Club foot

Diagnosis of a club foot is easy. In contrast, it is the prognosis that is difficult and it is not a simple task for the surgeon to forecast accurately the outcome of treatment when the child is first seen. This reflects the problem of accurate measurement of the severity of the deformity, not only in static terms but also in relation to rigidity and degrees of stiffness. Lack of precision complicates the initial assessment and makes comparison between different methods of treatment and the reported results almost impossible.

Diagnosis

The first priority of examination is to establish whether there is a fixed structural deformity or a postural attitude that has resulted from the baby's position in utero. Severe deformity is associated with fixed equinus and varus of the heel, which is small and tucked up towards the medial malleolus, with a deep medial plantar crease and supination of the forefoot. A normal foot is supple and mobile and can readily be dorsiflexed, so that the dorsum comes into contact with the anterolateral aspect of the shin.

Early management

Of the variety of different techniques used for the early management of club feet, the use of adhesive strapping and repeated gentle manipulations, attributed to Robert Jones, is the most effective. It is cheap and easy and can be safely performed by physiotherapists who see the child two or three times a week. With the use of this method from birth, it is usually possible at 6 weeks to distinguish mild varieties of talipes likely to respond to conservative measures alone from those that will require surgery.

Surgical management

Early operation is an advantage as there is less time for the relatively soft bones of the developing foot to become deformed. Green and Lloyd Roberts found no significant difference, however, in the outcome of operations in children who were treated surgically up to 20 weeks, and for optimal results they regarded 14 weeks as their upper limit.¹

There are two main surgical approaches, either to

concentrate on the correction of the hindfoot as suggested by Attenborough,² and deal with forefoot problems if necessary at a later date, or to carry out a primary radical correction of the whole foot as advocated by Turco³ and Clark and Silk.⁴ Radical operations expose the foot to the hazard of joint stiffness and overcorrection. Attenborough's thesis is based on his observation that the fundamental abnormality is the fixed equinus deformity of the talus, which, even in a normal foot, gives rise to inversion of the subtalar joint and thus of the forefoot. He set out to correct the hindfoot only and found the forefoot usually followed at the same time, except for residual varus. A recent modification of the posterior approach, always carried out from the medial side, is to utilise a lateral incision as well, if necessary, or primarily in the less severe case to deal with soft tissue tethering in the region of the peroneal tendons.⁶

The more radical school base their operations on the observation that the essential abnormality of the club foot is the dislocation of the navicular and forefoot to the medial side of the talar neck. It is this displacement that they aim to correct by a 'pantalar' reduction.⁵

If full correction is not achieved early there are a number of additional, mainly soft tissue, procedures—for example, tibialis anterior tendon transfer—available to improve the foot before skeletal maturity, but, if all efforts fail, the child can then be certain of a plantigrade foot by means of a bony operation. The triple arthrodesis or stabilisation procedure introduced in the 1920s for gross deformities is still sometimes necessary today for the difficult club foot but is essentially a confession of failure of primary treatment, as it results in a stiff hindfoot.

Outcome

It should be clearly understood by all involved in the surgical management of children with club feet that, even with the very best results possible, the feet will never be completely normal. Some imperfection always persists; a minor residual deformity, loss of movement, shortening of the foot, or thinness of the calf. Based on assessment in relation to mobility, function, and appearance, Green and Lloyd Roberts found a satisfactory outcome in 59% of a series of 70 feet treated in the first six months of life and

assessed at an average of 15 years.¹ Comparison with other methods of management in previously reported series is difficult because of their relatively early age of review, or because of less stringent criteria of success. Turco, in a report on 33 feet reviewed 10–15 years after a radical one stage correction performed between 1–2 years of age, found a satisfactory outcome in 84%.⁷ He concentrated, however, on form rather than function and mobility and excluded the ability to play games and the associated aching that sometimes follows.

Overall, it is the preservation of useful movement, particularly that of the ankle, that is the key to success, and minor residual deformity is of little consequence.⁸

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LESLIE KLENERMAN
Northwick Park Hospital
and Clinical Research Centre,
Harrow,
Middlesex HA1 3UJ