

## Clubfoot – Today

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The incidence of club foot is 4 to 6 per 1000 births and majority of the babies with club foot are born in the developing countries.<sup>1</sup> Multiple factors are responsible for this deformity. The vascularity and the accessory muscles of the feet also have an important role to play.<sup>2,3</sup> We also know that there is an abundance of collagen in the ligaments which are stretchable but the collagen in Tendoachillis is not stretchable therefore, Tenotomy has to be done.<sup>4</sup> Out of many classifications of club foot, Pirani classification and the Dimeglio classification are accepted all over the world today.<sup>5</sup> The radiography in club foot has many pitfalls<sup>6,7</sup> whereas, the ultrasonography shows significant correlation as the non-ossified Talar bones can also seen.<sup>8</sup> The computerized pedobarography although popular in some centers also does not correlate with the clinical outcome.<sup>9</sup> Even today the treatment of this deformity although looks simple is still challenging as it has high rate of recurrence in some countries.

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The Ponseti Method of manipulation and casting is well accepted by majority of the surgeons all over the world. When we compare the two original articles by Kite and Ponseti we find similarities on 17 points and dissimilarities on 12 points.<sup>10</sup> The experience of most of the club foot surgeons is that 70 percent of the club feet can be corrected non-operatively. Whereas, according to Brockman the correction can be achieved by manipulation only in 30 percent cases.<sup>11</sup> The Ponseti method also has pitfalls specially during the casting and bracing. The poor compliance of bracing has very high rate of recurrence. In 1992 we wrote an article that the so called resistant club foot are really not resistant.<sup>12</sup> The encouraging part is that the Ponseti method works in older children also and this has been proved by many surgeons from USA<sup>13</sup> and from India.<sup>14</sup>

Each foot has its own personality and the same surgical procedure cannot be done in all cases. Therefore, decision has to be taken on the table and the approach should be “a la carte” (minimal but complimentary to non-operative)<sup>15,16</sup>

How true is this concept that surgery makes foot stiff and painful? Most of the surgeons agree that indicated surgery when correctly done is quite rewarding. We have to accept this fact that surgery has drastically declined and so we have taken a full circle starting from conservative treatment to early soft tissue surgery to neonatal surgery to radical release to “a la carte” and now to Ponseti method of conservative treatment.

Today we know that the club foot relapse takes place in the first three to four years. The causes can be poor post operative care including bracing, inadequate surgery and improper choice of the procedures. This recurrence can be well treated by remanipulation and Anterior tibial tendon transfer. The treatment of rigid, relapsed, neglected and Arthrogryptic club feet remains an enigma. Joshi's external stabilizing system (JESS) is cost effective and works on the principal of tissue growth by distraction. A modification in JESS by using spring distracters gives better result.<sup>17</sup> The indication for treatment of neglected club foot in adults is only cosmetic. In about 20-30% of cases there is no full radiological correction but the child foot is cosmetically acceptable it is pain free and parents are happy. Such feet are called as foot at risk.<sup>18</sup>

On the long term follow up it has been found that feet treated by manipulation and casting are strong, supple and pain free. On functional rating Laaveg and Ponseti found excellent to good result in 74 percent cases,<sup>19</sup> but computerized study of the gait indicated that gait parameter did not reach the normal.<sup>20</sup> However if we compare the club foot of yesterday with today we find that today the etiology is clear, pathoanatomy is better understood, kinematic concept is clear, we have better method of manipulation, minimal surgery and use of JESS have given very satisfactory results. Moreover we have a much better brace and as a result we have a low recurrence rate. Some newer techniques to avoid

Achilles tenotomy are still in infancy and include dynamic dorsiflexion splint and Botox injection into the gastrosoleus muscle.<sup>21</sup>In future because of early detection of clubfoot by ultrasonography in utero we can imagine manipulation or surgery in-utero for correction of the deformity thus optimizing clubfoot treatment and reducing the recurrence.

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