revolutionized the treatment of this condition. In gout with advanced renal failure uricosuric drugs become ineffective, but allopurinol will continue to lower the uric acid level. The drug is also valuable in the rather specialized conditions seen by those treating malignant disease, when excessive breakdown of tissue nuclei in patients who are being treated with cytotoxic drugs and radiotherapy may lead to blockage of the ureter by crystals of uric acid.

Surgical aspects of treatment

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"The good that men do lives after them, the evil is oft interred within the bones and joints". Shakespeare *almost* said that and I think that we ought to bear this in mind when we are speaking about the exciting new phase in surgical treatment of rheumatoid arthritis. I would like to start by quoting from an extract in *World Medicine* for February, 1967:

"In 1962 a young man suffered his first symptoms of rheumatoid arthritis, for four years he was treated by his general practitioner chiefly with aspirin and he was told that he had rheumatoid arthritis, nothing more could be done and that he would have to learn to live with it. Now he has a gross deformity of his feet, knees, hands and hips, and physicians and surgeons of the unit of rheumatology to which he has been referred cannot be optimistic about his future".

In treating rheumatoid arthritis by operation, the surgeon must be aware of all the problems of the rheumatoid arthritis sufferer if he is to treat him intelligently. These patients are often depressed. We do not know why, but we do know that they have suffered from their disease for many years and when they learn that something can be done surgically for them, there seems in many cases to be a complete change in their personality. They almost become euphoric about what might be done. One must be careful though never to sell an operation to any rheumatoid patient. The patient must always be told precisely what the operation involves and the possible limitations of success. An enthusiastic patient is extremely loyal to his surgeon and is therefore biased in his assessment of the operation result.

Surgery in various phases

In the rheumatoid normal joint, the villain of the piece is the synovium. In early synovitis there is swelling which goes on to erosion of the bone, stretching of capsules, destruction of bone and subluxation, until finally the joint is completely dislocated. Surgery can be divided into three phases: (1) Prophylaxis in the early stages before the bone is affected. These changes are reversible, and my plea is to get practitioners to send cases early so that prophylactic surgery can be carried out, with the hope of lasting cure in the joint; (2) Once a joint is subluxated, simple procedures such as synovectomy are no longer of use, a more complex operation—such as joint reconstruction—may be necessary; (3) Finally, patients with rheumatoid arthritis of many years' standing have such gross joint deformities that surgery at that stage is undertaken to make the life of the patient a little more tolerable.

Surgery can help by relief of pain. In my experience it is this that gives both the

surgeon and the patient the greatest satisfaction. In the case of swollen extensor tendons and swollen knees, synovectomy can often take the pain away completely, and the surgeon can help to prevent deformities from occurring. When the case has passed out of the phase of prophylactic surgery into reconstructive surgery, help can be given in restoring function and improving appearance. Care must be taken not to alter the shape of a hand, for cosmetic reasons, if the patient's function is good: for one can sometimes make a finger or a hand look better but decrease function.

The principles of management

I am pleased to see that in the programme today practically every aspect is covered, because the most important thing is co-operation between the physician, the surgeon and the physiotherapist. All cases referred to me for surgery are seen at a joint clinic at which all these are present. The occupational therapist, the medical social worker and the resettlement officer all play important parts. However, the general practitioner's rôle is of capital importance. If he realizes the possibilities of surgery he will join the team at the start, and if he is interested enough in the treatment of the patient he can assist at every stage. The work is increasing to such an extent that surgeons are finding it almost impossible to keep pace with the rehabilitation and follow-up of these patients. There are, therefore, two main stages in which general practitioners can actively help—at the beginning by referring cases early, and at the end of hospital treatment by taking over so that the patient can continue to be under observation for many years.

The decision to operate must be a joint surgical–medical one. The attitude of the patient to surgery is extremely important. Care must be taken not to offer a patient an operation without assessing his personality and his attitudes. The co-operation of patient and relatives is extremely important. The relatives are going to have the task of looking after him following operation, and recognition must be given of their previous care of him, sometimes for years, and their co-operation must be sought.

Indications for surgery

The indications for surgery are probably of principle interest to practitioners. What are they? The first is a progressive synovitis, that is, synovitis that is continuing in spite of medical treatment. The indication is clear if the patient has a persistently painful swollen knee. Faulty alignment of the fingers is another indication; tendons may rupture quite suddenly (patients can tell you exactly when it happened) or there may be extensor tenosynovitis on the back of the wrist, or a bursitis around the shoulder. There may be a median or ulnar nerve compression or compression at the tarsus and these are all indications unless the symptoms clear quickly. Surgery may help joint stiffness, for example, a patient may have an elbow joint which has become stiff in a position which is of no functional use. Quite a lot can be done for unstable joints. Often a small operation to stabilize an unstable thumb will give a patient a pinch grip, which increases the functional use of the hand.

Surgical procedures carried out can be on bone, joint or soft tissue. Procedures carried out on soft tissue include synovectomy, capsule operations for ulnar deviation, tendon re-routing, repair of ruptured tendons, transfer of tendons, joining of one tendon that has ruptured to another, tenotomy and excision of nodules from tendons.

Nerves may be decompressed or muscles operated on for swan-neck deformities and trigger fingers and trigger thumbs. I believe that a median nerve lesion with a trigger finger is often the first sign of rheumatoid arthritis. Some American surgeons say that excision of painful nodules is the commonest operation done for rheumatoid arthritis, but it is not so in my experience.

The surgical procedures on bone include arthroplasty of joints, or excision of whole joints. This can be hips, fingers, elbows or radio-ulnar joints. Osteotomy relieves pain

in hips and knees. Thumbs, knees, wrists, ankles and subtaloid joints may be arthrodesed and prostheses can be put into hips, knees and hands.

Operation can be performed at almost any time in this disease. Contra-indications are a generalized flare-up or some other specific factor. Professor Bywaters showed an arteriogram of a hand with lack of circulation through the fingers. It would be most unwise to do any hand surgery on that patient. However, a high ESR and local activity do not contra-indicate surgery. In cases with a high ESR before surgery, for instance synovectomy of a knee, the ESR may fall after operation. Surgery does not affect the general condition adversely. Some surgeons have operated on over 5,000 patients, and we are now approaching 1,000 operations for rheumatoid arthritis, yet we have not seen one single flare-up of the disease as the result of surgery. I think this is important. There is no specific drug therapy during the surgical phase. If the patient is on cortisone the dose is increased for the day of the operation but the dose reverts to normal the following day. To succeed, operation must be performed early, and patients must be followed up for many years to see whether we are doing any good at all.

What is 'early' synovectomy? From a surgical point of view, from the time that the patient first presents if, in spite of all medical treatment, at the end of four months there is no improvement in the swelling, then the patient should have what is called 'early' synovectomy.

Three years ago, there was a patient who was told by a rheumatologist that nothing more could be done for her. She would have to spend the rest of her life in bed. She was severely crippled with rheumatoid arthritis and attempted suicide. However, her practitioner had heard about the possibilities of surgery and we have had her for the last two and a half years. In that time she has had a synovectomy of the left elbow, an arthrodesis of the left wrist, a synovectomy of both knees, a total hip replacement, a bilateral forefoot arthroplasty and a left triple arthrodesis. She is now completely mobile and sufficiently well to make an unaccompanied visit to her son in Venezuela.

Discussion

Question: Do psychological factors play a part in rheumatoid arthritis?

Professor Bywaters: I would say that the psychological make-up of a person is important in management, in making a prognosis, and in treatment. Despite innumerable studies carried out over the past 50 years, one does not know whether any particular psychological type is liable to get rheumatoid arthritis.

Dr Hill: The patient who has rheumatoid arthritis and goes for a holiday by the seaside nearly always improves; therefore I think relaxation certainly helps.

Dr Knox (*Edinburgh*): It is significant that much of today's proceedings have been taken up with polyarthritis and the more serious and crippling type of arthritis and rheumatism. This is right and proper, because these conditions are the essence of rheumatology, but to be really helpful to us as 'doctors of first contact', we should view all this in perspective, remembering that non-articular rheumatism is also of the essence of rheumatology. The viewpoint depends on the position of the observer; the consultant rheumatologist sees a spectrum of conditions filtered by the general practitioner; and the resulting pattern is important but it is different in nature and in degree from what we see.

Nor is the pattern elicited by the epidemiologist necessarily the same as that which we see;