

rheumatoid arthritis, and close scrutiny of the literature appears to support this conclusion. The combination of soft bone, inadequate muscle power with the characteristic tendency to re-ankylose (often expressed in spontaneous fusion of other joints) all militate against a good result. A prosthesis may ultimately be more suitable for dealing with this problem; and investigations are currently proceeding in an attempt to develop a suitable device.

Acknowledgments

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Congenital Dislocation of the Hip (CDH): Necropsy Studies at Birth

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Twenty-two normal hip-joints from foetuses with gestational ages ranging from 13 to 40 weeks were dissected *post mortem*. Although a great increase in size and mechanical strength was noted to occur during foetal life, little change was observed in the relative depth of the acetabulum or in the general morphology of the joint (see also Laurenson 1965). In no case was it possible to provoke subluxation (Palmén 1961, Barlow 1962)

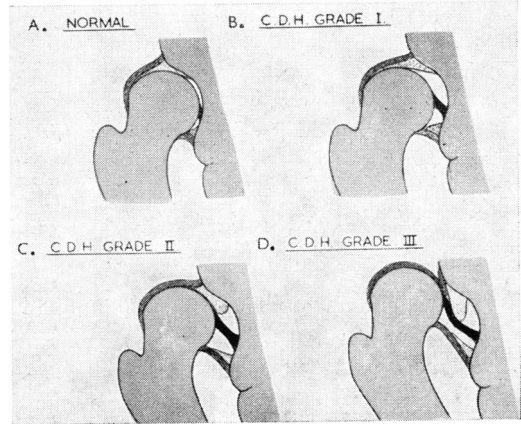


Fig 1 Diagrammatic representation of the normal hip-joint and of the three grades of congenital dislocation described in the text

either before dissection or following exposure of the joint capsule. Even after division of the capsule, the femoral head remained snugly within the closely fitting limbus of the acetabulum, unless considerable force was applied to the leg with the femur in full adduction and external rotation.

A second group of 23 joints was selected for dissection because clinical examination had revealed the presence of hip instability. Fifteen infants were involved. The condition was bilateral in 8 cases and unilateral in 7. The right and left joints were affected an equal number of times. All the infants had died during labour or soon after delivery. Their gestational ages at birth ranged from 27 to 44 weeks. There was a breech presentation at delivery in 8 cases. Clinical summaries have been reported elsewhere (Dunn 1969). In each case 'dislocatability' or dislocation of the hip was demonstrated under direct vision at dissection in association with a spectrum of changes in the morphology of the joint. For convenience, the range in pathology has been divided into three sub-groups, CDH Grade I for the least abnormal joints and Grade III for those exhibiting the greatest alteration in structure. The normal hip-joint and the three grades of CDH are illustrated diagrammatically in Fig 1, while dissections of each of these various types of joint are shown in Fig 2.

In CDH Grade I, of which there were 7 examples, the head of the femur was usually found located normally within the acetabulum. However, dislocation over the posterior or postero-superior lip of the acetabulum was readily provoked by relatively gentle backward pressure on the head of the femur with the thighs flexed and adducted. The crucial pathology appeared to lie in the limbus itself. This was

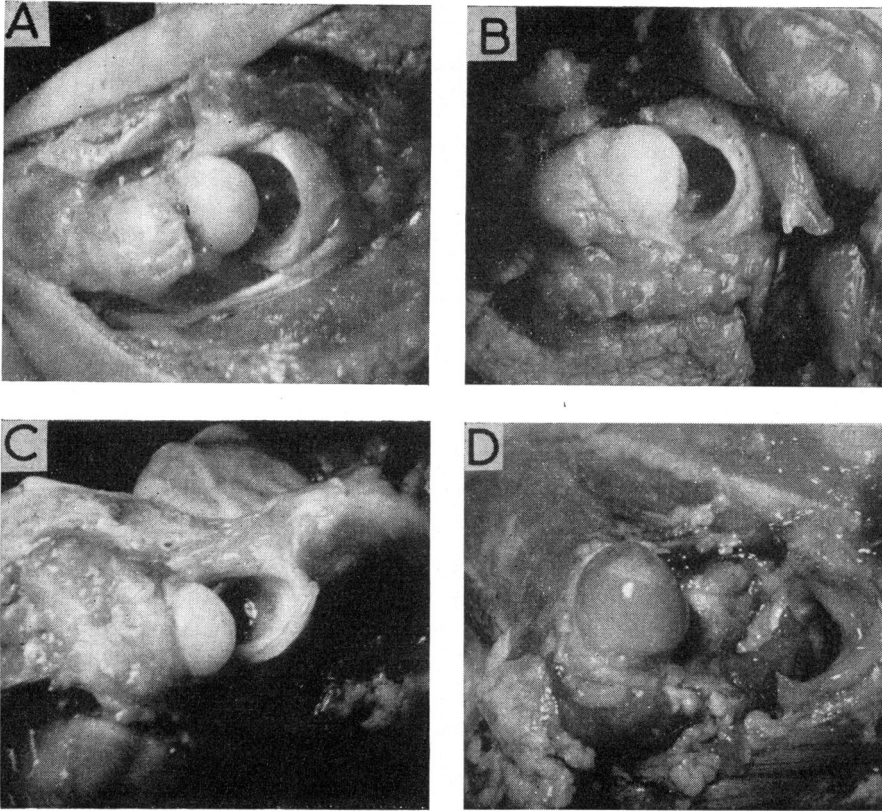


Fig 2 *Dissections of the left hip-joint of 4 term infants. A, the normal joint. B, CDH Grade I. C, CDH Grade II. D, CDH Grade III. In each case the capsule has been incised and the head of the femur drawn out of the joint to expose the acetabulum. In D the divided ligamentum teres may be seen emerging out of the true acetabulum through the gap bounded by the inverted margin of the limbus*

stretched and slightly everted in its postero-superior aspect, giving the acetabulum an elliptical outline (Fig 2B) instead of the normal circular one (Fig 2A). As a result it no longer clasped the head of the femur in a suction-tight grip and readily everted even further when any backward pressure was put on it to enable the head of the femur to jerk over its free margin. Dislocation, however, was only partial in these cases, backward displacement being restrained by the capsule and the ligamentum teres. Except for the minor changes noted in the shape and stability of the limbus and for the presence of some capsular laxity and stretching of the ligamentum teres, the morphology of the joint appeared remarkably normal.

There were 4 examples of CDH Grade II (Figs 1c, 2c). In these cases the pathological process appeared to have proceeded a stage further. The limbus was more everted, the capsule more stretched and the ligamentum teres further lengthened. Instability of the hip was very marked, and partial or complete dislocation was usually

present at rest. The acetabulum was usually found to be shallower than normal and the head of the femur had frequently lost some of its normal spherical outline; in addition it tended to be reduced in size.

Twelve hips were classified as CDH Grade III (Figs 1D, 2D). In each case the head of the femur was dislocated upwards and backwards and the limbus, in particular in its postero-superior aspect, compressed and inverted into the joint so that it formed a partial roof over the true acetabulum – the ligamentum teres emerging through the crescentic gap bounded by its free margin. The acetabulum was invariably shallow and somewhat poorly developed and the head of the femur usually smaller than normal, less spherical, and often pitted and discoloured. Marked joint instability was of course present.

The range in pathological change just described was found in otherwise normally formed infants as well as in those with associated malformations of the neuromuscular system or urinary tract. Every combination of the four types of hip-joint

illustrated in Figs 1 and 2 was encountered in one or other of the hips of a single infant during the course of the study. This observation suggests that the whole spectrum of abnormality is a single pathological entity. This belief is also supported by clinical observations respecting the progression and regression of the condition after birth, and by epidemiological studies respecting associated maternal and foetal factors (Dunn 1969). If this is so, then it would appear rational to define congenital dislocation of the hip as: An anomaly of the hip joint, present at birth, in which the head of the femur is, or may be, partially or completely dislocated from the acetabulum.

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Some Observations on Fractures of the Clavicle

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Injury to the clavicle is one of the more common fractures: diagnosis is easy, treatment usually simple and serious complications surprisingly rare. Probably as a result of these features very few references appear in the literature except to describe various forms of splintage and bandaging.

This paper reviews 550 clavicular fractures and presents the main clinical and radiological features.

Age: Fractures of the clavicle occur at any age, but are predominantly injuries of childhood; 48% (264) of this series were aged 10 years or under. From this age onwards there is a steady decline in frequency until the 25th year, after which the incidence is constant (Fig 1). When the age incidence is further analysed it is seen that the maximum number occurred in the fourth year of life (Fig 2).

Sex: The distribution between the sexes was uneven, males accounted for 70% and females 30%. This male predominance, seen in all age groups, was particularly noticeable in the 15–35 year period, and was quite marked even in those under 10. During teenage and early adult life this distribution can be accounted for by the more frequent injuries in the male at sport and in road traffic accidents; in earlier age groups, to the more adventurous spirit of the young male.

Site and type of fracture: Fractures of the clavicle are generally divided into four groups – greenstick, oblique, transverse and comminuted. The

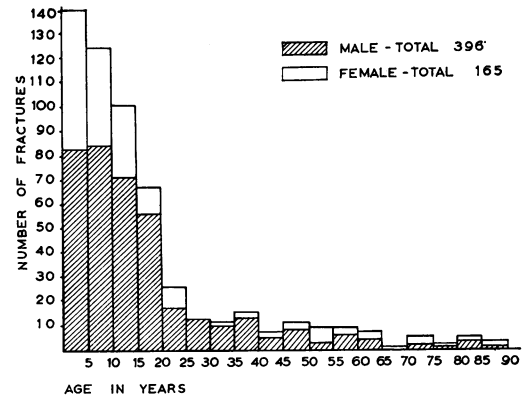


Fig 1 Age and sex distribution of 550 cases of fractured clavicle

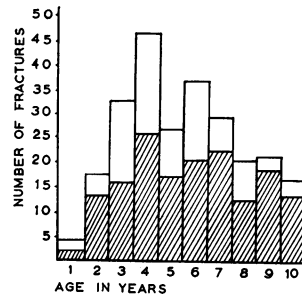


Fig 2 Age distribution for fractures of the clavicle in children of 10 years and under (264 cases)

frequency of each group in this series was 33%, 29%, 29% and 9% respectively.

All radiographs were examined to determine the exact site of each fracture. To make comparison possible the length of the lateral fragment was converted to a percentage of the total length of the bone. Using this figure it was possible to construct a graph to show the site of fracture against its incidence. The commonest site was found to be where the lateral fragment represented 42% of the length of the whole bone (Fig 3). It was further noted that particular fractures tended to occur at different sites. The typical oblique fracture (Fig 4) occurred at the junction of the middle and lateral one-third of the bone, and the transverse fracture (Fig 5) nearer the centre.

Age also appeared to play a part in determining not only the type of fracture, but also its site. Under the age of 10 years almost all fractures occurred towards the lateral end of the bone and were predominantly oblique in type. After the tenth year transverse fractures became more common, the site of fracture tending to shift medially. Fractures of the medial third of the bone occurred rarely and were transverse in type.