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GONOCOCCAL ARTHRITIS

WITH OBSERVATIONS BASED ON A SERIES OF 388 CASES

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(Continued.)

OTHER COMPLICATIONS IN THE CASES OF ARTHRITIS UNDER REVIEW

The most important complication has been the condition known as keratoderma blenorrhagica. Twelve cases were met with, a rather large incidence ; three of them were septicæmic and very severe.

In one, almost every joint in the body was involved, and when the case was first seen there was a complete disarticulation of the right knee joint. The patient also suffered from endocarditis, which was possibly gonococcal in origin. This case died of acute lobar pneumonia, and was the only fatal case in the series.

Another complication was a case of *gonococcal pleurisy*, in which the organism was isolated from the aspirated pleuritic fluid.

A third case, of unusual type, occurred in a girl of nineteen who was four months pregnant. The arthritis was of a fulminating type and involved both shoulders, both knees, one elbow joint and both hip joints. The acute arthritis had cleared up in all the joints except those of the hip when she was seen by us. Although pain in the hip joints had only been present for eight to ten days, radiological examination showed gross and *extensive atrophy and destruction of the articular cartilages* and of the head of the femur. The condition ended in a pathological dislocation of one hip joint and marked deformity of the other. A case not dissimilar has been recorded by E. H. Schwab.¹³⁷

Spurs on the os calcis were seen in association with six

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of the chronic cases of gonococcal arthritis. They were very resistant to any form of treatment. In one case they had disappeared completely when the patient returned to hospital after recovering from an attack of acute lobar pneumonia. They are not necessarily caused by the gonococcus, and may be due to any infective bone condition.

The most frequent complication, and one to which we have already referred, was *myositis*. It was present in almost 80 per cent. of our acute cases. In the chronic cases it was present in 100 per cent. It involves to the greatest extent the muscles proximal to the infected joint, and especially those above the knee joint. Eichhorst¹³⁸ was one of the first to draw attention to this condition. It reacts extremely well to massage and exercises, combined with vaccine treatment.

A complication which we consider worthy of record is the development of an acute tuberculous arthritis in a patient suffering from acute gonorrhœa and arthralgia in various joints. The arthritis of the left knee joint, on X-ray examination, did not at first show any evidence of articular damage or of bone disease, and the condition was therefore treated as one of gonococcal arthritis. The joint condition and the general health of the patient became progressively worse, although the urethral condition was almost cured. An X-ray photograph taken one month later revealed an active fulminating tuberculous arthritis. This diagnosis was confirmed by operation.

METHODS OF TREATMENT AND GENERAL OBSERVATIONS BASED ON A SERIES OF 380 CASES

Diagnosis.—The *ætiology* of every joint infection should be established because those caused by gonorrhœa are closely simulated by other pyogenic infections. With the many methods previously referred to at our disposal, an accurate diagnosis is generally possible. Most cases are missed through *failure to examine* the genito-urinary canal with sufficient care and accuracy. The most important method of diagnosis is the examination of the genito-urinary system for clinical or bacteriological evidence of active or latent gonorrhœa. In subacute and chronic arthritis, a *provocative injection* of gonococcal vaccine may assist in establishing the diagnosis by

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lighting up a focus of latent infection in the genito-urinary system. The *complement fixation test* is of great value in established arthritis, if vaccines have not been given, and especially in those cases in which bacteriological evidence is lacking. *Radiograms* have a very limited positive value in diagnosis, but may give definite evidence that the arthritis is due to some other cause, such as an acute infective arthritis, a rheumatoid, or a tuberculous infection.

In acute cases a *monarthritis* is always suggestive of gonococcal infection ; so also is involvement of the *tendon sheaths* and periarticular swelling.

In chronic cases, it must not be assumed, because a patient has at some time suffered from gonorrhœa, that every subsequent joint infection is necessarily due to a gonococcal metastasis. In many of these cases latent foci of infection by other organisms in the *teeth* and *tonsils* may play an important part in aggravating and keeping up a pathological condition in the joint which was originally gonococcal.

The cuti-reaction, using a fresh antigen, is valuable in diagnosis, and is easy to carry out.

Prognosis.—In acute and subacute cases the prognosis is good except in those rare cases which on radiographic examination show gross articular damage.

In our series, 324 cases could be classed as acute and subacute, while 64 were chronic in their manifestations. In chronic cases the prognosis is good for life and for the relief of pain, but complete recovery of function is seldom possible, although in many cases a useful joint can be assured. The prognosis is largely dependent on the amount of deformity and on the condition of the joint surfaces as shown by radiograms. Unless the genito-urinary tract is rendered free from infection in all cases, there is a liability to recurrent attacks of disability in the involved joints.

Treatment.—This has been dealt with under four heads :

- (1) The *general treatment* of the patient.
- (2) *Eradication of the original focus* of infection in the urogenital canal or elsewhere.
- (3) *Local treatment* of the *infected joints*.
- (4) *Treatment through the blood stream* with a view to raising the resistance of the patient to the infecting organism.

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(1) In the General Treatment the main essentials are rest, mild purgation, diuresis, diaphoresis by tepid sponging, and restriction of diet.

(2) Eradication of the Original Focus of Infection. It is not possible in the compass of this communication to enter into a discussion on the treatment of acute gonorrhœa in the male and female. It is necessary to emphasise, however, how important it is to treat all male cases of gonorrhœa in the early stages when the anterior urethra alone is involved, because it is rare to meet with arthritis as a complication of such cases. In subacute and chronic arthritis it is necessary also to emphasise the importance of *prostatic and vesicular massage* in men, and of endocervical treatment and the need for vascularisation of the pelvic organs in women. Reference has been made earlier to vasostomy and other measures.

(3) Treatment of the Infected Joints. In the acute stages the relief of pain is of first importance, and is best obtained by rest in the semiflexed position of the joint. Sandbags or a poroplastic splint are preferable to the fixed splint. While rest is always advisable if pain is severe, it is very important not to continue immobilising the joint for any period longer than is necessary to relieve the acute pain. *Early mobilisation* is one of the greatest assets in recovery of joint function. Next in importance to the relief of pain is Bier's passive hyperæmia, and, third, the local application to the joint of soothing medicaments, such as antiphlogistine, ichthyol, lead and opium, etc. These methods can be employed in general practice. For hospital patients, *hot-air baths*, *diathermy* and other *physiotherapeutic methods* are helpful. In our experience, however, they do not alone give any more relief from pain than can be attained by the simpler methods. *Diathermy* applied to the joints, and also to the focus of infection, appeared to be a very definite advance in the treatment of acute gonococcal arthritis. Very little has been published on the subject since the original paper by Cumberbatch and Robinson to confirm their work. In our limited experience we are doubtful if this method, either applied to the original focus or to the joints, or to both, has justified the claims made for it. We should be glad to have the experience of others. In chronic cases diathermy is valuable for the relief of pain, and helps to vascularise the joint structures. We

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are inclined to think that the results obtained are partly psychological in many cases.

Other local remedies which are valuable in the relief of pain in chronic cases are Bier's congestion, and the application of acid salicylic and capsicum, in the form of an ointment, or of an ointment containing iodine, thymol, ichthyol, and belladonna. Iodex is also useful. Once the pain is relieved, in subacute and chronic cases, these same preparations act as mild counter-irritants, increase the blood supply, and assist in the absorption of inflammatory products. *Scott's dressing* is valuable for this purpose. Applications to the joint must never be so strong as to cause more than a transient hyperæmia of the skin surface.

Operative treatment has been advocated largely on the Continent and in America. We have reviewed fifteen important papers on this subject by authors who advocate either *joint puncture and lavage*, or *incision and lavage* in every case of arthritis.

In the 324 acute and subacute cases under review, only seven were operated on, and *all were cases of severe pyarthrosis*, two of them occurring in cases of ophthalmia neonatorum.

Many of the operative measures mentioned in the literature are too complicated, and in our experience there are very few acute or subacute gonococcal infections of joints which require operative interference. Aspiration will undoubtedly reduce the intra-articular pressure. If incision and lavage is required we prefer the preparation recommended by Walther of 2 per cent. formaldehyde in glycerine, eusol, or weak mercurochrome. Operative measures, in our opinion, should be reserved for purulent cases in which there is evidence of rapid cartilaginous destruction.

In chronic cases operative measures are required to correct deformities, and should be carried out in collaboration with an orthopædic surgeon.

(4) Treatment through the Blood Stream.—This may be discussed under three heads :—

- (1) Protein therapy.
- (2) Vaccine therapy and serum therapy.
- (3) Chemotherapy.

(1) *Protein Therapy*.—The proteins which we have

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tried are T.A.B. vaccine, horse serum, peptone, milk, and aolan. In the acute stages, aolan or sterile milk is to be preferred, as the reactions which they give are not so great and yet their therapeutic effect is often quite marked. In chronic cases peptone is probably the best protein to use. It must be understood that this method of treatment is only as an adjuvant to routine methods, and if, after the first one or two injections of a protein there is no definite improvement, it should be supplemented by active immunisation by either stock or autogenous vaccine.

(2) *Vaccine Therapy*.—There are few medical and surgical conditions on which the consensus of opinion as to the success of vaccine treatment is so definite as in the treatment of gonococcal arthritis in the acute and sub-acute stages. In general, we prefer this method of treatment to protein therapy; not infrequently we supplement the vaccine treatment by one or two initial injections of a protein such as milk. Polyvalent stock vaccines act quite well, but we prefer a detoxicated vaccine; in acute cases, and if the patient is running a temperature, the detoxicated vaccine is always to be preferred. If it is possible we combine in every case, and especially in sub-acute cases with mixed infection, the detoxicated vaccine and an autogenous one made from the patient's own infecting organisms. In chronic cases the autogenous vaccine is often helpful. In chronic gonococcal osteo-arthritis protein shock is useful at the commencement of treatment before administering the polyvalent and autogenous vaccine. We have had good results with arthrigen and gono-yatren. For combining protein shock and specific vaccine treatment these preparations appear to be very good.

(3) *Chemotherapy*.—The chemotherapeutic agents which we have tried are intramine, contramine, trimine, manganese and arsenobenzol preparations. We have also used sodium iodide intravenously and mercurochrome intravenously. In any chronic case which is not reacting to vaccine therapy and focal treatment, we have found benefit from an injection of contramine or sulpharsenol between successive doses of a vaccine. In some of the most resistant cases of osteo-arthritis, with marked changes in the bone and with adhesions, intravenous injections of sodium iodide have proved of value and act

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both as a protein and as a chemotherapeutic agent. The intravenous injection of iodides, combined with the administration of a stock vaccine of streptococcus arthriticus, often assists in clearing up chronic joint conditions in patients who are reputed to have had a gonococcal arthritis and in whom a rheumatoid arthritis has subsequently set in. We have referred to the value of minute injections of neokharsivan in cases of keratodermia and to the recent introduction of O-iodoxybenzoic acid in chronic arthritis. It would be of interest to know if any members of the society have had practical experience of the latter method.

In summing up the treatment of acute and subacute gonococcal arthritis, the important things to emphasise are :—

(1) The necessity of treating on approved lines, and eradicating the focus of infection in the genito-urinary system or elsewhere.

Of all measures, prostatic and vesicular massage is possibly the most important.

(2) The importance of voluntary and passive movements and massage, as soon as the acute pain in the joint has subsided. This is the greatest asset in avoiding adhesions and in restoration of function.

(3) The necessity in every case of treating a blood-borne infection through the blood stream by a protein or a vaccine, or by a combination of both.

In this form of metastasic disease, vaccine therapy undoubtedly gives better results than in any other type of gonococcal infection.

In chronic cases :—

(1) The importance of searching for and treating the focus of infection, paying particular attention in the male to the prostate and seminal vesicles ; in the female to the cervix and upper genital tract.

(2) The need for vascularisation of the joint structures. This is best attained by Bier's congestion, by voluntary and passive movement, and by massage.

(3) The need for removal of other foci of bacterial infection in the body, such as infected tonsils, teeth, etc.

(4) The improvement to be gained by the joint administration of a protein and an autogenous vaccine.

In all chronic cases it is very advisable that the venereologist get the opinion of and have the assistance of an

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orthopædic surgeon with regard to the local treatment of the joint.

A series of X-ray photographs of joints infected by the gonococcus and of keratoderma in association with gonococcal arthritis was shown to the members of the society.

SUMMARY

(1) In over 13,000 cases of gonorrhœa, arthritis was a complication in 388 cases. It was acute or subacute in 324, chronic in 64 cases. It was more common in men than in women, and more often polyarticular than monarticular (5 to 1).

(2) The original focus of infection in men was generally in the prostate gland and the seminal vesicles; in women, in the urethra, the cervix, the Bartholinian gland, and the Fallopian tubes.

No cases occurred in association with vulvo vaginitis. Two cases occurred in ophthalmia neonatorum.

(3) Operative treatment was rarely required in acute cases, either on the vesicles or on the affected joint.

(4) The prognosis is good in acute and subacute cases. In 324 cases of arthritis there was one death, in 276 cases a good result, with complete restoration of function, was obtained, and no evidence remained of the previous joint infection. In the remaining seventeen cases there was slight limitation of movement but a good functional result. The remaining thirty cases were either transferred to other centres or defaulted from treatment.

(5) The results in the 64 chronic cases varied directly with the degree of involvement of the intra- and peri-articular structures. A better functional result was obtained in most cases and freedom from recurrent attacks of pain in the joint. We were not able to follow 20 per cent. of the chronic cases, as they did not continue with treatment.

REFERENCES TO LITERATURE

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