CONGENITAL DISLOCATION OF THE HIP

In the treatment of congenital dislocation of the hip we are confronted by a situation unusual in joint dislocations in general—an intracapsular dislocation in which there is an inherent incongruity between the femoral head and the acetabulum. Our problem therefore is something more than the simple manoeuvre of replacing a normally shaped articular end into a normally shaped socket through a hole in a recently torn capsule. In the young infant, before weight has been borne on the affected hip, this primitive incongruity presents a minor obstacle to the successful reduction of the luxation by the divaricator method introduced by Putti a quarter of a century ago. In Great Britain, however, the great majority of congenital hip dislocations continue to escape diagnosis until the children have been walking for some months at least. In the older children the various developmental anomalies which comprise the anatomical picture of incongruity and which can be studied in arthrograms now assume an increasing mechanical importance as obstacles both to the concentric reposition of the femoral head in the socket, and its secure retention after reduction. A closer acquaintance with the detailed anatomy of congenital hip dislocations derived from arthrographic studies and from the increasing practice of open reduction has shown that in this deformity there are many different morphological types. Leveuf’s simple concept of two distinctive types—the subluxation and the luxation—is no longer a safe guide to treatment and prognosis. As *Guilleminet and his associates (1952) have wisely said, each congenital dislocation has its own special morphology.

In recent years a pessimistic outlook has arisen in regard to the results to be expected from the treatment of congenital hip dislocations by the classical method of manipulative reduction, even when practised in children during the favourable age period—that is, under the age of three. One well established cause of disappointing results in apparently well reduced dislocations is the development of osteochondritic changes in the femoral head epiphysis. Although it has been clearly shown that osteochondritis is already present before reduction in some congenital dislocations, the "violence" of manipulation has been regarded by many as likely to be responsible for the ultimate deformity of the femoral head. This view is reinforced by the striking observations of Scott (published in this issue) that the incidence of osteochondritis has been reduced from 25 per cent to 8 per cent by the substitution of frame reduction for the manipulative technique previously employed at the Wingfield-Morris Hospital. In that hospital frame reduction has been successfully used in children up to the age of five. From the same orthopaedic centre comes quite a different attack on the problem of the reducibility of congenital hip dislocations—the revival of primary open reduction in young children. Somerville is impressed by the role of the inturned limbus in opposing

reduction and stable retention, and in the series of twenty-three cases recorded here he has shown how this particular obstacle can be eliminated through a comparatively limited arthroty approach. His results are of course not yet long-term. The masterly analysis by Muller and Seddon of the late results of the treatment of congenital hip dislocations at the Royal National Orthopaedic Hospital over a period of fifty years is not only of intrinsic historical interest, but provides us with information of great significance. Their verdict that "there was reason for sober satisfaction with the results of closed reduction" is of prime importance in determining our future method of attack on dislocations in young children. It would appear that our aim should be to define as far as possible the special morphological features of each dislocation before attempting any type of reduction. This should enable us to recognise those cases in which closed reduction, whether by frame traction or gentle manipulation, is likely to fail completely or to result in an incongruent joint. Such cases will no doubt form a minority of the dislocations in young children; but in this group the technique of open reduction must be available.

Until we are able to diagnose and treat the dislocations in the first year of life, it is wise that we should not be tempted to adopt a perfectionist attitude in dealing with what is still a difficult problem. For as Muller and Seddon have pointed out, the "life" of a successfully reduced hip is about twenty-five years. On the other hand, the Royal National Orthopaedic Hospital follow-up has also reminded us that many adult patients with unreduced dislocations are able to lead an active and relatively comfortable existence. Such patients therefore should not become the victims of light-hearted surgical adventures. HARRY PLATT.

THE VASCULARISATION OF BONE

Investigations of the vascularisation of organs and tissues are useful from at least two standpoints. The normal distribution of vessels, apart from its purely anatomical interest, may be correlated with function (as shown, for example, by the work on the renal circulation carried out at the Nuffield Institute for Medical Research), or may assist the surgeon in evaluation of techniques. The examination of arterial anastomoses around or within the tissue is of importance for a comprehension of the efficiency of the collateral circulation which may be established during surgical procedures. In general, organs of endodermal origin, such as the stomach, intestine, thyroid, urinary bladder and pancreas, appear to be provided with particularly rich arterial anastomoses, but organs and tissues developed from mesoderm vary considerably in their reaction to ischaemia from the interruption of individual arteries of supply. The nearer to an organ an artery of supply is interrupted, the fewer the arterial anastomoses and the greater the likelihood of damage to the organ. Interruption of periosteal vessels, for example, would be more likely to lead to bone necrosis than occlusion of the common iliac artery, and it can be shown that interruption of the common iliac artery in the rat leads to no obvious change in the radiological appearance of the head of the femur up to four months after operation. The vascularisation of bone after periosteal stripping, or obstruction of individual periosteal vessels, would depend largely on the efficiency of intra-osseous anastomoses; but this particular aspect of the vascularisation of bone has led to many divergent statements in the literature. The investigation of the vascularisation of the head of the femur by Trueta and Harrison in this number of the Journal is therefore most welcome.

The arteries supplying the head of the femur are well known to the anatomist. The medial circumflex femoral artery in its course behind the neck of the femur gives off several periosteal branches, anastomoses with vessels from the posterior branch of the obturator artery and may furnish an artery passing along the ligamentum teres, or even entirely supplant the acetabular twig from the posterior branch of the obturator artery which is usually