Clinical lecture on the present state of surgical treatment of tubercular disease of joints : delivered at St. Thomas's Hospital, Jan. 14, 1890 / by John Croft.

Dr. R. A. Smith "*On Sewage and Sewage Rivers.*"

[From the Twelfth Volume of "Memoirs of the Literary and Philosophical Society of Manchester."—Session 1854-5.]

15.

CLINICAL LECTURE

ON THE

PRESENT STAGE OF SURGICAL TREATMENT

OF

TUBERCULAR DISEASE OF JOINTS.

DELIVERED AT ST. THOMAS'S HOSPITAL, JAN. 14, 1890.

BY

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Reprinted from "THE LANCET," February 8, 1890.

TREATMENT OF TUBERCULAR DISEASE OF JOINTS.

GENTLEMEN,—As this is one of the subjects under discussion and consideration at this period of the progress of surgery, I have ventured to put together a few observations for your guidance in the study of the question. You will find that I am made to dwell more on disease of the hip-joint than upon any other articulation. The dispute and war which have been going on have been raging chiefly around that joint. You will not wonder at my giving that joint almost exclusive place in my remarks when you remember that the surgery of that particular joint has occupied a great deal of my own attention. When I became surgeon to this hospital, in 1871, the surgical treatment of hip-joint disease was in a most deplorable condition. The pathology of the diseases incidental to joints has advanced since that period so far that surgeons have no longer an excuse for empirically treating disease of the hip-joint, but may commence and pursue a definite principle or policy in their management of the case in hand. Eighteen years ago the differentiation between what was then called scrofula and bacillary tuberculosis had not been established. Men's minds, except in a few remarkably

advanced instances, were in doubt and confusion. After Koch in 1882 showed how bacilli were always to be found in "tubercle," opinions with regard to scrofulous and tuberculous diseases took more definite shape, and with this knowledge a more definite line has been taken in the surgical treatment of joint diseases. At the present period the surgical party may be said to be pursuing two opposite lines of policy. One section has laid down a formulated policy of attempting complete removal or excision, founded on the certain knowledge of the presence and habits of an inoculable growth. Another section follows a contrary line of policy—that of treating the same disease without excision or similar radical operation, and in these modern days explains the old practice by recently acquired knowledge. Is the first mentioned section right, and the second one wrong; or is the second section right and the radical party wrong; or are both more or less right? The facts on which the operationist party base their policy are something like these: that when tubercular disease commences in joint structures it follows the same course that it does in other structures of the body; that it may cease to develop, and then may undergo spontaneous cure; that it may develop and undergo caseous degeneration, and the caseous products may liquefy and give rise to abscess; that the local condition may be followed by infection of other parts of the body; that the tubercular element is artificially inoculable, and is auto-inoculable, and this latter kind of infection may suddenly take place upon a long period of local quiescence. The line of action which has been taken on this basis of facts has been in the direction of what has been called early excision, and the latest development of this prompt action has been thus formulated by Mr. A. Barker:[1] "That in cases where general tubercular disease does not contraindicate it,

[1] Lectures at the Royal College of Surgeons, 1888.

the infected tissue of a joint should be thoroughly removed so soon as it is suspected that caseation is advancing in it." When other treatment has failed to arrest the disease of the joint, and there are signs that caseation has commenced and is advancing, then the operation of excision should be performed. The operation should go wide of the disease and proceed with as little violence as possible, and with the object of obtaining primary union or union by first intention.

Now this latest stage in practice has been reached by painful and laborious steps during the last forty years or more. Then the operation of excision was performed as a last resort to save a limb or a life. When I took up the subject nearly twenty years ago, excision of the hip-joint was rarely performed, and then at the latest stage of the malady. After the experience of a few cases I became convinced that the proper time for operating, if operation was to be done at all, was a comparatively early one. By comparatively early I meant early when the period was compared with that at which my predecessors and teachers had performed it. The term "early" was much criticised and commented upon. I think it was misunderstood. The next stage commenced and advanced with the introduction of antiseptics and the discovery of the bacillus tuberculosus. The culmination of this stage was reached when certain surgeons succeeded in obtaining union by first intention after complete and wide excision of diseased joint tissues.

Now, let us see what are the facts upon which the anti-excisionists, as represented by Mr. Howard Marsh, base their policy and practice. At the present time this section of the surgical party admits that the disease which used to be called scrofulous is tubercular in its character, and it recognises the parasitic nature of tubercle. So far the basal facts are the same. From clinical observation of the progress of joint disease and of the results of non-operative treatment in the past, and by comparing the progress and

results with the achievements of the excision party a verdict is deduced against the excisionists. First, with reference to the progress of tubercular disease from clinical observation of it. It is alleged that the tubercular condition is a transitory one. That the condition of a patient favourable to the development and growth of the tubercular element is a transitory one. If the patient is brought into a condition unfavourable to the growth of tubercle, a cure may result with a movable joint, providing the treatment has been commenced sufficiently early.

It is maintained that the bacillus tuberculosus is dependent for its vitality and maintenance upon conditions and influences which are either in their nature transitory or such as can be counteracted or removed, and when these conditions are no longer present the bacillus perishes, and the tubercular process comes to an end. The tubercle and its products become a mere "corpus mortuum," and either is gradually removed by disintegration and absorption, or gives rise to an abscess, "and is clean swept away." Further, it is maintained that the risk of general infection is so small that it cannot be regarded as affording any substantial support to early excision. This opinion is based upon some statistics drawn from reports on cases of excision and from statistics derived from the Hospital for Hip-joint Disease. I shall have occasion presently to criticise these statistics. Another allegation is that the excisionist cannot ensure that in his operation no tubercle has been left behind, and that he cannot be sure that there is no deposit elsewhere from which infection may yet occur. A yet graver objection is made by this party against excision—viz., that the operation may precipitate the result of general acute infection which the same operation was intended to prevent. It is denied that before the recently recorded cases of primary union and healing of wounds after excision there was any proof that the average duration of illness was

diminished by excision, particularly in the case of the hip-joint. This denial is not well and fully supported, as I shall hope to be able to show you. By comparing certain cases treated in the Hospital for Hip-joint Disease without operation with recorded excision cases, objection is taken to the results of excision in another respect. It is alleged that the average amount of shortening of the limb after operation is greater than in cases treated without excision, especially as regards the hip-joint. The frequent (60 per cent.) presence of sequestra of dead bone, as revealed by excisions and museum specimens, was first pointed out by me and brought forward by me as a reason for opening and excising joints, particularly the hip-joint. Mr. Marsh, in his examination of this fact, denies the frequency of necrosis, and supports his denial by a reference to the experience of the Hospital for Hip-joint Disease. Because the cases under observation and not operated on at that hospital have not yielded sequestra of dead bone he doubts their existence, or thinks they must have been disintegrated or removed in the discharges.

We now come to the objection raised to excision on the ground of the rate of mortality. It is alleged that the mortality amongst patients treated by means other than operation is very decidedly lower than that amongst patients who are subjected to excision; but you must observe that this question of mortality is limited to excision of the hip-joint. Minor objections remain to be referred to, but I do not propose to extend my remarks to them. So far as I have gone I have summarised the relative positions of the two parties into which the surgical camp is divided.

I now propose to discuss *seriatim* the objections that are maintained against excision, under the following heads :— mortality, necrosis, shortening, duration of illness, risk of and precipitation of general infection, incomplete ablation of disease, transitory character of tubercular tendency.

1. *Mortality.*—Mr. Marsh, who was the exponent of the anti-excision party and lecturer on this subject at the Royal College of Surgeons in July, 1889, stated that the mortality at the Hospital for Hip-joint Disease might be put down as well under 10 per cent. Now, examining the data on which this statement is made I find that there were 614 cases discharged from his hospital since the early part of 1880: written to, 160; incurable, 13; amputated, 4; dead, 35—212, making a total of 614 inclusive of the 402 not accounted for. Of this total of 614 cases, the large number of 402 has been untraced. Notwithstanding this the percentage of deaths has been calculated Thirty-five patients were known to be dead. The rate is given at 6 per cent. The author says that "allowing a wide margin for cases that may have ended fatally since they were lost sight of, although when last seen they were doing well, it may be safely said to be well under 10 per cent."

Now, let us compare this rate with the mortality-rate given from the same hospital by the same authority on the number of patients admitted from 1867 up to the end of 1879; 277 cases are given, including 96 deaths, but about this total of 277 I must point out that 59 were untraced cases; nevertheless the rate of mortality is calculated on the 277 at the rate of 34·3 per cent. By excluding deaths not attributable to disease and the deaths due to operations the rate was reduced to 30·4 per cent. The same report made out that the mortality after excision of the hip-joint was at the rate of 40 per cent., and by excluding cases of deaths in which the joint affection had been cured the rate was reduced to 35·5 per cent. This rate is of course unfavourably compared with 30·4 per cent., the rate claimed under similar deductions for the opposite side. The list of excisions that yielded a mortality of 40 per cent. included cases of old neglected disease such as are rarely seen now. This I know, as the cases were my own.

I do not think I am unfair when I point out that the total on which the opposite side had calculated their rate included 59 cases whose after histories had not been traced.

With regard to the more recent statistics and death-rate reckoned at 10 per cent., it must be quite apparent that this rate is put too low. Improvement has taken place on both sides—on the side of the excisionists and on the opposite side.

Since 1879 I have operated on 56 cases. This total shows a mortality of 12·6 per cent.; of these deaths, 7 in number, 2 only were attributable to the operation.

This second group shows: Cures, 33; under treatment, 12; untraced, 4; deaths, 7; total, 56. Mortality reckoned at 12·6 per cent.; when untraced cases allowed for, at 13·6 per cent.

Take now Mr. Wright's results. On his 100 cases it has been calculated by the anti-operationists that the rate is 20 per cent. If the rate were calculated on deaths due to the operation, and therefore to preventable diseases, the rate would become much lowered, and the rates of the two opponents become more approximated. Nevertheless, after all deductions have been made on both sides, it must be admitted that up to the present time the rate of mortality is slightly in favour of the anti-excisionists. Whether it will long remain with them, the future, and a comparatively near future, will disclose. Improved methods of operating, combined with better conditions under which operations are undertaken, may be confidently expected to bring the two rates nearly or quite level, and then the advantages claimed by the operationists will be better realised. In ten years the rate of mortality calculated for the operationists has been reduced from 40 to 20 per cent., or lower, if my statistics are considered—viz, between 12·6 and 14 per cent. The opposite side claim to have reduced

their mortality from 30·4 per cent. to 10 per cent., but this I cannot allow, as I have already pointed out that of the total of 614 cases quoted by Mr. Howard Marsh, there is the large sum of 402 unaccounted for.

2. *Necrosis.*—Our knowledge of the frequency of sequestra in the hip, as our knowledge of the pathology and morbid anatomy of hip-joint disease, has been obtained, in large measure, from the excisionist party, and not from the Hospital for Hip-joint Disease. The Committee of the Clinical Society on Hip-joint Disease, in the report already quoted, found that necrosis occurred in nearly 60 per cent. of the specimens examined. That is an absolute fact. The sequestra were seen. Notwithstanding this, Mr. Howard Marsh expressed an opinion, in his lectures at the Royal College of Surgeons, that in his own experience sequestra are rarely produced, or they are so soft and friable that they readily disintegrate and are discharged. This is stated notwithstanding the fact that, in the first report of 277 cases of disease of hip-joint attended by suppuration, there were 192 cases returned *not* cured and 87 deaths, and of the 192 59 had not been "traced;" that means that the course, after leaving hospital, could not be traced in 59 cases. In his second report of cases at the Hospital for Hip joint Disease he gives a total of 614 cases. Of these, 402 could not be traced. Deductions from thirty-seven cases, not intentionally selected, but practically best cases (as they were able to attend for examination), cannot be taken as conclusive on this question of necrosis. When the statistics of shortening after cure of cases of hip-joint disease attended by abscesses are examined, a very interesting fact comes out—viz., that the shortening often amounts to three or more inches. These cases *suggest* necrosis of femur, though there is no proof that they were so. Reference to any museum or to cases operated on will yield instances of large and small sequestra so blocked in as to require measures to

remove them. I cannot admit that necrosis is infrequent or that sequestra are always so friable and soft as to readily disintegrate and be discharged. I have always maintained that the possibility of the occurrence of necrosis is a reason for excision, and I remain of the same opinion.

3. *Shortening.*—I do not pretend to say that *past* statistics of excisions compare favourably with the statistics of well-cured cases of hip-joint disease without operation. After excision as it had been practised until lately there was sure to be considerable shortening, but after cure without operation the amount of shortening was uncertain. It might be trifling or it might amount to three inches or more.[2] Improved methods of operating tend to lessen the amount of shortening after excision, and therewith this objection to operation will gradually dwindle away. Mr. Wright informs us that in 100 cases of excision the average amount of shortening was 1½ in. In some the loss of length amounted to only ¼ in. The average shortening in cases of suppuration recently treated at the Hospital for Hip-joint Disease is given as 1 in., but the measurements given ranged from *nil* to 2 in., or over.

4. *Duration of Illness after Operation.*—We come now to a most important topic in my estimation—viz., the duration of illness after operation, or time and suffering saved by excision. In his lectures given at the Royal College of Surgeons, Mr. Howard Marsh states that "the average duration of the thirty-seven cases of suppuration, up to the time at which all symptoms of disease disappeared and the children were walking freely on the limb and without crutches—that is, until they were finally cured—was a little under *five* years." Now we turn back to the Clinical Society's reports (1881) on my first forty-five cases of excision. The average total duration of illness in fourteen cases of verified cure was three years. Here we have a distinct

[2] See Clinical Society's Reports.

gain of two years. But this does not express the full value of the gain. In some cases the duration of illness after operation was reduced to a few months. Since 1880 the results of operations have been much more favourable. As I have already stated, I have operated on fifty-six cases since 1879. Of that number twenty-seven were known to be cured within two years, and of these one was cured in one month, and eight cured under one year. I may remind you of the cases reported by Mr. Barker and others who can boast of a little group of cases cured by operation resulting in union by first intention, and this obtained by the minimum amount of shortening. In this most important matter of saving time and suffering in child life, the excisionists have obtained a decided advantage over the opposite side. Though I admit that the rate of mortality up to recent times has been slightly in favour of the anti-excisionists, I can claim a verdict on the question of duration of illness and suffering decidedly in favour of the excisionist party.

5. *Risk of General Infection and Risk of Precipitation of General Infection.*—This risk does not belong exclusively to the excisionist side, though it must be admitted that the risk has been less on the side of those who advocate treatment without operation. The latter party make use of the risk referred to as a reason for avoiding operations. On the other hand, the modern excisionist uses the reason on behalf of early excision. He advocates the performance of the operation at a stage before the risky period has arrived. The modern excisionist deprecates operations in advanced cases, and advises it so soon as caseation has commenced and is advancing. He recognises the risk, and he does his best to avoid it by (1) operating early ; (2) by cutting wide of the diseased tissues ; and (3) by obtaining union of the cut surfaces by first intention.

The apostle of the old method of treatment takes advantage of the admission made by the modern pathologist

and excisionist, and condemns the latter, Mr. Barker, out of his own mouth; but the only support to his views which he can derive from his own side is his belief that systemic infection from the joints under the non-operative plan is comparatively rare. He refers to the Clinical Society's Reports in 1880. In 260 suppurating cases there had been at the time of the report sixteen deaths from tubercular meningitis. This is interpreted into a mortality at the rate of 6·15 per cent. from acute general tuberculosis. From these and other figures Mr. Howard Marsh states in his lecture that although the possibility of general infection from a tubercular joint is a distinct element of danger, the risk is so small that it cannot be regarded as affording any substantial support to the practice of early excision. If the risk on each side is not considered a grave one from the numerical point of view, then I think the credit belongs to the side who would abolish the risk by early extirpation of the infective element.

Two other subjects remain to be touched upon—viz., complete ablation of disease, and the transitory character of the tubercular tendency. The first I would dismiss in a few words. A theoretically good operation is not to be condemned because there is a risk that some surgeon will not perform it thoroughly. The surgeon is advised by excisionists against an attempt to extirpate a disease which is already widespread and advanced. A complete removal of the diseased tissues is insisted upon, and precautions have been urged against incomplete operations.

On the transitory character of the tubercular tendency there is no room for dispute. It is put forward as an inducement to abstain from operating and as a reason for attempting to cure hip-joint disease of the tubercular kind by other means than the knife. The excisionist thinks that a child belonging to poor parents in densely thronged cities, when he has arrived at a certain age of tubercular

joint disease, should be relieved as quickly and completely as possible. It is thought that the time has come when the risk of the disease proving of the opposite to a transitory one should be promptly met, and, at the same time, that the sufferings of the child should be cut short, and that the duration of illness should be abridged as much as possible, and I look upon that as a sound reason.

Now, I have briefly put before you the policy and practice of the two extreme sections into which the surgical camp has been divided on this subject. It remains for me to notice a third section. This section has sprung into existence during the last seven or eight years. It is a subdivision of the operationist section. They who belong to it call themselves the arthrectomists or erasionists. They hold the same opinions as the excisionists, but the operation advised by them differs not in theory, but in degree. One objection to excision as practised on joints generally up to 1880, and already referred to, was the mutilation and shortening which followed on the operation. In order to avoid this condition of the limb the operation of erasion or scraping is employed. The tubercular or diseased synovial membrane is scraped and dissected away, the diseased bone is similarly treated, and the procedure is only deemed complete when all diseased tissues have been removed. In this way the removal of the disease may occasionally be accomplished without the loss of any bone. After such an operation a movable joint, and a limb free from shortening, may under favourable conditions be obtained. In the event of bone being diseased the results of the operation are not likely to be so successful; yet, providing all tubercular bone has been removed, the result may be better than after an excision which touched or included the epiphyses themselves. The fault or shortcoming of the erasionists lies in this, tubercular disease situated at the epiphysial lines may escape them. Growth and development of tubercle in this

situation are not by any means rare; indeed, I believe them to be more common than anti-excisionists and many other surgeons are aware of. I speak from the results of examinations of many specimens by myself and others. For patients suffering from tubercular disease limited to synovial membrane, erasion is admirably well adapted, as it meets all the requirements of the case when performed early. In advanced cases and in cases of more widespread disease, a more radical treatment is called for. In instances of intermediate character and degree excellent results seem to have been obtained by complete erasion, but this does not apply to disease of the hip-joint. Meantime, to my mind, it offers better prospects for saving life, preserving useful joints, diminishing shortening, and cutting short the duration of illness and suffering than either the policy and practice of the anti-excisionists, or the practice of that section from which it has emanated. It is a noteworthy fact that in Mr. Howard Marsh's lectures against excisionists there is no place accorded to the erasionist party. It is conspicuous for its absence. There may be more than one good reason for this. Erasion has not been considered hitherto to be applicable to tubercular disease in the hip-joint, and Mr. Marsh's criticisms are almost entirely confined to the disease as seen in that joint. On this account the practice may have been omitted from his notice.

In conclusion, gentlemen, I would say of the present state of surgery of joints for tubercular disease, that it is taking the opposite of retrograde steps, that it is advancing on safe lines, and that there is a great future for the policy which has laid down that tubercular disease in its caseating and liquefying stage should be completely excised, and for the practice which provides an operation that shall effect this object in such a manner as to save the duration of suffering and illness, and yet preserve a useful joint and non-mutilated limb.