trabeculae with reduced bone modelling seems to be the most likely aetiology.

According to the literature approximately 25 per cent. of the cases treated by early but prolonged non-weight-bearing (up to 4 years) appear to heal satisfactorily. In the Swiss study the results of conservative treatment were poor (only 4 per cent. good results). Varusation osteotomy combined with elimination of necrotic bone tissue and replacement by cancellous bone, with postoperative non-weight-bearing, was the best treatment for early cases (more than 80 per cent. had good or satisfactory results). In late cases, total replacement of the hip joint or arthrodesis gave the best results (90 per cent.). WAGNER reported excellent results with excision of the necrotic bone tissue and replacement by cancellous bone, combined with remodelling of the joint-forming bones and transplation of the two joint cartilages from cadavers.

Total Replacement Arthroplasty of the Knee in Rheumatoid Arthritis. By G. P. ARDEN, A. R. TAYLOR, and B. M. ANSELL (*Taplow*) Published in full in the *Annals* (1970), 29, 1

Osteoarthritis of the Hip Joint in Switzerland, in the United Kingdom, and in Jamaica, and its Relationship to Generalized Osteoarthritis. By J. S. LAWRENCE (*Manchester*) and W. M. ZINN (*Bad Ragaz*)

Several communities in Great Britain and one in Switzerland have been screened to determine the prevalence of osteoarthritis of the hip. For men the morbidity was identical in both countries, whilst Swiss women were significantly less affected. In Jamaica both sexes were less prone to clinical osteoarthritis of the hip, and the radiological changes were also less pronounced. The relationship between coxarthrosis and generalized osteoarthritis and the importance of physical strain arising from various types of work was examined.

Discussion

DR. TAILLARD (*Geneva*) May I ask whether there were any cases in which the aetiology of the osteoarthritis could be related to an antetorsion defect of the femoral neck as the sole cause. This is important for the paediatric orthopaedist and it comes into his mind every time he sees a child with severe knock-knees, where the physiological anteversion of the femoral neck present at birth has not corrected itself, or when he is faced with later lesions resulting in this defect of the femoral neck.

DR. KAUFMAN (*Zurich*) There were cases with increased antetorsion, most of them with abnormal acetabular angles and increased CCD angles, so that antetorsion alone could not be held responsible for the osteoarthritis of the hip.

DR. ZINN We particularly looked out for such cases but did not find a single one with isolated, greatly increased antetorsion.

DR. HACHENBRUCH (*Cologne*) Some x-ray appearances which simulate epiphyseal osteoarthritis of the hip are really of inflammatory origin, and dysplasia may

also be simulated by coxa valga through chronic inflammatory processes of early onset.

DR. NICOD (*Lausanne*) Although the antetorsion disappears over the years, it results in secondary deformity of the legs. It is therefore sometimes necessary to correct this deformity to avoid external rotation of the legs which leads to a static defect affecting both the knee and the foot.

Necrosis of the Femoral Head in Rheumatoid Arthritis. By E. N. GLICK (*London*)

In a previous paper it was reported that, of 199 hip joints with radiological abnormalities in a series of 358 patients with rheumatoid arthritis, 24 per cent. showed deformities of the femoral head. This series was divided into three groups, of which bone necrosis was one, and the present paper reports results obtained in the past 5 years.

Further experience suggests that bone necrosis is the major cause of these femoral head deformities and that in many cases the process seems identical with 'avascular necrosis' as reported in other conditions.

Steroid treatment or trauma may have contributed to the process in some cases, but similar changes appeared in hip joints without a history of either.

Atlanto-axial Subluxation. By J. A. MATHEWS (*London*) Published in full in the *Annals* (1969), 28, 260

Episcleritis and Scleritis. Their Association with Connective Tissue Disease. By A. J. LYNE and D. A. PITKEATHLY (*Manchester*)

Insufficient distinction is often made between episcleritis and scleritis and the same aetiology is ascribed to both. 86 cases of episcleritis and scleritis were examined for coexistent disease, with special emphasis on the group of connective tissue disorders. Five of 55 cases of episcleritis and 14 of 31 cases of scleritis were found to have associated connective tissue disease, rheumatoid arthritis being the commonest.

The patients suffering from scleritis had attacks which lasted longer. The palpebral area was affected more often in scleritis than in episcleritis and all the patients suffering from scleritis and rheumatoid arthritis showed scleral thinning which always affected the superior sclera.

The majority of cases of episcleritis had single attacks affecting the interpalpebral area and lasting less than three months, which suggests that minor trauma may be a factor in their causation.

Discussion

DR. WATSON (*Cambridge*) I should like to congratulate Dr. Pitkeathly and his colleagues on a very exciting survey, and to ask whether their questionnaire on allergy disclosed any association with episcleral abnormality? We have noted a considerable seasonal variation in episcleritis, particularly in the summer. My other point is that rosacea most certainly causes either episcleritis or

scleritis; did you find anything which would suggest any virus disease in any of your patients?

DR. PITKEATHLY As regards the allergy: there were a number of patients with episcleritis who had attacks in the spring or in the summer. As regards the rosacea: we excluded that at the beginning because we were aware that it could produce episcleritis. We did not find any suggestion of virus infection, although it was only looked for if there was some suggestion of this to begin with.

DR. WATSON The point about herpes zoster ophthalmicus is that it can cause both episcleritis and scleritis. It can start an episcleritis which progresses to a scleritis. It is therefore difficult to put it into one group.

Some Aspects of the Radiology of the Shoulder Joint in Rheumatoid Arthritis with a Note on the Findings in Osteoarthritis. By M. M. MCNAIR, J. A. BOYLE, W. W. BUCHANAN, and J. K. DAVIDSON (*Glasgow*)

Antero-posterior radiographs of both shoulder joints were taken in fifty unselected patients with sero-positive rheumatoid arthritis (RA); 46 patients with osteoarthritis (OA) and fifty normal subjects provided control radiographs. The findings of two radiologists without previous knowledge of the diagnosis in any of the subjects, or of each other's opinions, were correlated with the clinical findings.

The radiological appearances of the shoulder joint in RA suggest that:

(i) Radiological abnormalities of the shoulder joint are very common in sero-positive erosive RA and in patients with OA even though these patients may have no complaints referable to the shoulder joint.

(ii) As generalized osteoporosis was found only in the rheumatoid patients, limitation of shoulder joint movement is the clinical feature which correlates best with severe radiographic changes in RA. Of the 47 shoulder joints with this clinical feature, 38 per cent. had radiographic evidence of joint erosions, 50 per cent. had generalized osteoporosis, and 21 per cent. had remodelling of the humeral head.

(iii) Generalized osteoporosis of the shoulder girdle is the radiographic sign which correlates best with the degree of clinical involvement of the shoulder joint in RA: of the 32 shoulder joints with this radiographic finding, 63 per cent. were painful and 75 per cent. had limited movement.

Discussion

DR. A. G. S. HILL (*Stoke Manderville*) I should like to ask Dr. McNair if she attempted any correlation of changes in the shoulder joints with the use of the shoulder as a weight-bearing joint; in other words, does the use of crutches increase the incidence of radiological abnormality in the shoulder?

DR. MCNAIR I am afraid we have not studied this.

Rheumatoid Serum Factors in Families. By J. S. LAWRENCE, J. BALL, and H. A. VALKENBURG (*Manchester*). This article and the discussion thereon is to be published in a future issue of the *Annals*.

Preliminary Results of Azathioprine Therapy in Severe Rheumatic Disease. By A. J. SWANNELL, E. N. COOMES, and J. Q. MATTHIAS (*London*)

Twelve patients on treatment with azathioprine (8 rheumatoid arthritis, 2 psoriatic arthritis, 1 systemic lupus erythematosus), none of whom could be controlled with conventional therapy, including the use of corticosteroids, have been followed.

Azathioprine was used in a dose of 2 mg./kg. body weight; the length of treatment varied from 2 weeks to 1 year.

Three of the patients with rheumatoid arthritis improved, and the skin rash and arthritis disappeared in one psoriatic patient who later developed two episodes of septicaemia, each responding to treatment. Reduction of steroid dose was possible in one patient with SLE.

Six patients had to stop treatment on account of side-effects.

Discussion

DR. B. M. ANSELL (*Taplow*) I should like to report our experience which is not so encouraging. At Taplow we have treated seven patients (age range 30 to 66 years) with rheumatoid arthritis, two because of vasculitis and neuropathy, two because of complicating amyloidosis, and three because of severe uncontrolled disease with side-effects from corticosteroid therapy. A dose of 2 to 2.5 mg. azathioprine per kg. body weight was given for from one week to 7 months. One patient with amyloidosis has shown reduction of the activity of the arthritis, a reduction in the size of nodules, and a fall in proteinuria; he is still receiving therapy. In one other patient there was improvement in the arthritis and reduction of corticosteroid therapy was achieved, but after 2 months' treatment with 100 mg. azathioprine daily she developed a severe anaemia with bone marrow hypoplasia. When the azathioprine was stopped there was an improvement in the haematological state, but an exacerbation of disease activity, and corticosteroid dosage had to be increased again. This patient had not received gold or butazolidin in the past. Therapy had to be stopped in two cases because of side-effects: severe gastrointestinal upset and severe skin infection. In the remaining three patients therapy was stopped after 3 to 6 months because there was little or no improvement with azathioprine.

DR. C. G. BARNES (*London*) We have had some experience with azathioprine at the London Hospital, using it in a dosage of 2.5 mg./kg. body weight per day. We have treated thirteen patients for from 6 weeks to 27 months on an uncontrolled basis and reviewed their progress. Each of these patients was resistant to normal methods of treatment, including steroid dosage in an unacceptable amount of over 10 mg. prednisolone a day. Six discontinued treatment, four on account of gastrointestinal disturbances; I think that known gastroduodenal ulceration is probably a contraindication to the use of azathioprine. We endeavoured to reduce steroid