Current Practice

JOINTS AND THEIR DISEASES

General Management of Osteoarthritis

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Even when only a few joints are giving trouble, careful assessment of the whole patient is essential for the correct management of osteoarthritis (degenerative joint disease). There may be a variety of aggravating factors to be dealt with. It must be remembered too that "osteoarthritis is a disease which is multiple almost from the beginning, by reason of many bones and many joints; if ousted from one ground of vantage, it retreats to another a little further away."

Dr. J. Kent Spender, a Bath physician who wrote¹ those words in 1889, was probably speaking of both primary generalized osteoarthritis as we know it today and rheumatoid arthritis, since these conditions were not clearly distinguished at that time.

Spender recognized the importance of proper local treatment to the joints: "I put local treatment in the foreground. Not that it is in the long run the more important; but time presses, and in this manner we can make the earliest and deepest impression." He knew the value of maintaining a balance between rest and exercise: "In the earliest stages, that of synovial distension, a joint may be kept at rest by one or more millboard splints . . . the practical danger is that of letting the joint be too long at rest, whereby muscles and tendons glide insensibly into weakness and flaccidity. Avoid plaster of Paris, starch or any sort of cage which puts a joint in prison, and hinders necessary examinations; short terms of rest may well alternate with short terms of movement and physical exercise." Again, these general principles apply equally to rheumatoid and osteoarthritic joints, and hold just as true today as they did 70 years ago.

Until we know the underlying cause of wear in synovial joints there can be no "cure" for osteoarthritis, but meanwhile there is much that can be done to alleviate symptoms, and indeed these patients present some of the most challenging therapeutic exercises in rheumatology.

Onset of Arthritis

Osteoarthritis can be *primary*, with no obvious predisposing causes other than age and heredity, affecting several joints either together or at separate time-intervals; or *secondary*, when there is evidence of preceding joint damage such as fracture, long-standing inflammation as in rheumatoid arthritis, or congenital deformity. Though symptoms of primary osteoarthritis can first appear at any time of adult life, they do so most commonly in middle-age, particularly at the menopause, and in the elderly. The symptoms are due partly to joint wear (which involves degeneration of cartilage with loss of joint space, the formation of osteophytes and loose bodies, and fibrosis of the joint capsule); partly to episodes of synovial inflammation causing acute joint pain and swelling, sometimes with effusion; and partly to degeneration, fraying, and inflammation of ligaments around the joints.

Symptoms may be aggravated by numerous factors such as obesity, recurrent minor trauma, weather conditions (particularly cold and damp), anxiety and depressive states, certain endocrine conditions such as hypothyroidism, and some neurological disorders such as Parkinsonism.

Other conditions which cause symptoms of a similar nature frequently co-exist with osteoarthritis and may complicate the clinical picture. For example, paraesthesiae of the hand may be associated with osteoarthritis of the terminal interphalangeal joints, with cervical spondylosis, or with carpal tunnel syndromes—and all these conditions may occur and give rise to symptoms simultaneously in the same patient.

Pitfalls in Diagnosis

Osteoarthritis may be confused with almost any rheumatic disorder, but in clinical practice certain conditions commonly give rise to difficulty in diagnosis and therefore should be excluded by appropriate investigations, usually as a matter of routine. Rheumatoid arthritis of the "large joint" variety may masquerade as generalized osteoarthritis, and in menopausal women mild sero-positive or sero-negative rheumatoid arthritis is not infrequently superimposed on degenerative joint disease. The polyarticular form of gout and other forms of crystal synovitis (particularly chondrocalcinosis) must be borne in mind. The group of conditions encompassed by the syndrome of polymyalgia rheumatica (see 12 April, p. 99) should be considered whenever severe morning stiffness affecting the shoulders or hips is a prominent symptom. Capsulitis producing stiff, painful shoulders (frozen shoulders) is also sometimes mistaken for osteoarthritis, but radiographs do not show evidence of joint degeneration, and indeed symptomatic osteoarthritis of the shoulders is an uncommon condition.

Routine investigations should therefore include radiographs of affected joints, full blood count, erythrocyte sedimentation rate, estimation of serum uric acid, and tests for rheumatoid factor. Electrophoresis of serum proteins is indicated should the E.S.R. be high. Sizable joint effusions should be aspirated and the synovial fluid examined for colour, clarity, and viscosity, and under the microscope for cells and crystals.

General Advice to Patients

The first essential is to reassure the patient that his symptoms do not herald a serious or crippling rheumatic disorder such as rheumatoid arthritis, and that osteoarthritis is amenable to treatment. A brief account of the pathology of the condition ("wear and tear in and around your joints") should be followed by simple explanation of the proposed line of treatment. The intelligent patient often asks why rest and exercise are concurrently prescribed. It should be explained that acutely inflamed joints must be rested, whenever possible weight-

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bearing joints should be relieved of the body-weight, and at the same time muscles acting on the joints should be built up and their range of movement improved by appropriate non-weight-bearing exercises.

Reduction of obesity is important in the management of weight-bearing joints, including the spine. Referral to a competent dietitian is often the only answer, and sometimes a few weeks' bed-rest in hospital with a low (800 c.) diet is necessary to initiate weight-reduction. Prolonged rest, however, is inadvisable in patients with osteoarthritis. It is generally agreed that those anorexic drugs having a stimulating effect on the central nervous system, such as dexamphetamine, are best avoided owing to the risk of tolerance and addiction, but recently-developed drugs such as fenfluramine are occasionally useful. When there is a tendency to fluid retention, which is often the case at the menopause, a small daily dose of a diuretic is helpful, as the initial loss of weight due to diuresis gives a morale boost to the patient—who nevertheless must be warned that this encouraging drop in weight will not continue unless the reducing diet is strictly followed. There are, however, certain disadvantages of diuretic therapy in osteoarthritis which will be mentioned later.

Avoidance of trauma, direct or indirect, to affected joints is important. However, minor injuries are often inevitable—an elderly patient with severe osteoarthritis of the knees is especially prone to slip and twist them, and this may cause partial rupture of already frayed ligaments or perhaps break off a portion of degenerated cartilage, causing acute synovitis with effusion and (not infrequently in the elderly) haemarthrosis. Similarly, the importance of avoidance of other aggravating factors such as a damp environment must be stressed, and occasionally in severe cases of osteoarthritis consideration will have to be given to the advisability of rehousing or even moving to a warmer and drier climate.

Drug Treatment

In contrast to the management of rheumatoid arthritis the really powerful anti-inflammatory drugs (systemic corticosteroids, A.C.T.H., gold) do not play a key part in the treatment of osteoarthritis. Here drugs are used mainly for their analgesic effect and only secondarily for their anti-inflammatory action. Soluble aspirin or paracetamol with occasional "booster" doses of compound codeine often suffice, but it is sometimes helpful to supplement these analgesics with one of the stronger anti-inflammatory drugs which simultaneously have a specific analgesic action on musculoskeletal structures. The most useful of these drugs are phenylbutazone and indomethacin.

Phenylbutazone or oxyphenbutazone is often effective and well tolerated. In the absence of contraindications (especially peptic ulcer and cardiorenal disease) phenylbutazone can be prescribed in small doses (100–300 mg. daily) over a fairly long period; in this dosage side-effects are uncommon. In acute flare-ups a short course of phenylbutazone in high dosage (400–500 mg. daily) for a few days is often very effective. It must be explained to the patient that this drug takes a few days to attain maximum concentration and that consequently its full therapeutic effect may be delayed.

Indomethacin may be more or less effective than phenylbutazone; only trial in the individual case will tell. Nausea and dizziness, the commonest side-effects of indomethacin, are minimized when the drug is given in a total dosage of 50 mg. (two 25 mg. capsules) last thing at night with water. Some patients find that indomethacin is more effective in suppository form. However, even when indomethacin does not cause dyspepsia when first prescribed experience has shown that it may eventually do so after prolonged administration, and so continuous use of the drug as "preventive therapy" is inadvisable.

Mephenamic acid, flufenamic acid, and the latest addition to the range of analgesic/anti-inflammatory drugs, ibuprofen, are occasionally helpful, but at the present time there is no reason to suppose that any of these is significantly superior to phenylbutazone or indomethacin in the routine treatment of osteoarthritis.

Local Injection Therapy

Effusions in large joints such as the knee should always be aspirated. Repeated recurrence of the effusion should raise suspicion of another rheumatic disorder, such as rheumatoid arthritis or intermittent hydrarthrosis, as effusions rarely persist after aspiration in pure osteoarthritis.

Hydrocortisone injections are very useful in certain circumstances. Definite indications for injection can be summarized as follows: (1) acute synovitis causing a hot, swollen joint; (2) pain due to ligamentous strain, such as strain of the medial ligament of the knee; and (3) painful soft tissue lesions associated with (or "secondary to") spinal osteoarthritis, such as rotator cuff lesions of the shoulders associated with cervical spondylosis. However, except in acute synovitis the value of *intra-articular* hydrocortisone in osteoarthritis is disputed. Small joints such as the first carpo-metacarpal joints and the intertarsal joints respond well—often dramatically—to injection, but the beneficial effect may as much be due to infiltration of adjacent ligaments as to the introduction of steroids into the joint itself. It is generally believed that there is little to be gained from injecting steroids into large joints, but in patients with painful osteoarthritic knees it is always worth while infiltrating the medial ligament at its points of origin and insertion with a mixture of local analgesic and hydrocortisone before starting a course of physiotherapy.

Recently, injection of silicone oil into large joints with a view to artificial lubrication has been advocated by Helal and Karadi,² who obtained good results in a significant proportion of joints so treated. Pain was decreased in 89% and crepitus became less in nearly all. However, there is a placebo response to intra-articular injection of any material in a large proportion (perhaps 60%) of patients, and as yet silicone oil has not been subjected to controlled trial in this condition. In our experience patients with osteoarthritic knees unresponsive to other forms of therapy have shown some improvement, but some patients develop a painful reaction to the injection, and the value (if any) of silicone mixed with hydrocortisone in minimizing this reaction is currently being assessed.

Physiotherapy

There is no doubt that physiotherapy, sensibly prescribed, is a very useful form of local treatment for osteoarthritic joints. The purposes of physiotherapy are to relieve pain and thus facilitate mobilization of stiff joints; to build up weak muscles acting on joints and thus aid stability; and to relax muscles in spasm. Heat (either dry or moist) is applied to the joint, and exercise therapy supervised by the physiotherapist follows. Massage tends in these days of active exercise therapy to be neglected, which is a pity, since it can be quite helpful. Short-wave diathermy is most useful for heating deeply situated joints, such as the hips. Radiant heat, infra-red, or moist packs are more effective for superficial heating. Gentle active exercises are prescribed for the spine, sling and pulley exercises for the hips and shoulders, and static quadriceps or mobilization exercises for the knees. In the case of weak, lazy, or wasted muscles exercise therapy is facilitated by faradic stimulation. Warm paraffin wax is a time-honoured and effective treatment for osteoarthritis of the hands (terminal interphalangeal and first carpo-metacarpal joints) and for painful Heberden's nodes. It is less well appreciated that wax is equally useful in treating

the stiff osteoarthritic foot, especially in conjunction with local infiltration of hydrocortisone and local analgesic. While ultrasound has no specific place in the treatment of osteoarthritis, it can be a useful alternative to heat and massage for muscles in spasm, such as the trapezii, which are so often tense and painful in patients with pain in the neck owing to cervical spondylosis. Intermittent traction applied to the cervical and lumbar spine is occasionally helpful but should be requested with caution, as traction often aggravates muscle spasm, especially in nervous individuals.

The patient should always be instructed to continue exercises at home after completion of the course of hospital treatment, and sometimes he might be advised to buy an infra-red lamp, which enables the physical treatment to be continued in quite a comprehensive manner at home for as long as necessary.

Manipulation of the spine is best regarded as a form of "forced mobilization." It can be very useful when carried out gently, not too often, and in the right circumstances. A single manipulation is often helpful but rarely totally effective. Used in conjunction with a prescribed course of physiotherapy a few careful manipulations can greatly accelerate improvement in osteoarthritis of the spine, whether cervical, thoracic, or lumbar. Manipulation under anaesthesia is hardly ever necessary. Manipulation is contraindicated when there is gross osteophyte formation, particularly in the severe form of spondylosis known as ankylosing hyperostosis, where there is heavy bridging by osteophytes and the radiological appearance superficially resembles ankylosing spondylitis. It is also contraindicated when there is evidence of bone disease or of pressure on the cauda equina.

Hydrotherapy in the form of exercises in the deep pool has a limited but moderately important part to play in osteoarthritis of large weight-bearing joints, particularly the hips. Water heated to 97° F. encourages muscle relaxation, the buoyancy assists active exercises, and walking can be encouraged at an earlier stage than is possible on "dry land." The severely disabled patient with multiple osteoarthritic joints can be quite considerably helped by a course of hydrotherapy. Spa therapy, though psychologically beneficial, is rarely necessary when facilities for hospital hydrotherapy are available.

Appliances

Lumbo-sacral supports, cervical collars, splints (particularly to correct flexion deformities of the knees), arch supports, and suitable footwear should be prescribed where indicated. Callipers are very rarely indicated for osteoarthritic joints, and when prescribed they are more often discarded than worn. Indeed, patients are reluctant to wear any kind of permanent appliance except as a last resource. However, the importance of a short leg in throwing abnormal postural strain on the spine with consequent backache must be emphasized—in such cases the appropriate raise for the shoe often provides gratifying relief of symptoms.

Surgical Procedures

Certain operations have a place in the treatment of osteoarthritis, particularly when only one or a few joints are affected. The most well-established procedures are intertrochanteric osteotomy or total hip replacement for the osteoarthritic hip; arthrodesis of severely affected or unstable joints; arthroplasty for certain joints such as the metatarsophalangeal joint of the big toe in hallux rigidus (Keller's operation); removal of loose bodies from the knees when they are mechanically impeding movement; and correction of severe valgus or varus deformity of the knees due to osteoarthritis involving predominantly the medial or lateral compartments.

Aggravating Conditions

It is of the utmost importance to recognize that a variety of conditions may co-exist with osteoarthritis and aggravate symptoms. Perhaps most frequent are anxiety and depressive states. These conditions are supposed to lower the pain threshold, thus making symptoms less bearable. Furthermore, muscle spasm is undoubtedly made worse by simple anxiety. The prescription of small doses of phenobarbitone, chlorthalidone, diazepam, or when necessary a course of amitriptyline or imipramine will help to relieve pain, facilitate physiotherapy, and accelerate recovery in these cases. Psychotherapy is rarely indicated, but when symptoms of anxiety or depression persist a psychiatric opinion is always more valuable than "another course of physiotherapy."

Certain metabolic and endocrine disorders may aggravate (and sometimes give rise to) musculoskeletal symptoms. Hypothyroidism occasionally presents with aching and stiffness in the muscles, and symptoms are usually alleviated by administration of thyroid hormone. It is well known that the symptoms of osteoarthritis often appear at the time of the menopause, though why this is so is not very clear. Unfortunately, administration of oestrogen preparations does little to alleviate joint symptoms at the menopause. When there is a tendency to fluid retention, diuresis will relieve the sensation of heaviness of the limbs even when there is no significant peripheral oedema. However, it must be remembered that a "dry" joint is more painful than a "wet" one, and it is common clinical experience that a diuretic can dry up small effusions in the knees with consequent increase in joint pain and stiffness.

Occasionally a patient with osteoarthritic knees is found to have panniculitis, painful fat deposits often situated in close relationship to affected joints and sometimes more diffusely scattered throughout the whole limb. Occasionally the condition affects the upper arms. The nature of these tender adipose lumps is poorly understood. There may or may not be generalized obesity, and very occasionally the patient is found to be hypothyroid. Recognition that this condition may in itself be painful is important in evaluating treatment. However, unfortunately there is no really effective therapy for panniculitis—general reduction in weight as often as not leaves the localized fat deposits unchanged, and physical treatment usually only makes the condition worse, though ultrasound applied to the deposits occasionally affords symptomatic relief. It is some consolation that as time passes symptoms due to panniculitis tend to decrease in severity. Surgical removal of the fat deposits is indicated only when they are exceptionally large.

Acroparaesthesiae may be due to a combination of causative factors, and estimation of median nerve conduction times at the wrist will prove or exclude a diagnosis of carpal tunnel syndrome, as well as serving as a guide to prognosis and treatment of this condition. Another common cause of paraesthesiae is compression of the C8/T1 root at the thoracic inlet by drooping shoulder-girdles, especially in association with postural upper thoracic kyphosis ("dowager's hump"). The elimination of all these factors, as well as attention to osteoarthritis of the finger joints, is necessary to effectively relieve acroparaesthesiae. Among other neurological disorders which can make symptoms of osteoarthritis worse Parkinsonism is perhaps most important. In this condition pain in the joints is accentuated by the rigidity of the muscles acting on them and by tremor causing constant movements. While satisfactory control of tremor and rigidity by drugs acting on the extrapyramidal system is often difficult, it is worth while making efforts in this direction, as local treatment of the osteoarthritic joints will otherwise be of little avail. Physiotherapy and hydrotherapy directed towards relaxation of stiff muscles can also be helpful.

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