SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

MANIPULATIVE SURGERY

BY

GEORGE PERKINS, M.C., F.R.C.S.

The indications for manipulative surgery may be considered under the following headings: (1) To reduce a dislocation. (2) To unlock a joint. (3) To increase the range of movement at a joint. (4) To alter the arc of movement at a joint. (5) To render muscle contraction painless. (6) To render painless the movements of a "normal" joint.

To Reduce a Dislocation

No one readily associates the reduction of a dislocation with manipulative surgery, although that and also the reduction of a fracture should be included under this heading. Curiously enough, patients do not consult an unqualified manipulator for an obvious dislocation, and yet prefer him to a doctor if they think they have "a bone out of place." The quack professes to be able to detect by palpation a minor displacement which cannot be demonstrated by x rays, and he even claims to do this with reference to an intervertebral joint. No medical man can accept this absurd hypothesis. I do not believe in the existence of a minor degree of displacement; either a joint is in position or it is obviously dislocated. And while allowing that the quack's treatment is often of value, I strongly maintain that his explanation is balderdash. This point is discussed later.

To Unlock a Joint

Manipulation of a joint for the purpose of dislodging something that has become jammed between the articular surfaces is a familiar procedure, and therefore need not be referred to at length. The knee-joint is far and away the commonest to be involved, and the locking is caused either by a torn and displaced portion of semilunar cartilage or by a loose body.

A few points are worth mentioning. The joint easily frees itself if it can move freely. Often the muscles will not relax because of pain. Even so, the patient can sometimes unlock the joint himself by moving it in the direction in which movement is unimpeded. For instance, if he flexes his knee fully—making the calf touch the thigh—he can reduce a displaced cartilage, whereas attempts to force the joint into extension fail. However, on account of the muscle spasm an anaesthetic is usually necessary. It should be realized that the anaesthesia is more important than the doctor's manipulation, and must be deep enough to relax the muscles. Nitrous oxide is seldom sufficient. The manipulation consists in moving the joint, which should be quite lax, through its full range—flexion, external and internal rotation, and extension. Occasionally reduction is audible. Sometimes one is in doubt whether unlocking has been effected until the patient recovers consciousness. He then soon settles the matter: it is quite obvious to him if the joint is free. If he is in any doubt one may be certain that reduction has not occurred.

Unlocking a joint by manipulation is not a cure: the disability is only temporarily removed. The article will surely jam again if it is a loose body, and almost surely

if it is a torn cartilage. The joint is not restored to normal until the substance causing the jamming has been taken away by operation.

The diagnosis of a locked joint is not always simple. In the case of the knee, for example, extension may be limited by pain. Mechanical interference with movement is probable, however, if movement in the opposite direction—namely, flexion—is nearly full. If flexion is grossly limited as well as extension the probability is that the movement is being prevented by pain. The ski-ing knee is a case in point. Needless to say, manipulation does not restore movement if the restriction is due to the pain of a recent injury.

To Increase Range of Movement at a Joint

One might suppose that diminished movement at a joint would be, above all others, the indication for manipulative surgery. The medical man is under the impression that this is the type of case chosen by the bone-setter for manipulation. One such—a stiff hip following a dislocation treated by plaster-of-Paris fixation—was rejected by Sir Herbert Barker as unsuitable when he was selecting the patients on whom to demonstrate before the British Orthopaedic Association two years ago. Joints with limited range due to many causes are indeed unsuitable; such, for example, as incongruous joint surfaces, muscle spasm in the presence of active arthritis, sclerosis of capsule as a sequel of arthritis, adhesions between articular surfaces, myositis ossificans—of which none is improved and some made worse by forced movements. But loss of joint movement due to three causes is suitable for treatment by manipulation—namely, (1) loss of elasticity in the muscles caused by the immobilization of a normal joint; (2) loss of elasticity in muscles caused by prolonged stretching as a result of paralysis of their antagonists; and (3) loss of elasticity in the capsule caused by senile changes.

LOSS OF ELASTICITY IN MUSCLES CAUSED BY IMMOBILIZATION OF A NORMAL JOINT

The loss of movement that is the sequel of splinting a normal joint is due to the loss of the normal elasticity of muscle. Muscle shortens and lengthens: both attributes are of equal importance. Muscle that is deprived for a time of the opportunity of lengthening quickly loses this power. The shortened muscles can be gradually stretched by forcing movement at the joint over which the muscles play. The fact that the force appears to be exerted on the joint should not confuse the issue: it is not inelastic joint capsule but inelastic muscles that require the stretching.

Forced movements designed for this purpose should be repeated, and gradual improvement be obtained little by little. Under anaesthesia the joint is forced by the doctor as far as possible in every direction, and on succeeding days a masseuse repeats the stretching movements until no more improvement is seen. Another forced manipulation under anaesthesia is then undertaken by the doctor and similar after-treatment given by the masseuse. The process takes time. The doctor employs great force, and there is a risk of fracture, especially in the case of the knee-joint. The femur can be safeguarded by pressing the thigh down on to the couch while the leg below the knee

projects beyond the edge, but the force exerted may snap the patella instead of stretching the thigh muscles. This type of joint stiffness is frequent after fractures.

LOSS OF ELASTICITY IN MUSCLES CAUSED BY PROLONGED SHORTENING AS A RESULT OF PARALYSIS OF THEIR ANTAGONISTS

This is commonly seen as an aftermath of acute anterior poliomyelitis; and also at the shoulder-joint after a birth palsy, where owing to unopposed action the internal rotators and the adductor muscles lose their power of lengthening and prevent external rotation and abduction at the shoulder. Freedom of movement can be restored by stretching the shortened muscles under anaesthesia. Afterwards, however, the joint must be splinted in a position opposite to the initial deformity until the overstretched muscles have recovered their power. The splint may with advantage be removed once a day and the joint put through its full range passively.

LOSS OF ELASTICITY IN CAPSULE CAUSED BY SENILE CHANGES

In osteo-arthritis there is loss of joint movement, and often it is the most useful movement that is lost. With osteo-arthritis of the hip, the hip cannot be put into abduction and extension, the usual position of the joint when standing. Similarly, in osteo-arthritis of the knee extension is lost. It is often possible to increase the range of movement in an osteo-arthritic joint by stretching the capsule under anaesthesia. Great force may be used, and the increased range maintained afterwards by exercises.

To Alter Arc of Movement at Joint

Although it is usually not possible to increase the range of movement of a joint in which as the result of an arthritis the capsule has become sclerosed, it is often possible to alter the arc of movement. This is a valuable procedure in rheumatoid arthritis, particularly at the knee-joint, where, when the acute infection has died down, the range of movement is perhaps 60 degrees—from 160 to 100 degrees. This can be changed into movement from 180 to 120 degrees; the extra 20 degrees of extension is of great value from the point of view of function.

Under full anaesthesia the knee is forcibly straightened, with palpable tearing of soft structures at the back of the joint. The knee may be painful afterwards—it often is not—and as a precaution a removable plaster-of-Paris splint is applied while the patient is still under the anaesthetic. On the day following the patient is encouraged to bend the knee. Gradually, day by day, more and more controlled flexion is obtained. The removable plaster-of-Paris is retained until the patient, when free of the splint, can lift the leg with the knee fully extended.

To Render Muscle Contraction Painless

If, while a muscle is strongly contracted, an external force moves the joint in the opposite direction the muscle apparatus is liable to be damaged. Often it is the tendon that tears—for example, rupture of the tendo Achillis; if the tendon resists, the force takes effect at the point of attachment of the muscle to bone, and a few fibres are avulsed. The usual treatment prescribed is rest to the damaged muscle. This is thought to be reasonable by the patient, especially as it makes him comfortable. When, however, the damage has been repaired and he begins to use the muscle again, he has pain, because the muscle as it contracts pulls on the scar. The condition is cured by stretching the affected muscle under anaesthesia. After-treatment is important: unless the patient maintains

the stretching afterwards by active exercises the manipulation fails. He should be warned of this and be told that he must persevere in spite of discomfort. Two common examples are rider's strain and tennis elbow.

RIDER'S STRAIN

The horseman descends awkwardly on to the saddle while the adductors are strongly in action, and tears a few fibres of the adductor muscles at their origin from the pubic bone. When after a few weeks' rest he again attempts to ride he is annoyed to find that he still feels pain in the groin. On examination the pubic bone at the site of origin of the adductors is tender, and passive abduction and active adduction are both painful. Under anaesthesia the hip is forcibly abducted, and afterwards the patient is taught to straddle. Faradic stimulation of the adductors is also given.

TENNIS ELBOW

This very common and annoying disability is caused by other activities as well as by tennis. At tennis it is due to a failure to follow through when playing a back-hand shot. At the moment when the wrist and elbow are being extended by the extensor muscles of wrist and fingers the ball hits the racket and suddenly checks the extension movement, and the extensors of the wrist and fingers are damaged at their point of origin from the neighbourhood of the external epicondyle.

The patient usually consults a doctor after some weeks or months of discomfort. He complains that he cannot play tennis, and has pain when making certain movements with the hand. On investigation it is found that all these painful movements involve extension of wrist and fingers. There is tenderness over a small area about the external epicondyle, elbow movements are full and painless, and active extension of the wrist, and particularly of the fingers against resistance, is painful.

The condition should be, in theory, as simple to treat as the rider's strain; but whereas it is easy to stretch the abductor muscles of the hip it is difficult to stretch the extensors of wrist and finger. However, manipulation of the elbow under anaesthesia frequently results in cure. The aim is to hinge the extended elbow forcibly ulnarwards. Every manipulator, however, has his own methods, and it is possible that several are equally effective in exerting traction on the scarred area. Vigorous faradism to the extensor group and exercises are advisable afterwards. The patient may feel little or no benefit for the first week: thereafter the discomfort gets progressively less.

To Render Movements of "Normal" Joint Painless

This sounds an absurdity; but it expresses exactly what unqualified manipulators do in most instances. They may call themselves bone-setters or osteopaths, or something else, and each advances a different explanation for the success of his treatment; but in the main the treatment is the same—namely, manipulation. That it may be done once or many times, and may be vigorous or gentle, does not alter the essence of the treatment, which is forced movements of a joint.

It is idle to deny that success often follows this treatment; nor do I think it fair to assume that the successes are all in patients whom we should label functional. I believe that it is a valuable form of treatment and one which the medical man should not despise. Let us consider the symptom and sign of a case suitable for this treatment, and then attempt to give an explanation of how it acts.

The symptom is pain on use, and is often referred, which makes it difficult to know what joint is at fault. The sign is a joint that on examination is often normal. There is no evidence of inflammation, no heat, no swelling, and the range of movement may be full and painless. The only positive signs (and these may be absent) are a local tender spot somewhere on the joint line, and pain on forcing movement to the extreme in one or more directions but not in all. If movements in all directions are painful, manipulation is not likely to be curative. The more normal the joint appears the better the prospect of cure. Of course, the joint cannot in reality be normal, and often a skilful observer will detect some movement that is painful when a casual observer would find nothing abnormal on examination. Sometimes the most careful examination reveals nothing; and the patient has pain only when he is bearing weight through the joint; this occurs in the foot particularly.

Now for the explanation. The bone-setter's explanation is satisfactory from the patient's point of view, but it is unconvincing to a medical man. Indeed, the claim that a bone has been replaced has, I think, mitigated against acceptance of the value of the treatment. The doctor wants to know what bone has been replaced, and wants to see it demonstrably out of position in a radiograph; and not being satisfied on these two points he is apt to dismiss the treatment as too much allied to quackery to be used by any honest doctor. A more reasonable explanation is that the manipulation restores free movement, which beforehand was interfered with by adhesions. The public are being educated to this point of view. The adhesions result presumably from scar tissue formed in the process of repair of a small injury.

The manipulation is painful, and for the comfort of the patient is better done under anaesthesia, which has the additional advantage that the doctor can proceed with leisure, can test all movements, and need not be content with the one movement that he thinks is the source of the pain. Evipan, and better still pentothal, are excellent because they give complete muscle relaxation.

The technique is simple: the joint is moved fully throughout its range. No skill is required in the actual manipulation, but a knowledge of the normal movements of the joint is essential. The bone-setter, ignorant of anatomy, paradoxically often has the advantage over the doctor, who knows the shape of the bone ends and thinks he knows the normal range of movement; for it is often the small movements ignored by the anatomist that are the most important. For example, we think of the elbow as a pure hinge-joint and neglect longitudinal distraction of the joint surfaces, backward, forward, and sideward movement of the ulna on the humerus, and lateral hinge. The bone-setter is inclined to treat it as a universal joint, and his manipulation is often the better for his "ignorance." I do not want to suggest that all bone-setters are ignorant of anatomy. Many of them are highly intelligent and have studied joint movements, but their knowledge has been gained on the living subject and not in the dissecting-room. A difficulty sometimes arises because it may not be obvious from which joint the pain is referred: that bone-setters themselves experience this is suggested by their frequent diagnosis of two bones out of place—for example, one in the elbow and one in the wrist, necessitating manipulation of both joints.

After-treatment is important. Unless the movements freed by the manipulation are kept free the adhesions will re-form. For preference, the patient should be seen daily by the doctor or be put under the care of a masseuse:

one or other of them sees that the patient retains full movement, and it is advisable to prescribe exercises that will ensure this. The bone-setter has this advantage over the medical man—that the patient has prescribed his own treatment; and because he believes that as a result of the manipulation he will be at once cured he is prepared to use his joint normally afterwards: he expects to rise, take up his bed, and walk. The patient has more faith in the manipulation of a bone-setter than he has in the manipulation of a doctor. This being so, it is as well to explain to the patient the nature of adhesions and the likelihood of their re-forming unless he perseveres with full movements afterwards.

Conclusion

To sum up, manipulation for pain with little or nothing to show for it is not a quack treatment; and all honour is due to those unqualified practitioners who have drawn the unwilling attention of the medical profession to a valuable form of therapy. Manipulative surgery should not, in my view, be confined to the province of a specialist, but should be among the armamentarium of the general practitioner.

BRITISH EMPIRE CANCER CAMPAIGN FIFTEENTH ANNUAL MEETING

The annual general meeting of the British Empire Cancer Campaign was held at the House of Lords on November 29, the DUKE OF GLOUCESTER presiding. His Royal Highness began his address with a reference to the British Government's intention to provide facilities for the early diagnosis, treatment, and after-care of cancer patients. He read a message from the Minister of Health, which stated:

"More than ever will the work of your organization be needed, both in regard to research into the causation of the disease and in carrying out propaganda to impress upon all concerned the desirability of seeking advice in the earliest stages."

The Duke went on to refer to the efforts made by the Campaign, particularly during the past year, to place clinical cancer research on a sound and organized basis. The investigation which has been planned will cover yearly about 17,000 fresh cases of cancer in the metropolitan district. After mentioning the educational propaganda, to which a specially produced sound film is shortly to be added, and the gift of 250 guineas by the Corporation of the City of London to mark its appreciation of the work of the Campaign, the Duke referred to the fact that, with the approval of the authorities at the University of Oxford, a new cancer research centre of the Campaign is about to be established there, and a number of those holding scientific professorial chairs have joined a committee to promote the work. "I hope that Cambridge University may also find it possible to establish a similar research centre, and that these two ancient homes of learning may vie in friendly rivalry for the honour of making further discoveries in the crusade against cancer."

A vote of thanks to the Duke of Gloucester was carried on the motion of Lord HAILSHAM, who in the course of further proceedings was re-elected chairman of Grand Council.

Wide Range of Research

Sir ALFRED WEBB-JOHNSON, in proposing for adoption the annual report, referred, as the Duke also had done, to the admirable work of Mr. Lockhart-Mummery, its editor for fifteen years. It was with the greatest satisfaction, said Sir Alfred, that they saw the Government taking steps to remove the haunting fear of cancer, and providing funds in order to bring within reach of all the