REFRESHER COURSE FOR GENERAL PRACTITIONERS

OSTEOARTHRITIS

BY

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Of the many forms of joint disease popularly described as "arthritis" the commonest is osteoarthritis, also termed in other countries hypertrophic or degenerative arthritis, both terms illustrating different aspects of the disease which might well be described in popular language as "wear and tear" arthritis. It is a disease for which treatment is rarely sought until well on in middle life, when symptoms may have been present for three or four years. It slowly progresses with age and varies in degree according to circumstances. This is a normal and irreversible process, and in that sense osteoarthritis is incurable, but many factors that affect the rate of degeneration can be influenced and the process slowed down, and it is of great importance that these should be dealt with at the earliest possible stage.

Congenital and acquired anatomical defects are important—for example, a shallow acetabulum, coxa vara and congenital dislocation of the hip, disorders of ossification such as Legg-Perthes's disease, and rarer defects. Rickets, by giving rise to curvatures of the long bones, genu valgum or varum, fractures of thigh or leg in early life, and severe degrees of flat-foot all tend to alter the skeletal architecture and the balance of hip and spine, thus throwing abnormal strain on the joint structures and accelerating the wear and consequent degeneration of cartilage and bone.

Trauma is one of the most important causes of osteoarthritis, though the graver accidents, fractures, etc., are less often the cause than the minor ones associated with occupation. The effect of heavy manual labour carried on in cramped postures, as is often the case in mining, is an important example, but there are many occupations not entailing any obvious physical effort but which by constant repetition of some apparently trivial movement may have an equally damaging effect. Careful inquiry into occupation, the form of activity, and the limbs and joints brought into play may throw much light on the cause of the disease and also be a guide to treatment by indicating alternative movements, spells of rest, or even complete change of occupation.

Heberden's nodes are a special form of osteoarthritis affecting the terminal joints of the fingers. They are much more common in women, to whom they often cause anxiety, and are regarded as being caused by rheumatoid disease, which is not the case. Commonly they first appear in middle life, often at the menopause, and there is a well-marked hereditary tendency. It is useful to remember that rheumatoid arthritis practically never begins in the terminal joints of the fingers but in the proximal phalangeal or metacarpal joints, spreading to the terminal joints at a later stage.

Osteoarthritis of the hip is one of the most serious forms of disablement. It was formerly called "malum coxae senile," or coxalgia, but is far from being a senile change and is often the result of congenital defects or of trauma which may be of a comparatively trivial nature. It is usually unilateral, but the alteration in balance and the

effect of throwing the weight on the sound side to lessen pain sooner or later tend to set up symptoms on the other side, though this may be due only to periarticular fibrositis and contraction of the capsule. For the same reasons the knees and also the lumbar spine soon begin to show similar changes; the knees are also often affected by excessive kneeling.

Osteoarthritis of the spine is common, especially in the cervical and lumbar regions. It may be the result of accident, such as a fall on the back; develop gradually as a result of back strain, resulting from such causes congenital or acquired, as have already been mentioned; or be due to congenital defects or abnormality in the lumbosacral region. Shrinkage of the intervertebral disks as a result of nuclear prolapse or the ordinary changes of advancing years allows excessive play between the vertebral bodies, and the intermittent tension on the ligaments tends to the formation of osteophytes. It is important to note that even large hooked osteophytes may be symptomless and be discovered only by accident—a point of importance in compensation cases. In the cervical region the vertebral bodies may be much distorted owing to the great mobility and constant movement in all directions. Osteophytes form and may press upon or irritate the nerve roots as they emerge from the foramina, giving rise to referred pains and paraesthesias in the shoulders and arms and even to occipital headache. It is important to bear this in mind in cases with arm and shoulder pain.

Radiographs are essential for the diagnosis of osteoarthritis of the spine, and they should be interpreted by a radiologist or much may be overlooked. Views from the oblique as well as from the antero-posterior and lateral aspects are necessary for the examination of the foramina. Thinning of the disks is a feature of importance, since it does not occur in ankylosing spondylitis, an important point in diagnosis.

Symptoms and Clinical Signs

The disease is often advanced before advice is sought, as pain and stiffness only develop gradually. The first sign may be referred pain with no obvious relation to the affected joint; this is especially the case with nerve symptoms in the arms and shoulders. Pain in the knees may be the first indication of osteoarthritis of the hip, and if this is forgotten and the hip is not examined the loss of time in instituting proper treatment may be serious. Other common sites of referred pain are the adductor region of the thigh and the upper peroneal region. Pain in the groin, trochanteric region, and buttock is common. It is often absent at rest in the early stage but is brought on by walking; sitting down on a low seat may be easy but rising painful, the reverse being usually the case in sacro-iliac arthritis. Pain is felt if the weight is thrown on the affected side, but in sacro-iliac disease the pain is more often induced if the weight is on the unaffected side. An important early sign of arthritis of the hip is that termed by the French as *le signe de soulier*—that is, increasing

difficulty is met with in tying the shoe on the affected side, the knee is flexed and the foot is drawn back in order to reach the shoe, but even this soon becomes impossible.

Restriction of movement at the hip develops early from contraction of the capsule due to periarticular fibrositis, from the formation of osteophytes at the edge of the acetabulum, or from congenital defects which have slowly increased. It often happens that a full degree of flexion is present long after lateral and rotatory movements have become much restricted; limitation of extension develops imperceptibly and may not be noticed until it becomes marked.

Examination in the prone position is the best way to demonstrate deficiency in abduction, which is generally the first to appear, followed by internal rotation. The knee is flexed to a right-angle and the range of movement in various directions is compared with that of the sound side. The patient is then turned on to his back and extension tested, care being taken to maintain the normal lumbar curve; measurements should then be taken to detect any shortening. A moderate degree of wasting may be noted in the gluteal muscles and the adductors of the thigh. General constitutional symptoms are absent.

Limitation of movement in osteoarthritis of the spine is often slight or may be absent, but forced movement may be painful, as a degree of fibrositis is often present. Referred pains from pressure on the nerve roots may be present if there is much thinning of the disks; osteophytes even of large size may not cause any inconvenience. Paraesthesias and referred pains may be the first sign when the cervical vertebrae are affected, but the reflexes are rarely altered.

Differential Diagnosis

Ankylosing spondylitis presents the chief difficulty. It usually occurs at a much earlier age and is accompanied by constitutional symptoms in the active phases, but these often alternate with periods of quiescence wherein lies the possibility of confusion. The sedimentation rate is usually increased, slight pyrexia may be present, and pain is more severe and continuous even apart from movement. Radiographs will confirm the diagnosis. The intervertebral disks maintain their full width in the ankylosing form but are crushed or narrowed in osteoarthritis in which ankylosis does not take place except in the form of fusion of contiguous osteophytes.

In elderly patients the possibility of malignant growths must be borne in mind, and crush fractures of the type of Kümmell's disease may also present difficulty. Chronic osteomyelitis and typhoid spine as well as rarer disorders may be met with, but radiographs should never be omitted if there is any doubt.

Arthrokataclasis, a condition in which the floor of the acetabulum projects into the pelvis, is a not infrequent congenital defect; it is sometimes called protrusio acetabuli or Otto's pelvis. It leads gradually to deepening of the joint cavity, with thinning of the articular cartilage and lipping of the rim of the acetabulum causing a steadily increasing limitation in the range of movement at a much earlier age than in osteoarthritis of the usual type.

Treatment

The first essential is to realize that though cure is not possible some relief and slowing down of the progress of the disease may generally be achieved, and that the earlier treatment is begun the better the result will be. The history should be carefully investigated, especially with regard to occupational effects and minor accidents which may have

been so slight as to be forgotten. Careful examination of the movement of the joints in all middle-aged patients complaining of rheumatism of any kind will always prove worth while, and radiographs are desirable in cases of stiffness of the back, neck, or hips; in other joints clinical examination may suffice.

Rest for the affected joints is important, but invalidism must be avoided; change of occupation may be sufficient. Standing for a long time is harmful, and walking must be limited in arthritis of the lower limbs, especially with weight-carrying. The footwear should receive attention in these cases. Orthopaedic treatment of fallen arches, hallux valgus, etc., will lessen strain on the knees, hips, and back. Where there is shortening of one leg from any cause thickening of the heel of the shoe and possibly of the sole as well will give much relief, and a rubber heel or a pad of spongy rubber inside the shoe will lessen jarring.

Exercises are important, especially of the hip, in order to prevent contraction of the capsule, and should be carried out night and morning with the patient lying on a firm mattress or the floor. Abduction, adduction, rotation, and full extension are the most important, but too many or too strenuous exercises may have the opposite effect to that desired. The exercises should be taught by the doctor or a qualified masseur. Some degree of loss of extension of the knees is not uncommon and must be guarded against or treated by means of plaster-of-Paris splints worn at night or by a support of the Howard Marsh cage type hinged at the joint with a clip to fix the hinge when walking. This will prevent lateral play and give a sense of security, especially in those cases in which the knee is apt to give way. A walking calliper to take the weight of the body off the hip and knee will give relief from pain in coxalgia, though patients often object to wearing them. Surgical corsets are not generally advisable in osteoarthritis of the spine, but for the cervical region a leather collar may be desirable, and a light sling made of a band of webbing with a loop at each end may be helpful by taking the weight of the shoulder and arm; it need not be worn continuously.

Massage should be directed to relieving muscle spasm or wasting rather than to the joints; mild surging faradism and remedial exercises may usefully be combined with it. Occasional courses of ten to twelve treatments are better than months of attendance at a physiotherapy clinic in most cases, as this tends to create an invalid outlook, whereas the object should be to encourage an active life so far as is possible.

Hydrotherapy and spa treatment, especially the deep-pool bath and douche massage, are of great value. The deep pool, by reason of the support given by the water, makes exercises much easier and thus increases the range of movement. After the preliminary treatment at a spa or clinic where such treatment can be obtained a visit to a swimming-bath once or twice a week may be advisable, but long immersion must be avoided. Turkish baths, especially in individuals who are overweight or who take too little exercise, may be used with advantage if there is no cardiac disability. Simple hot baths at home are used so often for relief of pain and stiffness as to need no further mention: the addition of washing soda or Epsom-salt often seems to enhance their effect.

Electrotherapy

For superficial joints, especially the knees, cataphoresis with salicylate of soda often gives relief from pain, while iodide of potash tends to promote absorption of exudation and fibrositic thickening around the joint. The proprietary preparation "T.C.P.," which supplies iodine, chlorine, and

salicyl ions, is useful, as it combines both these effects. A qualified physiotherapist can sometimes be found to give this treatment at home if a physiotherapy clinic is not available. Short-wave diathermy is widely used for the relief of pain, especially in the hip and back, and is more useful in these joints because of its deep effect. X-ray therapy is sometimes used for the relief of pain in the hip or back, but is less effective than in ankylosing spondylitis.

Injection Treatment

A method which has recently come into vogue is injection into the joint cavity. It was first used with sodium acid phosphate and later with lactic acid, but procaine has been found to give equal relief from pain, though possibly not the other results which are claimed to occur—namely, the formation of a layer of dense fibrous tissue in place of the destroyed cartilage, arresting in some degree the degenerative process. The treatment must be followed by passive movements, manipulation, and exercises. Much skill is required to ensure that the needle enters the joint, which may be more difficult because of the thickening of the capsule, and if this is not achieved the result may fall short of expectations. The injections should be repeated at intervals, but unless relief is experienced they should not be continued.

Another method which is sometimes effective and calls for less expert skill is the injection of iodine in oil in the vicinity of the joint. It was first practised in France, lipiodol being the preparation used; English equivalents such as "iodatol" are now available. I have used this method in suitable cases, especially those in which periarticular thickening gives rise to pain and stiffness before there is much bony change, and good effects have been obtained; some cases have been under observation for as long as fifteen years and have retained a fair degree of mobility. The injection gives relief from pain and stiffness for three or four weeks, when it may be repeated, the intervals being gradually increased. The procedure is simple: the oil, which is viscous, is warmed and 2 or 3 ml. is injected deeply into the buttock in the region of the joint, with the usual precautions. Absorption is slow, and it is probable that the administration of iodine in this way is the best means of securing its systemic action, which is believed, especially by French authorities, to be of value.

Other Measures

Drugs by the oral route are of little value except for the temporary relief of pain and stiffness, aspirin alone or with phenacetin or codeine may be taken, but opiates should be avoided as they are apt to cause constipation and are habit-forming. Iodine in the form of the tincture, the iodide of potash, or one of the proprietary preparations may be useful, but it is difficult to assess its value.

Diet does not call for consideration except in patients who are overweight, and since weight-bearing is an important contributory factor this should receive attention. Salt may be reduced with advantage in such cases to lessen water retention.

Surgery may be called for when pain is severe or deformity serious, and if it is to be considered the earlier it is undertaken the better the results are likely to be. It is a matter for an orthopaedic surgeon to determine the form it should take, but the results are often disappointing; to remain in hospital in splints for a long period is a serious matter. The principal procedures now in vogue are neurectomy of the obturator nerve and the articular branches of the anterior crural and sciatic nerves; arthroplasty,

inserting a metal cap (vitalium) between the head of the femur and the acetabulum; and excision of the head of the femur in order to form a false joint.

Early treatment, rest for the affected joints by attention to occupation, splints, and supports, appropriate exercise to cope with the threatening limitation of movement, combined with a courageous and persevering attitude on the part of the patient, will give worth-while results.

MEN AT WORK*

BY

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These remarks deal with some problems of men at work in general, and with those of one man at work in particular—the industrial medical officer.

Our Present Situation

To-day we have full employment. A greater number of people are employed, output for every man employed is higher in almost every industry, and our total production is greater than ever before in peacetime. And yet output still falls short of our needs. In fact, our balance is so precarious that unless we do produce more, and more cheaply, we may find ourselves short of raw materials, and facing unemployment, lower standards of living, and a threat to the whole structure of the welfare State.

The question is: "How are we to produce more?" It may be answered in many different ways. Economics, long ago called the "dismal science," has various solutions to offer, including a "healthy dose" of unemployment. More realistically, economists favour the wider adoption of payment by results, at present restricted to a minority of wage-earners. This would undoubtedly be a useful measure in the struggle against inflation and might in many industries help to raise output, but it could hardly be an adequate answer to our problem. During the war we progressed far towards achieving a true harmony between individual purpose and social purpose. To-day there appears to be a serious discrepancy between what the community needs and what its individuals in their various groups are able or prepared to contribute. And it is doubtful whether such a social malaise can be cured in terms of wage-packages or fear of the "sack." This problem of "incentives" demands some hard thinking, in terms of man and work, industry and community.

The Standard of Living.—The basic objective of work is to provide the worker and his family with necessities and amenities as dictated by individual and class standards. We have lived for long in an expanding economy in which yesterday's luxuries became to-day's necessities. Many of these necessities (including expensive "indulgences," holidays, and some saving) are not now being at all easily provided; the population to-day at most levels of income, on the standards it at present wants, is in fact "broke." This makes our predicament all the more incongruous: the community requires more than its individuals are prepared to contribute; its individuals require more than the community can at present provide. The issue is clearly not

*From an address to the Association of Industrial Medical Officers, January 27, 1950.