intestine and joining the intestine by an end-to-end anastomosis. The patient made a good recovery from this second operation. She improved rapidly, and six weeks later was discharged from hospital. She has been heard from frequently since, and is now enjoying good health.

In 1779 Baudamant described the first reported case of hair-ball; since then over 100 cases have been recorded. The condition is frequently found in animals in the season when the hair is shed, but rarely gives rise to symptoms, as the hair-balls are usually expelled by vomiting or passed in the faeces. In human beings the hair-eating habit is generally confined to young females, occurring usually in individuals of nervous constitution with perverted appetites, or in patients who have definitely exhibited symptoms of insanity.

Hair-balls may be multiple or single; those developing in the stomach are usually single. The hair is gradually worked up into a mass by the gastric movements until at length it entirely fills the organ and forms a cast of the stomach, with a prolongation in some cases through the pylorus into the duodenum. In the small intestine, in which they are very rare, the hair-balls are not infrequently multiple; they take the shape of the intestinal tube, and may be, when closely pressed together, faceted.

The clinical symptoms caused by the presence of a hair-ball in the gastro-intestinal tract depend on its position, its size, and the development of obstructive and inflammatory conditions to which it may give rise. Ledra-Heazlit states that the stomach is exceptionally tolerant of foreign bodies, but eventually rebels when the limit is reached. Ultimately symptoms appear, such as pain, vomiting, and attacks of diarrhoea alternating with constipation, and there is much wasting. The breath becomes foul, and the stools are offensive. In the case here recorded these typical symptoms were present. The development of obstinate constipation was first noticed; this was followed by occasional vomiting; later on the constipation alternated with attacks of diarrhoea. There was marked wasting, and an abdominal tumour was discovered. It has been alleged that the patient's hair may be deficient in the frontal region, but this is unusual in cases in which hair-balls are found in the stomach. In cases in which complications have not developed a marked feature is the very slight disturbance of nutrition. In the rare cases in which hair-balls have been found in the intestine the lower part of the ileum is the site where they have usually lodged.

The clinical picture presented has usually been one of chronic intestinal obstruction associated with wasting, abdominal distension, and vomiting; in addition, an abdominal tumour is usually present. As the hair-ball usually occupies the stomach the tumour, when present, is generally situated in the epigastric region, and may extend from one hypochondrium to the other. Its outline is well defined, and its surface is smooth and hard. It is usually movable. These were the characteristics in this case, with the exception that the tumour was situated in the right iliac fossa and reached to the mid-line of the abdomen. Occasionally the sensation of crackling, or deep-seated crepitation, is made out on palpating the swelling.

The x-ray appearances of hair-balls in the stomach have been carefully studied and described by Thurstan Holland. It has been observed that the first mouthful of an opaque meal spreads out to form a cap over the upper end of the tumour. The shape of the tumour is very characteristic when covered by the opaque meal.

Treatment.

The treatment consists in removing the foreign body by operation. A carefully thought-out technique is necessary during the removal of the hair-ball as the discharges surrounding the mass are often foul and septic. In the case here recorded it was necessary to drain the intestine for a considerable time. A second operation was performed later to close the faecal leak, and this necessitated resection of a segment of small intestine, about 8 inches in length, and an end-to-end anastomosis.

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THE SCOPE OF SURGERY IN THE TREATMENT OF CHRONIC RHEUMATOID AND OSTEO-ARTHRITIS.*

BY

C. MAX PAGE, M.S., F.R.C.S.,
SURGEON TO ST. THOMAS'S HOSPITAL.

COMMUNICATIONS on the treatment of chronic rheumatoid infections may almost be regarded as chestnuts in the programmes of medical societies. I take it that this tendency to discuss the various problems connected with these diseases is an index of our failure to arrive at any generally accepted solution of them. The subject is certainly one of exasperating complexity, and the average late results of the more severe examples of rheumatoid arthritis may well discourage the most optimistic of clinicians. The issue on this occasion is, at any rate, clearly defined, being limited to the surgical aspect. I shall not attempt or consider any classification beyond that in the title, nor do I propose to consider the surgical treatment of what may be the primary focus of infection. I think the simple subdivision is sufficient to guide us in radical local treatment, and the surgery of the presumed primary focus would carry us too far afield.

For the purposes of surgical treatment it will, I think, be sufficient to accept the chronic rheumatoid group as including several infective conditions, the results of which on individual joints may vary within wide limits. This statement is as true of the late results in individual joints as of the earlier clinical course. In the late stages of joint change, due to what has been called rheumatoid arthritis, we may meet with extreme capsular fibrosis associated with varying degrees of destruction of the articular cartilage. Ankylosis may be fibrous or bony.

Osteo-arthritis may be accepted as a change in a joint initiated locally by some biochemical reaction; the association with injury is no doubt in many cases an important factor in the production of the process, but it does not materially affect the question at issue in the treatment of the condition. The local changes may be clearly separated from the first-mentioned variety by the fact that ankylosis never occurs, although absorption of articular cartilage may be complete, and that periarticular fibrosis is never a prominent feature.

It must be admitted at the outset that both conservative and radical treatment of joint disease of the character under consideration can at the best ameliorate the condition, and seldom, if ever, restore the state to normal.

In chronic rheumatoid arthritis it is generally agreed that no drastic treatment to the joints can be applied while the infective process is still active, on account of the risk of producing a local or distant extension of the condition. A few authors have advocated synovectomy of several of the affected joints at an early stage; but I think there is little support for this method. Evidence of activity is given by the presence of fever and the signs of local inflammatory reaction about the joints. While this is present surgical treatment will be limited to the avoidance of contractures and to holding the parts affected in such a position that function will be interfered with as little as possible should ankylosis of the joint ensue. This is not a dramatic part of surgical treatment, but it is, none the less, a very important one, and one that is perhaps insufficiently recognized, if we are to judge by the serious and disabling deformities which come to hand for treatment in late stages. The reason for this is perhaps partly because the treatment of rheumatoid arthritis in the active period is considered a medical matter. The comfort of the patient is bound to influence the practitioner, and attitudes of maximum comfort or minimum discomfort assumed during periods of active inflammation of a joint may be progressively exaggerated till they lead to extreme flexural deformities. I do not propose to describe in detail what may be regarded as the ideal positions which should be maintained for all the important joints during an acute or subacute arthritis. They

* Abstract of a paper introducing a discussion at the Medical Society of London on February 27th.

are well recognized and hold good for any process liable to leave a stiff joint. I should like to draw attention to a few deformities which are too commonly met with, and which can, as a rule, be avoided by suitable splintage or support. In the lower extremity an acute and painful effusion into the major joints will lead to the adoption of the flexed position of the thigh and knee in the first attempt to relieve pain. The hip-joint can be ankylosed in flexion to 20 or 30 degrees without interfering seriously with function, provided there is no adduction. Fixed flexion of the knee-joint beyond 5 or 10 degrees should be avoided. Extension in a Thomas's splint of a light weight without any splint will prevent this deformity being excessive.

In the upper extremity one of the most disabling deformities often seen after a polyarthritis is flexion at the wrist-joint. This joint can be kept straight or slightly extended in a light plaster casing, which leaves the fingers free without discomfort to the patient. The position of the shoulder and elbow should also be considered.

The next stage of polyarthritis in which surgical measures may apply is in the chronic phase. All signs of the infection should have died out, ankylosis or contractures are established, and the problem becomes essentially an orthopaedic one. It is not always easy to settle when this time has arrived, and it undoubtedly varies with the nature of the infection. It is most undesirable to operate if infection is still latent, and the matter may be tested by mobilizing a small joint under anaesthesia, and observing the local and general reaction. Operations undertaken at this stage will be of two types: first, to correct the disabling deformity, and secondly, to restore the movements in stiff joints. The two conditions may be dealt with at the same time in some cases.

In order to correct deformity one of three methods may be employed—namely (1) manipulation under anaesthesia, (2) graduated extension, (3) open operation.

1. Manipulation under anaesthesia is often sufficient to correct contracture of short standing. It is clearly valueless in those cases in which bony ankylosis has occurred. Against the use of the method it must be admitted that the procedure is more likely than anything else to light up any latent infection. I do not think, however, that this is sufficient reason to cut the method out. It should be approached with caution, and with due observance of the condition of the patient. In some cases it will not only correct a faulty position, but may restore a considerable degree of movement to a joint previously stiff.

2. Graduated extension may be employed on special joints, as the knee and hip, for similar purposes. It has the merit of involving no risk of causing a flare-up, but it must be admitted that it is not alone likely to be effective in those cases in which there has been much destruction of articular cartilage or fibrosis in and around the joint.

3. An operation designed only to correct position will be in the nature of an excision of the joint, coupled with the division of contracted capsular structures and even tendons in the neighbourhood. In some instances in which there is bony ankylosis a simple osteotomy may be sufficient. This operation is most often used for ankylosis of the hip-joint. It should, however, be noted that osteotomy is a delusive operation in those cases unless the ankylosis is sound. If it is only fibrous there will be a tendency for flexion and adduction to recur.

Operations undertaken to restore movement have not much vogue in relation to chronic rheumatoid arthritis, but in most instances in which ankylosis of several major joints has occurred it should be considered. There is no doubt that after many of these infections an arthroplasty, though it appears satisfactory in the first month or so, tends to stiffen up. The technique of the subject will be gone into further when considering the surgery of osteo-arthritis.

The surgical problem in relation to the treatment of osteo-arthritis is simpler. We are dealing here with a relatively common disease in which no question of any local bacterial infection arises. The chief difficulty is in the selection of cases suitable for surgical treatment. Pathological changes vary in degree in a remarkable way, and to an extent unexplained by any recognized etiological factor. Though the disease in its advanced form may be

practically monarticular, cases occur in which many joints are involved, and the problem then presented is not unlike that of chronic rheumatoid arthritis. The severity of pain experienced by the patient is usually the reason which decides him to seek radical treatment. Its degree is remarkably variable in its incidence, and bears no direct relation to the extent of the anatomical change. It would appear that it is the result of changes in the capsule of the joint, rather than in the articular surface. In view of the fact that bony ankylosis does not occur in this disease when it is allowed to run its natural course, freedom from pain cannot be assured at any stage.

The incidence and chronic nature of the disease naturally leads to a trial in sequence of conservative measures, such as drugs, vaccines, diet, baths, and various forms of physiotherapy. The search for focal infection and attempt to eradicate it must be regarded as essential in all early cases; I confess that in the late stages it does not appear to me to be of such crucial importance. In the early stages surgical measures will be limited to the provision of rest from weight-bearing for the affected joint. This is clearly of most importance in the lower extremity. The weight-relieving calliper or ambulatory splint will often be of service, and if properly fitted will certainly arrest the progression of the articular change.

Manipulation, as in the case of rheumatoid arthritis, is the simplest surgical procedure which can be applied. It aims at breaking down adhesions, or, rather, stretching fibrosed or capsular structures which limit movement or are the source of pain. When the disease is advanced and associated with gross osteophytic outgrowths, I do not think much good can be obtained by the method. In my experience the benefit received has generally proved only temporary in nature. I do not wish to suggest that the method should not be employed regularly. It is of striking value in early cases of chronic arthritis in the knee and shoulder in which the changes are mainly capsular.

When we come to the disease in its advanced form the direct indications for a radical operation may be clearly defined as two in number—namely (1) progressive deformity in relation to the joint affected, (2) persistent pain. These indications hold good whatever anatomical form the disease assumes, and whether the probable causative factor appears to be trauma, toxic absorption, or bacterial infection.

The character of the operation selected will be influenced by the number of joints involved and the life expectation of the patient. The operation may take the form of what may be termed (1) speculative arthrotomy, (2) an operation aiming at ankylosis, or (3) an arthroplasty, an operation planned to restore movement at the affected joint. The decisions as to which of these procedures is suited for any particular case must, as stated above, depend on several factors.

1. Speculative or exploratory arthrotomy has its most important field in the knee-joint. It will generally be undertaken in those cases in which there is pain without deformity, or recurrent attacks of effusion into the joint associated with symptoms of internal derangement. Good exposure of the joint is obtained by a vertical lateral excision; action is then taken in accordance with the state found. Loose bodies may be removed, pedunculated and hypertrophic villi may be excised, marginal osteophytes removed, or the articular cartilage trimmed or shaved where it appears diseased. In those cases of so-called "lipoma arborescens" a complete synovectomy may be carried out. The operation is a conservative one, and should not materially interfere with the subsequent normal range of movement at the joint; it does not involve a prolonged period of incapacity. In my experience the results are often much better than would be expected from the limited nature of the operation. I do not know whether such results are to be attributed to the mechanical measures adopted or to the period of rest and careful after-treatment usually involved.

2. Arthrodesis, if effectively attained, clearly is the most radical and final operation; it cures the pain for good and all, its only drawback being the mechanical disability entailed by the stiff joint. I am inclined to think that it is the operation of choice in the hip-joint in a patient with

a good expectation of life, provided that the disease is monarticular. It is generally accepted as being the most effective procedure when the knee is seriously involved, and when deformity is developing in relation to that joint. In many cases the operation undertaken to secure bony ankylosis may fail to produce this, leaving in some cases fibrous ankylosis, and in others a false joint. This failure to secure bony union does not seriously prejudice the result in the upper extremity, and even in the lower pain will be relieved by the measure, though some deformity or contracture may develop. Failure to secure bony ankylosis results from either an incomplete operation or inadequate or insufficient fixation afterwards.

3. Formal arthroplasty, or operations designed to leave a movable joint, are naturally in favour if they are effective in curing symptoms and in giving a sufficiently stable joint. In the case of the metatarso-phalangeal joint of the great toe an operation of this character is carried out as a routine by many surgeons for conditions of hallux rigidus or valgus. The good results obtained in this operation cannot, however, be employed as an argument in favour of a similar procedure for the major weight-bearing joints, the knee and the hip. In these articulations it is clear that there is risk of the new-formed joint undergoing in course of time the same pathological changes that were responsible for the primary condition. This risk is so definite in the case of the knee that I think an arthroplasty should only be aimed at here in exceptional circumstances. In the hip-joint operations aiming at mobility appear to be coming more into vogue, being generally based on Whitman's method of reconstruction. Membrane or fascia, after the method of Baer or Putti, is often interposed to secure a movable joint. My own view is that the operation should be limited to the elderly and to those cases in which, on account of disease in the opposite hip or of other joints in the same extremity, mobility is particularly important in order to secure reasonably good function.

This survey represents a brief sketch of a complicated problem. It will be noticed that I have not referred in detail to the treatment of osteo-arthritis of the spine and sacro-iliac joints; this has not been done because the technical methods employed in these areas must still be regarded as on trial. I have not entered into the surgical technique of the different methods discussed, as a full account of these can be found in the literature. My aim has been to indicate the importance of surgical supervision from an early stage in all cases of chronic arthritis, and to demonstrate the possibilities of radical treatment of the more advanced forms.

CONGENITAL DISLOCATION OF THE HIP:

A METHOD OF CONTROLLING THE PELVIS DURING REDUCTION.

BY

F. WILSON STUART, M.Ch.,

SURGEON TO BIRMINGHAM CRIPPLES' UNION AND ROYAL ORTHOPAEDIC AND SPINAL HOSPITAL (AMALGAMATED), AND TO MANFIELD ORTHOPAEDIC HOSPITAL, NORTHAMPTON.

To every orthopaedic surgeon with experience of a considerable number of cases of congenital dislocation of the hip-joint in patients of varying ages it must be apparent how inadequately control of the pelvis can be carried out by an assistant during attempts at reduction. The chief reason for this is that in pressing downwards on the opposite side of the pelvis in an attempt to fix it, the assistant is converting the pelvis into a short-armed lever, the effect of which, when pressed down, is to raise up the opposite side of the pelvis from the table, carrying the vacant acetabulum with it. The manipulator is at the end of the long-armed lever—namely, the knee of the dislocated femur—and his efforts to lever the head over the posterior lip of the acetabulum are really aiding the assistant in raising the pelvis from the table, and therefore a great deal of energy is wasted as the result of their applied forces acting in the same direction.

This action of opposing levers is very evident when dealing with the older cases—patients aged 5 years and upwards.

Some time ago I was faced with the problem of reducing a case of bilateral dislocation in a child aged 6, big for her age, muscular, and with strong femora. The femoral heads were unusually high above the acetabula. An attempt to reduce the left hip failed completely and was abandoned till a future date, after a considerable range of telescopic movement had been obtained by alternate extension and relaxation. Meanwhile both hips were to be subjected to daily stretching.

A fortnight or so later a second attempt was about to be abandoned when, on considering ways and means, it occurred to me to make use of the roller towel which had been employed for

counter-extension purposes, and, passing the left limb through one loop, the two strands were crossed on themselves and continued over both anterior superior iliac spines, being well spread out so as to cover the whole pelvic front; the assistant put his foot in the other loop as it hung down towards the floor. A tri-

angular block was then placed between the pelvis and the great trochanter, against which the towel passed. This enabled me at once to apply extension at the femoral condyles with both hands, the limb being in the abducted position, and to lever the head into the acetabulum at the same time.

I have since employed this method successfully in three other cases—one a child aged 9 years—and have found that the adductors stretch easily without any kneading or hacking with the hand. The amount of force applied is under the complete control of the surgeon, the action of the towel converting the pelvis into a very efficient fixed point.

The accompanying illustration should make my meaning quite clear.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HEMIHYPERTROPHY.

THE case recorded below is, I think, of sufficient interest to warrant publication.

The patient, a boy, was 12 years of age when first seen. The left leg, it was said, was short, and the right sometimes "pained." The father, mother, and seven other children were healthy. There had been a suspicion of inequality at the age of three weeks, and shortening of the left leg was definitely noticed when he started school at the age of five years; it was corrected by a boot. For the past five years there had been intermittent attacks of intense oedema of the right leg extending to the top of the thigh, starting with pain in the groin and accompanied by pyrexia, anorexia, and signs indicating toxæmia, but no vomiting. During the attack pain in the whole leg was extreme; the urine was scanty and dark (probably febrile), the face swelled as with toothache, and the arm throbbed and swelled. These attacks occurred irregularly and subsided with rest, lasting about ten days to a fortnight.

The right side of the body, including face, arm, and hand, was bigger than the left, but the enlargement was most marked in the lower limbs. There was oedema of the soft tissues, which increased on standing or walking, but subsided after two or three days in bed. The right leg was 2 inches longer than the left, and resulting scoliosis and limp were present. The right calf was 2 inches greater in circumference than the left, and the right thigh 1½ inches. On x-ray examination the bones were found to be normal, but the right was larger than the left. The urine was normal, and the Wassermann reaction negative.

The interest of this case centres, I think, round the intermittent attacks. It has been suggested that the enlargement might be due to a pituitary, a sympathetic, or suprarenal anomaly. I think this would be hard to reconcile with the condition, and feel that it is in all probability a diffuse unilateral lymphatic or reticulo-