. October 19, 1914.

F. H.—Negative.

P. H.—Always well except for gonorrhea in early life and yellow fever in 1898.

P. I.—When in college thinks he strained his shoulder pitching, and has never been able to

Case IV—Before Treatment.

The local enlargements here shown represent the bone blisters of Codman.

Case IV—After Treatment.
Note the difference in the localized enlargements.

throw a ball well since. Now can hardly throw overhand at all.

In 1910 was stiff in various joints and went to Mt. Clemmens. Made several trips at different times and felt better in all joints but right shoulder.

P. E.—Large, well-developed and muscular man. All motions of the right shoulder normal. Circumference of right upper arm, 16 inches; left one, 15 inches.

At that time the Wassermann reaction was negative and the x-ray plates showed a periostitis of the upper part of the half of the right humerus.

A luetin reaction was then made, which was positive.

Patient was put on potassium iodid, increasing doses and unguentum hydrargyrum.

November 27, 1914.—Feels better; less pain in right shoulder.

December 15, 1914.—Improving.

Note.—Improved slowly until the summer of 1915, when he made a trip to Hot Springs, Ark. While there took the baths and five intravenous doses of Salvarsan, and reported that he was feeling well.

May 17, 1916.—Has some stiffness in the morning. Improves after getting about.

Case 5.—Miss H. R., age 17. September 4, 1917.

F. H.—Negative.

P. H.—Always well.

P. I.—About two years ago began to have pain in the left hip and has limped for the last eight months. Three months ago consulted her family doctor. No diagnosis. Then she went to the Charity Hospital. X-ray made and case diagnosed as tuberculous hip disease. Plaster spica applied; in bed eight weeks, and then up walking in the plaster. Patient claims that she felt worse with the plaster on. It was removed at the hospital and she refused to wear another one which they wanted to apply. Consulted her family doctor again and was referred to the writer September 4, 1917.

P. E.—Length left leg, 30½ inches; length right leg, 30½ inches. Circumference right thigh, 17 inches; circumference left leg, 15½ inches. Circumference right calf, 12 inches; circumference left calf, 11 inches. Very slight limitation of motion in the left hip. X-ray shows irritation

Case VI

Shows the typical rarefied condition in the head of the humerus, also periostitis of the shaft.

of the acetabulum and head of femur. No destruction shown.

Wassermann negative. Mixed treatment started at once.

November 1, 1917.—Patient has been improving steadily. Has occasional pain in the hip. Case undoubtedly one of luetic hip joint.

Case 6.—Mr. J. L., age 49. October 13, 1917. F. H.—Negative.

Case VII

Periostitis of femur, tibia and fibula. Very well shown in anterior-posterior view of fibula.

P. H.—Always been well. Denies venereal disease.

P. I.—Several months ago awakened at night with a sudden pain in the right shoulder; lasted three or four days. Pain off and on since.

P. E.—Well-nourished man. All motions of the right shoulder normal; slight creaking motion. X-ray shows periostitis of head of right humerus. Wassermann negative. Luetin positive.

Treatment.—Mixed treatment.

November 3, 1917.—Much better today. Feels that he is 50 % relieved.

Case 7.—Mrs. N. J., age 35. March 13, 1915.

F. H.—Good.

P. H.—Negative.

P. I.—Patient had fall about two months ago. Slight pain in the knee at that time. One month later steady pain in right knee.

P. E.—Right knee is swollen, tender and painful; pain greatest at night ("leg feels heavy and stiff"). Knee presents typical synovitis, the right knee being two inches larger than the left.

Tentative diagnosis of luetic joint made and patient sent for Wassermann.

March 24, 1915.—Wassermann + + +.

Treatment.—Mixed treatment begun.

March 24, 1915.—Pain and stiffness are less, but patient has not been taking the medicine regularly.

November 1, 1917.—Not seen since last note.

The x-ray picture in tuberculosis is essentially different, except in the gummatous stage. Tuberculin, Wassermann and luetin reactions and a careful history will usually clear up the case.

Rickets is rarely seen in the first few months of life, and in this disease the inflammation and swelling is confined to the ends of the bones. The epiphyses are less tender and painful in rickets.

If scurvy is suspected the history and x-ray pictures will help.

Infectious arthritis is the diagnosis often given by the roentgenologist in the early joint manifestations of syphilis, but this picture with a positive Wassermann or luetin, or both, will make the diagnosis. Hypertrophic arthritis is sometimes associated with the disease.

CONCLUSIONS

Joint syphilis is much more common than is generally supposed.

In the x-ray findings and the luetin reaction we have nearly positive diagnostic aids.

An x-ray picture, Wassermann and luetin reaction should be made in all suspected cases, and then if there is doubt

Case VIII

Very marked osteo-periostitis of the astragalus and os calcis. The osteo-arthritis changes that sometimes go with this disease are well shown here.

the therapeutic test should be applied. The necessity of this is plain, as the treatment of the diseases likely to be confounded with joint syphilis is quite different from the treatment of that disease.

I should like to express my thanks to Dr. E. C. Samuels, Radiographer at the Touro Infirmary, for making the skiagraphs of the Clinic cases.

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DISCUSSION

Dr. Willis C. Campbell, Memphis, Tenn.—The findings as described by the essayist are typical of syphilis, but this affection undoubtedly manifests itself in many different ways; in fact, nearly any low-grade arthritis giving various pathological and skiagraphic findings may be of specific origin. Consequently in our search for the cause or focus, syphilis must at all times be considered and the Wassermann test made in our study of each case. I have considered the Wassermann more accurate, but in the future shall also use the luetin test as suggested by Dr. Hatch. We can not depend upon either absolutely nor the past history, but if the symptoms and appearance of the bone are indicative of syphilis anti-specific measures should be administered. Recently, I saw a physician who had been treated by one of our most prominent syphilographers for several years complain of a painful condition in the knee and tibia. The skiagram showed a typical increase in density and periosteal proliferation with a small sequestrum. A Wassermann was made at once, which proved negative. The physician insisted upon an immediate operation and with great difficulty was persuaded to take three doses of Salvarsan. The result was an immediate relief of symptoms. At least six and at times as many as twenty doses should be given. The Wassermann is most valuable when positive as a guide to treatment and of course in making the diagnosis.

The syphilitic joint is undoubtedly a very common lesion, and as previously stated must be considered in all chronic affections of joints. However, we must not conclude that every joint affection in a known syphilitic is of specific origin. These may be from focal infection as teeth, tonsils, the genito-urinary tract, etc., as may occur in non-specific individuals. Syphilis should of course be eradicated and there may be partial

relief from the effects on the general condition of the patient, but a complete cure can not be expected unless the cause is removed.

Roberts, of New York, recently in the *Journal of the American Medical Association* reports two cases of Perthe's disease of the hip joint (osteochondritis juvenilis) in which he found the Wassermann negative, but was able to produce a cure by anti-syphilitic treatment. I have had three of this type, in which the Wassermann was three-plus positive, but have not had time to determine the results. In all bone and joint syphilis Salvarsan with mercury and the iodids is most effective. Unfortunately, however, as soon as the symptoms have been relieved the patient frequently becomes indifferent and does not return for further observation.

In conclusion, I desire to emphasize (1) that syphilis is a very common affection of joints; (2) that in certain types there are characteristic clinical findings and osseous changes, but in many the condition may be indistinguishable from other joint affections; (3) that Salvarsan should be given in all cases; and (4) that anti-syphilitic treatment should be continued long after symptoms have subsided.

Dr. Hatch (closing).—In speaking of the treatment of this condition, I purposely did not go into this part of the subject deeply on account of time, but feel sure that Salvarsan is very efficacious in all these late types as well as in the early types of syphilis.

Dr. Campbell is absolutely right in his statement that the patients hate to take this diagnosis of latent syphilis, and sometimes even after their symptoms have been relieved by proper treatment they still do not believe the diagnosis of syphilis to be correct.

Many of these patients never, as far as they know, have had syphilis; and consequently it is easy to see why they do not like to take this diagnosis, which seems to bear a stigma.

There is no question that we have in connection with these syphilitic joints combinations of hypertrophic arthritis and other chronic joint conditions.

SCROTAL SKIN GRAFTS IN SEVERE INJURIES OF THE PENIS*

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There is probably no branch of medicine which is demanding more attention, not only by physicians, but the public in general, than that of plastic surgery. The military injuries of the greatest war of the world are compelling the attention of the plastic surgeon as nothing has ever done before. It is no longer a question of what has been done, but rather what can

and must be done, to restore to normal those unfortunates who have been mutilated, even beyond recognition.

Injuries in and about the face have naturally received the greatest attention, but second only to these,—aye I might say even before,—comes the restoration to normal of that organ which man abuses much but values greatly—I refer to severe injuries of the penis.

In attempting to graft scrotal skin upon the penis we must first, as in all skin grafting, properly prepare the field if we expect to get the desired results. Should the lesion of the penis be the result of a burn, all necrotic skin must have been entirely removed and the surface rendered as free from infection as possible. To do this, Dakin's solution is applied continuously until the necrotic tissue has entirely sloughed away and the wound presents a healthy appearance. If it is possible to obtain a bacteriological count, this will of course be of material assistance in determining the proper time to apply the graft.

Should trauma have resulted in the loss of the penile skin, it is well to carry out the above application of Dakin's solution as previously stated, using the regular method of dressings with perforated Dakin's tubes buried in them, thus allowing a more thorough application and preventing outside infection from being carried to the injured area. Should scar tissue have formed, this has to be carefully dissected away and an attempt made to extend the penis to its original length. If bleeding can be controlled, the graft is applied immediately, otherwise a day or two should elapse before the grafting is attempted. Should a penis denuded of skin heal by granulation and scar tissue, erection is absolutely impossible. In severe injuries where all the skin has been destroyed, urination is difficult, the result of contraction, and the drawing back of the glands often to such an extent that the organ presents the shape of a fish hook with the meatus pointing toward the abdomen.

In an old man the victim of such an injury we have a pitiable condition, while to a man in the prime of life it is disastrous, as erection is impossible and he finds him-

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