50 Years Ago in CORR

Congenital Dislocation of the Hip – Its Causes and Effects

William K. Massie MD CORR 1958;8:103–121

This month we highlight developmental dysplasia of the hip in our monthly symposium. Until recently, this entity was known as “congenital dislocation of the hip” (CDH). The term “developmental dysplasia of the hip” (DDH) first appeared in the title of an article (as listed in PubMed) only in 1992 [12] although the concepts were described throughout the 70s, perhaps earliest in an article by Ruth Wynne-Davies [13]. The latter term now seems preferred: from 1992 until the end of 2007 “developmental dysplasia of the hip” appears in the title 304 times in PubMed, while “congenital dislocation of the hip” appears in the title 139 times. DDH clearly implies a developmental condition, a point made by Massie [6] in an article published 50 years ago in CORR. Massie noted that no dislocation of the hip could occur embryologically because the joint is not developed, and rather the pelvis and femoral anlagen are one [6]. By seven weeks of development, at the end of the embryologic stage, the joint space develops by autolytic digestion of the mesenchyme [4]. Massie further noted that at the beginning of the joint development, the acetabulum is deep and becomes more shallow by the time of birth. He suggested “*Dislocation before the weight-bearing age rarely is reported*, though dysplasia or subluxation is recognized with progressive frequency due to the

emphasis on early signs and symptoms” [6] (italics are those of Massie). This comment seems surprising today given early diagnosis of DDH with well-known signs and ultrasonography. However, good diagnostic signs were widely known only later. In 1929 Putti [11] described only vague signs of preweightbearing diagnosis, mainly a short or outwardly rotated limb. According to Barlow [2], Ortolani first described his now well-known sign to diagnose CDH in newborn infants in 1937 [8], but his early works were in Italian and were likely not well-known [8–10]. (Ortolani’s sign required recognition of the reduction of a dislocated hip.) Barlow described his sign (which, in contrast to that of Ortolani, required the dislocation of a located hip) in 1963 [1]. With either sign, the hip capsule would have been lax.

Massie argued capsular laxity was a primary cause of postnatal subluxation and dislocation (and credited Howorth [5] with the notion as a primary cause). He stated, “If the many etiological suppositions appearing in the literature in the past century were to be discussed here, the purpose of this chapter would be defeated. Rather, evidence will be given to support the single simple supposition that a pathologic relaxation of the joint capsule exists, and that all other pathologic changes develop subsequently as the result of simple mechanical stresses” [6]. (Readers

may glean some of these many “etiological suppositions” from this month’s Classic.) Barlow later confirmed the laxity in these patients, reporting 187 newborn infants with laxity from a total of 11,989 examined [1] (an incidence far exceeding that of DDH). He further suggested about 60% of these resolved spontaneously within the first week of life [1]. Massie noted one argument against the theory of capsular laxity: the occurrence of unilateral hip dislocations when presumably any genetic laxity would be symmetric. He explained this by differences in the in utero positions of the two limbs [6].

Whether laxity is a primary cause remains unknown, although it is appealing in its simplicity: a case of Occam’s razor—“*Entia non sunt multiplicanda praeter necessitatem*” or “The number of entities used to explain phenomena should not be increased unnecessarily” (William of Ockham 1280–1349). Regardless of its appeal, the concept seems to have been rarely explored: one study suggested abnormal collagen chemistry [7] and another demonstrated an increased occurrence of generalized joint laxity in patients with DDH [3]. For the present, the hypothesis that capsular laxity is a primary cause of DDH remains largely untested.

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