REMARKS

ON THE

EARLY OPERATIVE TREATMENT OF STRUMOUS JOINT-DISEASE.

Being an Introduction to a Discussion in the Section of Surgery at the Meeting of the British Medical Association in Worcester, August 1882.

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THE ordinary means at our disposal for the treatment of strumous joint-disease may be given as rest, excision, and amputation. A few cases, caught early, recover with rest and simple auxiliaries; many drift on to excision; in not a few, we have to remove the limb along with the joint. Excision has year by year been rescuing more and more limbs from amputation; may it not be possible to carry the improvement still farther back, and to rescue more and more cases from excision?

Sound lines of treatment must be built up on a true pathology, and the pathology of strumous joint-disease is not yet by any means worked out. This is not the place to discuss pathological doctrines, so therefore I cannot lay before you detailed evidence in support of the views I uphold. I may, however, be permitted briefly to enumerate a few points in the pathology of strumous joint-disease, which may serve as premises from which to draw conclusions. The form of joint-disease for which we have most frequently to perform the operations of excision I believe to be, in the large majority of instances, strumous. Here, as elsewhere, struma manifests its presence first in lymphatic or lymph-glandular tissues. The red marrow in the ends of the long bones is a lymph-glandular organ of prime importance. The synovial and subsynovial tissues are peculiarly rich in lymphatic structures. In one or other of these, the red marrow, or the synovial tissue, does chronic joint-disease begin. At the outset, and for some portion of their course, they are distinct diseases, showing different symptoms and requiring different treatment; towards the end, when the disorganisation is complete, it may be impossible to say how they began. The one I would call synovio-arthritis, the other medullo-arthritis.

There is now no doubt that the pink marrow is a blood-gland of the highest importance, intimately concerned in the manufacture and destruction of the blood-cells, and partaking actively in diseases affecting the blood-glandular system. When it is inflamed in the habit of body called strumous, we find that the elements behave after the well known manner. There are the same chronicity, the same tendency to caseation, the same possibility of their being starting points for a miliary tuberculosis. But there are many points of difference. Inside the compact shell the gland among the bony trabeculae is unlike subcutaneous tissue of the neck in this very important point, that it has no room to swell. The proliferating tissues strangle themselves in their growth and form little necrotic abscesses; or they force their way along the line of least resistance, which is, for many of the bones, towards the joint-cavity. In the bodies of the vertebrae (Pott's disease) the outer shell is very thin, and breaks down at once in front. In the bones of the fingers and toes the compact outer shell is very dense, and resists the expansile force for a long time before it gives way ("spina ventosa"). But in the ends of the long bones the course which the proliferating marrow—especially if situate in the epiphysis—follows, is usually towards the joint-cavity. As it advances, it elevates the cartilage in blisters, eating it away from below, and ultimately sets up suppuration in the joint-cavity. In this instance, there is not at first any pulpy synovial membrane to serve as a buffer between the abraded ends of bone, and the pain may be very severe.

This is primarily and essentially an inflammation of marrow—a medullitis. The associated changes—osseous, synovial, cartilaginous, and ligamentous—are, in every sense, subordinate.

Now, if this be the condition which exists, it is clear that the chances of spontaneous cure are not great. Firstly, there is the general fact, that strumous glandular inflammations do not readily resolve but usually drift on to caseation or suppuration. Secondly, there are the special conditions, that the marrow is bound down to one unalterable size inside the bony shell—so that its very proliferation must threaten self-destruction; and that, even after it has forced an outlet, the bony trabeculae entangle and retain the inflammatory products.

Grounding our practice on these principles, we begin early by giving an outlet to the inflamed and proliferating tissue. But merely drilling a hole, through the outer compact bone into the trabeculae, is not enough. A sad experience of several cases of mastoid abscess has convinced me that mere trephining will not always cure. We must gouge or scrape away as many of the trabeculae as we can; for these still confine the inflammatory material after the compact bone has been removed. And so in strumous medullitis, we must gouge or scrape away bodily the cancellous bone, and the inflamed marrow which it confines. Practically, this is easier than, on theoretical considerations, it would appear. With a Volkmann's spoon, or similar instrument, we can take away without very much force the diseased portions; when healthy structure is met with, the resistance is greater, and we need go no further.

I have, in one of our journals, already described the sort of operation I would recommend in the earlier stages of hip-joint disease—the most common variety of medullo-arthritis. For the other joints, the operation may be exceedingly simple, and required no description. Here I may say, that I believe the use of Listerism to be of great value. Such an operation as I have described, resulting in the formation of a cavity inside the end of a long bone, and interfering with such an exquisitely sensitive tissue as pink marrow, is not to be lightly undertaken. It is here that we can turn to practical account that extraordinary process of organisation of blood-clot. We close up the wound completely, and we need not remove the dressings for a month, when we expect to find everything healed.

This account takes it for granted that most of our cases of medullo-arthritis are not cases of miliary tuberculosis. Miliary tubercles may appear in the pink marrow, either as a part of acute miliary tuberculosis, and then it is incurable; or as a local infection from a caseating abscess, and then it is beyond excision; but, as a disease in itself, I think it must be very rare. I am afraid that we surgical pathologists are somewhat more vague even than physicians in the meaning we attach to that uncertain word—tubercle.

The other form of disease is one of synovial and subsynovial tissue—synovio-arthritis. If I were asked to express it shortly in terms of pathology, I should call it synovial inflammation *plus* lymphatic obstruction, and I shall say nothing more about the too familiar pulpy tissue than this. Why should this pulpy synovitic material be so doggedly permanent and so aggressive—we might almost say with the older pathologists—so malignant? I believe it is chiefly because one element of this peculiar inflammation is a blocking of the lymphatic channels, keeping up an oedema which has a further effect of compressing the veins, and so making matters worse. Up to a certain stage, this lymph blocking may cure itself if we judiciously assist it; but when it has gone on to complete obliteration of all the eliminatory channels, we can understand why it should be so difficult of cure.

In the earlier stages, if the joint be full of fluid, and we think that tension keeps up the mischief, incisions into the joint (Mr. Teale's plan) and free drainage may do much good, and even cut the disease short. But if we go thus far, why not go further and remove the pulpy synovial tissue, or as much as we conveniently can, at the same time? The nail of the fore-finger, or a steel scraper, may remove a good deal of it; and if these fail, we can have recourse to scissors or scalpel. There is no fear of hæmorrhage.

This, then, is the position I take up. When a case of incipient joint-disease comes to us early, we ought to give a fair trial to simple remedial measures. If it be synovial in origin, we give the ordinary means a trial. I think that passive movement, sometimes accompanied with gentle shampooing, ought to be carefully carried out in some cases. Certain I am of this, that prolonged rest in synovio-arthritis is productive of a fatty change in the pink marrow, accompanied with a rarefaction of bone which is in itself enough to render excision of the joint unsuccessful. If after a lapse of time, measured by weeks, or at most by two or three months, the disease be evidently not improving, we ought to lay open the joint antiseptically, remove as much of the pulpy degenerative material as possible—at all events peel it off the articular cartilage—and drain it for two or three weeks. If, after this, it be not cured, excision should be done.

If the disease be medullitic, I think the best treatment at first is absolute rest inside a plaster case. Counterirritation, especially the actual cautery, may be tried. These being ineffectual, I would gouge and evacuate the diseased marrow. If suppuration have not started in the bone, I should not drain, but seek healing by organisation of clot. If this be not curative, I would excise.

These fragmentary remarks are all that I can give on operative means as preventive of excision; and I have no doubt that the discussion will show to us that many surgeons are now doing similar operations, though only a few have published results. I have already said

that I think the very best results are to be got by Listerism. When we come to excise, though the advantages of Listerism are perhaps not as marked, still I believe they are palpable enough. This I say from observation of individual cases, and not from a study of statistics.

As indicative of the value of excision at various stages and in different hands, statistics I believe to be almost useless. If we excise joints only slightly diseased, we get excellent results, and, *ceteris paribus*, our results deteriorate as our cases are bad. Indeed, it might be that the worst results are got from the hands of the best surgeon; for he would excise where other men would amputate; and he would cure where other men would excise.

I think that Listerism in excision of joints has done harm in one way. Surgeons used to be chary of encountering the dangers of excision until the case had gone sufficiently far to warrant the risk to life which the operation involved. Now, with the help of Listerism, I am afraid that joints have been excised too early; that is to say, before simple remedial measures have had a fair trial. But, on the whole, it has, I believe, done good service.

The great practical difficulty in the treatment of these cases is to find out some simple definite rules of procedure—when to palliate, when to gouge, or drain and scrape, when to excise. I believe that we must make up our minds once for all to do without such rules. The variables in any given case of joint-disease are so numerous, that it is impossible to deduce from them any constant. We must first know the pathology, the natural course of events; we must carefully map out the lesion, its position and nature; and then we treat each individual case on its own merits. Such a law, for instance, as to always excise when abscess appears must be erroneous. For not only may abscess appear in the earlier stages, when the disease is curable by means simpler than excision; but no abscess may form, even after the disease has far advanced.

To sum up:

1. Strumous disease starts either as a synovitis or as a medullitis, and requires different forms of treatment as it is one or the other.

2. In synovio-arthritis, while recommending the use of such measures as elastic compression over cotton-wool, counterirritants, and functional rest, I believe that a systematic use of passive motion is beneficial.

3. In medullo-arthritis, absolute rest in plaster-of-Paris I believe to be, on the whole, the best form of treatment—better than extension, and better than counterirritants and other means.

4. If there be no signs of improvement after a few weeks' use of such treatment, I believe that we ought to step in and operate. In synovio-arthritis, the most generally useful plan would be, to make large incisions into the joint, peeling the granulations off the articular cartilage, and removing as much of the pulpy material as possible, and freely draining. In medullo-arthritis, we ought to remove the inflamed marrow from the inside of the bone along with the trabeculae, and endeavour to fill the cavity with blood-clot. In both cases, I would operate antiseptically.

5. If these means fail, then excise; but excise early.

Mr. TEALE (Leeds) expressed his full sympathy with Mr. Greig Smith in his efforts to study and surgically treat joint-disease in its earliest beginnings; in fact, at a period before those more serious and secondary degenerations had taken place with which, as a rule, the surgeon had to deal, and which rendered perfect recovery of the healthy functions of a joint all but hopeless. During the last six years, Mr. Teale had occasionally attempted to deal with one factor in the early stages of joint-disease, by subcutaneous incision of the capsule in the hip and knee joints, during what he supposed to be an active inflammatory condition of the synovial membrane, attended with severe pain, and probably effusion and tension. His first case came about in the following manner. Having decided, with the assent of his colleagues, to cut freely into a knee-joint which he supposed to be in a state of acute suppuration, he found, on making the first puncture, that turbid synovia escaped, not pus. Convinced that free incisions were not justified, and seeing that the joint was wounded, he decided to enlarge the opening into the capsule, whilst maintaining a small puncture of the skin. This proceeding was repeated in three or four places. The result was that pain rapidly abated, all acute symptoms ceased, and the patient left the hospital with a movable joint in a few weeks. The leading idea in this proceeding was, not to puncture and tap the joint, but to provide an opening or openings through the capsule which should allow continuous escape (drainage) of the fluid effused into the tissues outside the joint, where fluid, not being pus, could be absorbed. He was confirmed in such a view by what he knew of the old practice of treating hydrocele in children by acupuncture. The favourable result in this case has led him to practise it in six or eight cases of

painful hip, in which acute disease was supposed to be setting in. The result in most of them had been most striking; some, after one operation, having at once lost all pain, and being able to walk soundly in two or three weeks, and not returning to the infirmary with relapses. The good effect of such puncture had been strikingly confirmed by a recent case in the Leeds Infirmary, in which Mr. Jessop adopted the same course, with immediate relief to the pain and threatening symptoms of acute hip-disease.

Mr. BARWELL (London) said that, concerning the two points of treatment advocated by Mr. Pridgin Teale and Mr. Greig Smith respectively—viz.: subcutaneous incision of the synovial membrane, and perforation of inflamed and suppurating bones, he would like to say a few words. The former was advocated by him in the first edition of his work on *Diseases of the Joints*, twenty years ago. In the second edition, he advocated the use of the aspirator, partly because the fluid could be thus seen; partly because, if the liquid were pus, the probable abscess about the joint which would result was avoided; but the instrument sometimes failed, and then subcutaneous incision must be substituted. The perforation of inflamed or suppurating bones, in the neighbourhood of joints, was strongly advocated by him in the same work, under the name of paracentesis ossium. Several forms of this disease existed, one more especially in the epiphyseal ends of long bones, or in short bones of young persons. The special pathology was described in that work, and the methods of performing paracentesis, after which the larger number of cases would do well.

Mr. LUND (Manchester) drew attention to the importance of early treatment in cases of joint-disease; and, where this was undertaken, the advisability of delay before resorting to excision or amputation, and the probability of averting them entirely. He illustrated this by what Sir William Fergusson had himself told him—viz.: that, though he was the great exponent of the operation of excision of the knee, the first case in which that great surgeon had occasion to resort to it in his private practice occurred only a few years before his death.

Mr. MARTIN COATES (Salisbury) reminded the meeting of the treatment of chronic synovitis, whether with or without suppuration, by the pure rubber bandages; aided, when the joint was tense, with a collection of synovia, by aspiration. Mr. Coates related two cases of diseased tarsus with suppuration, and one without suppuration, and one of diseased knee-joint with suppuration. Two of the cases of diseased tarsus quite recovered; another, though the subject had a tubercular cavity in the right apex, was much improved.

Mr. HENRY MORRIS (London) remarked that, in addition to the cases of synovial arthritis, in which (as he himself, like Mr. Barwell and Mr. Teale, had found) during one stage, aspiration, and during another stage, free incision and drainage were successful, if combined with absolute fixation, there was still another class of cases in which an exploratory incision into the joint, or an exploratory trephining of one of the bones of the joint, might obviate excision of the joint, just as an exploratory incision into a tumour of the breast sometimes saved amputation of the mamma. Mr. Morris referred in illustration to two cases, a specimen of one of which was in the Middlesex Hospital museum, of an excised upper end of the femur; and to another case of excision of the head of the humerus, by a most experienced surgeon, in which the excision of the joint might have been spared in the former case by the removal of a small sequestrum at the back of the head of the femur and within the head, a short distance beneath the articular surface, in the latter.

Mr. GREIG SMITH, replying, criticised Mr. Teale's cases as being acute ones, and not analogous to the subject of his paper. Moreover, Mr. Teale gave no information as to the extent of joint-disease, or as to the ultimate history of the cases. Mr. Barwell's method of aspiration also was suited for acute cases with effusion into the joint-cavity; whilst the mere perforation of an inflamed articular end of bone was something quite different from what he (Mr. Smith) advised; which was, that, in cases of white swelling, the diseased tissue should be scraped or gouged bodily away, and the resulting cavity be filled with organising blood-clot. In cases of fractured patella, aspiration or subcutaneous puncture was, no doubt, to be preferred.

POISONING BY ACONITE.—The death of a servant girl from the incautious use of tincture of aconite, given her by a dentist to use as a local application to relieve the pain of periostitis, is reported by the *Dentist's Journal* from Brooklyn, New York. The dentist stated at the inquest that he told the patient to "tip the bottle on her finger, and then rub it on the gum;" this she seems to have done frequently during the day. The girl obtained the tincture on Thursday, was taken ill next day, got worse on Saturday, and died on Sunday morning, the cause of her illness not being suspected till it was too late. The dentist was censured for his want of judgment.