BONESETTING AND THE TREATMENT OF PAINFUL JOINTS.

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Elbow joint.

EVEN comparatively trivial injuries of the elbow-joint are liable to be followed by some impairment of the normal mobility. In a large number of cases when a too prolonged use of the sling has been permitted, though a certain amount of flexion and extension is painlessly and easily performed, anything like free use of the joint is prevented by the contraction of the biceps and triceps muscles. Indeed, the limitation of movement allowed by this contraction is often so restricted that till it is overcome the additional presence of adhesions is not always easy of diagnosis. Even when adhesions are the principal cause of the stiffness, pain on use is not a marked symptom unless the joint be suddenly moved beyond the limits of its existing range. In cases where recovery is slow, soundness is undoubtedly hastened by manipulating the joint and careful stretching of the contracted muscles.

Occasionally, the full range of movement can be obtained immediately anaesthesia is established; but more often, apart from the presence of adhesions, a considerable amount of muscular resistance is experienced, especially if the case be of long standing. The hands should grasp the limb just above and below the joint when effecting the necessary movements, care being taken to keep the thumb of the lower hand firmly pressed over the head of the radius during extension of the joint lest the pull of the contracted biceps causes dislocation of that bone. Quick rotatory movements of the forearm must, first of all, be made, followed by a rocking of the joint backwards and forwards, the first motion of which should be in the direction of least resistance. That is to say, if flexion is the more defective movement, the elbow should be extended and then flexed, gradually increasing the range, on the principle of a swinging pendulum. When mobility of the joint is fairly free, the muscles should be carefully stretched. This can be best accomplished by a series of light intermittent jerks, and the muscles appear to yield more readily than if they are stretched by continuous pressure or strain.

Should there have been any interference with the proper performance of pronation or supination, the forearm must be briskly put through these movements.

As in former cases, rubbing and exercises will complete the cure.

Regarding the movements necessary for the rupture of adhesions in the wrist and hand, no detailed account need be given, as they are practically similar to those advised in treating the ankle and foot.

The Lumbar Region.

Pain and stiffness in the lumbar region arising from injury occasionally persist long after the immediate and acute condition has passed off.

The history of these cases tells of some definite, though frequently slight, sprain of the back, necessitating, perhaps, but a few days' treatment for apparent recovery. Instead of perfect recovery, the pain, though rarely severe, never quite disappears, and as time goes on becomes more persistent. Good results can be obtained by treatment based on the assumption that the condition is due to some adhesions in the muscular or tendinous structure of those parts.

On examination the lumbar muscles will be found wasted, whilst those on the affected side are usually rigid and contracted, and it may be assumed that it is here that some matting of the muscles or adhesions amongst the deeper tendons exist. In this condition of what may be termed traumatic lumbago, treatment aims at stretching the contracted muscles and rupturing any possible adhesions.

An anaesthetic having been given, the method employed

is this: The leg on the sound side is flexed at the knee, and the thigh flexed on the body till the knee touches the chest wall. It is then brought back to the extended position. The leg on the affected side is now put through the same movements, and comparison can be made as to the difference in resistance. Both legs are now brought up together, and both knees should be kept pressed against the chest for about a minute. The legs having been brought to the extended position once more, the patient is now raised to a sitting posture. The operator places one hand firmly on the affected side, whilst with the other he thrusts the patient back on to the couch. The hand in the small of the back acting as a fulcrum, causes extension of the part. By these movements, full flexion and extension of the lumbar region is obtained. Pain rarely follows these manipulations, and greater freedom of movement is experienced almost immediately afterwards, but treatment by rubbing and exercises will be essential before recovery can be considered complete.

The Hip-Joint.

Perfect recovery from an injury to the hip is often unduly delayed by the formation of adhesions either in the capsule of the joint or amongst the surrounding muscles. After such an accident as fracture of the neck of the femur the bands of adhesions may be so general as to cause almost complete loss of movement.

Simple sprains of the joint, however, or that very common injury to the abductor muscles called "rider's sprain," are not infrequently followed by considerable interference with the mobility of the limb and though flexion and extension may be quite unimpaired the action of abduction and rotation outwards are limited and painful.

Provided other means have failed to effect a cure rupturing the adhesions under anaesthesia will afford the best chance of recovery.

In the performance of the necessary manipulations for the more severe cases of ankylosis the hands should grasp the thigh close up to the joint and by quick circular movements obtain a certain degree of mobility whilst the pelvis is fixed by an assistant. When the head of the bone is felt to be moving freely the operator, in order to get better leverage, should slip his shoulder under the patient's knee, and by alternately raising and lowering his body obtain gradual increase of flexion, the hands in the meanwhile still continuing the circular movements of the limb. As soon as the thigh is flexed on the trunk the movements of abduction, adduction, and rotation should be briskly performed. The thigh is then extended, abduction again performed, and the contracted adductor muscles firmly kneaded. Finally cross the leg over its fellow in the position of extreme adduction and smartly rotate outwards. Should the thigh be fixed by adhesions in the position of flexion the patient must be rolled on to the sound side and the thigh extended. In the less serious cases the shoulder leverage will not be required, as the movements can be carried out by the grasp of the hands alone. Where, however, ankylosis is almost complete, such leverage will be found very useful, but care must be taken to previously loosen the joint by rotatory movements before attempting flexion for fear of fracturing the neck of the femur.

After-treatment must be on the same lines as in other joints, with the object of maintaining the mobility and restoring the wasted muscles.

The Knee-Joint.

The medical profession fully appreciates the value of early movement and massage in the treatment of acute traumatic synovitis, but in spite of the adoption of modern methods small adhesions are formed in this joint more frequently than is generally suspected, and it is especially with regard to these indefinitely crippled limbs that the modern bonesetter gains such success. The treatment and cure of the acute condition should not be the only aim of the practitioner. The invariably wasted muscles and occasionally painful joint following recovery from the immediate effects of injury should not be left for time to cure, but efforts should be made by means of suitable exercises and electrical treatment to bring about perfect soundness before dismissing the patient.

Where there is no evidence of disease or any internal derangement of the knee-joint, but where in spite of treatment certain movements continue to be painful or defective, the possibility of adhesions delaying recovery should be considered.

In the more severe cases, where any useful movement of the joint has been lost, adhesions are easily recognizable, but in certain conditions, where there may be merely a painful interference with the completion of full extension or full flexion, their presence is liable to be overlooked.

It will be found that these lesions usually occur when the synovitis has been due to a sprain of the joint, in contradistinction to that resulting from direct injury, and it may be assumed, therefore, that the adhesions are connected with the tendons controlling the joint. Again, the pain is more usually noticed on the inner side of the joint, the structures in that region being more liable to injury from the tendency of a spraining joint to yield on the inner aspect; adhesions are likely to form there.

The manipulations necessary for the correction of such disability are as follows: The patient, being duly anaesthetized, should be so placed that the offending limb extends over the edge of the bed as far as the popliteal space. The operator should then grasp the patient's foot between his thighs, and with his hands rock the patella from side to side to free it from any possible adhesions, and no attempt at flexion of the joint should be made till this be found to be moving freely. Cases have occurred in which fracture of the patella has resulted owing to neglect of this important point.

The operator now bends his knees, whilst his hands, acting as a fulcrum, firmly grasp the shaft of the tibia close up to the joint. By this means the force necessary to bend the knee and rupture the adhesions can be regulated and the muscular resistance appreciated. No attempt should be made to obtain full flexion immediately, but by alternately bending and straightening the knees free movement of the joint will gradually follow. The amount of resistance offered by the contracted extensor femoris should be the guide as to how far it will be permissible to continue flexion, and care must be exercised to avoid rupturing or spraining this muscle. Once the adhesions have been ruptured, after-treatment will restore the remaining degrees of flexion.

The operator should next make a quick but not violent rotatory movement of the tibia whilst his thumbs are firmly pressed against the sides of the joint.

In those cases in which adhesions are preventing the full extension of the joint, but where flexion is normal a similar grasp should be employed—the only difference being that the force will be applied by straightening the knees and pushing the hands against the faulty joint.

In those cases in which manipulations have been necessary to restore the extension of a joint, subsequent treatment will overcome the muscular resistance of the flexor muscles, and on no account should a back splint or any fixed apparatus be put on. Pain rarely follows manipulative treatment of the knee-joint provided violence has been avoided, and no fear need be felt that synovitis will be set up. Rubbing and movements should at once follow the breaking down of the adhesions, and in the course of a few days exercises must be commenced for the restoration of the weak muscles.

In the class of patients who come to the practitioner complaining of a pain on the inner side of the knee and of a feeling of weakness in the joint it will be found that treatment by intensive radiation and wave current will, in a certain number of these cases, effect considerable and prompt relief. When the knee is submitted to examination the parts affected will be usually observed to be swollen in some, but not all, instances to a considerable degree, and it may hastily be inferred that the case is merely one of synovitis; if, however, the patient be interrogated, he will in most cases describe how he has suffered a bruise or a strain of the knee, which was followed by swelling that diminished after a more or less extended period of rest. On resuming full work the knee becomes stiff and more oedema appears with pain on movement, especially adduction, felt at the inner side of the knee. A careful examination will now convince the

practitioner that the case is not one of synovitis, because of the absence of the uniform distension and the floating patella so characteristic of that condition. The explanation of the position of affairs is supplied by recognizing the part played in these conditions by the lacerated muscle fibres injured at the time the "sprain" took place. In a certain proportion of these cases the pain assumes the character and symptoms of so-called irregular gout or rheumatic gout or rheumatism, and a course of treatment suitable to such a diagnosis is instituted, with but slight benefit to the unfortunate patient. An accurate and useful account of the true condition of the parts was furnished some time ago by a keen observer in the following words:

The original swelling both distends the skin and impairs its elasticity, and the inaction of the muscles permits the continuance of a certain amount of venous congestion, with the result that there is stagnation of the blood and liability of transudation into the tissues round.

In such a condition of the knee it is easy to understand how intensive irradiation secures an amelioration of the pains so bitterly complained of by the patient; the stasis is relieved, local metabolism is favoured, and elimination sufficient to pass on the irritative products of prolonged stasis is secured. The wave current restores tone to the muscles and power to the joint, and forms an efficient means of securing an early return to the normal activity of the injured limb.

Ankle-Joint.

Any severe injury in the neighbourhood of the ankle-joint which necessitates prolonged immobility is not infrequently followed by the formation of adhesions either in the joint itself or amongst the tendons. Though a certain amount of movement is usually possible, in the majority of cases any attempt to use the joint in a normal manner or obtain a greater range of motion gives rise to considerable pain. Walking is only accomplished by keeping the ankle rigid and everting the foot, instead of the ordinary toe-and-heel method of progression.

Flexion is the movement most commonly found to be at fault, since in most cases of fracture in that region the foot is kept at right angles to the leg. Again, though flexion and extension may be comparatively normal, the movements of eversion and inversion are often found defective and painful from the presence of adhesions in the tendons passing round the malleoli. In such conditions recovery can be expedited by manipulating the joint under anaesthesia.

The foot should be seized by the operator's right hand, whilst the left takes a firm hold just above the joint, and short, quick, rocking movements made in the direction of extension and flexion. As mobility increases the knee should be flexed to relax the tendo Achillis, and greater force applied as each movement of extension is made. When extension of the foot has become fairly free, flexion should be gained by the same method, only that the increasing force is applied to the direction of flexion. The foot should now be briskly inverted and everted and then made to describe circles from within outwards and without inwards.

Where these movements are advisable it may happen that the whole foot is rigid from disuse, and it will be as well to give a brief description of the manipulations to be employed for loosening the stiff phalangeal and metatarsal joints.

Each metatarso-phalangeal joint should be grasped by the left hand whilst the right flexes and extends the joints of the corresponding digit. The metatarsal bones must now be freely moved; this can be done by gripping the first metatarsal at the phalangeal articulation between the finger and thumb of one hand, the other hand seizing the second metatarsal in like manner. The bones are then briskly flexed and extended in opposition to each other—that is to say, whilst the first bone is extended the second is flexed and vice versa. The remainder must be dealt with in like fashion till mobility is established.

These manipulations will often prove of value in certain cases of the metatarsalgia described by Morton.

After-treatment must be on the same lines as in other joints, but the course of rubbing will usually have to be more prolonged.