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Operative management of rigid congenital club feet in Bangladesh

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Abstract We report the early results of the surgical treatment of 59 rigid congenital clubfeet in 42 patients. All the feet were operated on in the same hospital by using a one-stage posteromedial release in 41 patients. The patients were divided into two groups as 24 patients (32 feet) had come to the hospital from rural areas, whereas 18 patients (28 feet) all came from the local semi-urban area. After an average of 2 years and 3 months 44 feet were graded either excellent or good, 7 were fair, and 8 had not been adequately corrected. The best results were seen in children who were operated on between the ages of 1 and 3 years. Those from the semi-urban area and who received adequate long-term postoperative care were slightly better.

Résumé Nous rapportons les résultats précoces du traitement chirurgical de 59 pieds bots congénitaux rigides chez 42 patients. Tous les pieds ont été opérés par la même équipe qui a réalisé une libération postéromédiale en un temps chez 41 malades. Les malades ont été divisés en deux groupes: 24 (32 pieds) provenaient de régions rurales, alors que 18 (28 pieds) venaient de zone sub-urbaine. Après un délai moyen de deux années et trois mois 44 pieds étaient ou excellents ou bons, 7 avaient un résultat moyen, et 8 n'avaient pas été corrigés suffisamment. Les bons résultats sont survenus chez des enfants qui ont été opérés entre les âges d'un et trois ans. Les patients de la zone sub-urbaine et qui ont reçu des soins postopératoires adéquats ont des résultats légèrement meilleurs.

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Introduction

In developing countries congenital clubfeet of the newborn often present late for medical attention, and parents only become concerned when their child starts to walk on a deformed foot. By this time the foot is likely to have become very rigid.

Congenital clubfoot is a complex deformity that is difficult to correct and has a tendency to recur at least up to the age of 6–7 years [7]. There are four components: equinus, varus, adductus, and cavus [7] and the results of any form of treatment are related to the severity of the deformity. The goals of treatment are to eliminate or at least reduce the four components of the deformity so that the patient has a functional, pain-free, mobile plantigrade foot, which is free from callosities and does not need to wear modified or special shoes. However, this is difficult to achieve in many clubfeet as the deformities of the bones, joints, and ligaments of the feet and ankles are often too severe to be fully corrected [4].

Materials and methods

Forty-two patients were operated on at our clinic between January 1995 and June 2000. They came from two different areas of Bangladesh and this resulted in different postoperative management. One group was from a very remote rural area some 220 km from the clinic and the other group came from the local semi-urban area. All the patients were brought to our clinic by a non-government organization (NGO) with an interest in disability as part of a community-based rehabilitation (CBR) project. The cost of treatment and of follow-up was largely met by this NGO. All of our patients came from very poor families and most of them had not received any previous treatment due to lack of money and education. We included in this study patients whose feet were untreated, were very rigid with callosities, had been used for walking and had failed to respond to non-operative treatment (serial plaster of Paris casts). Twenty-three patients had bilateral and 19 had unilateral clubfeet. Twenty-three were male and 19 female. To assess the results of clubfoot surgery we used the criteria of Turco [8], i.e., excellent, good, fair and poor, in which 'poor' signifies the need for further surgery.

The youngest of the children was aged 6 months and the eldest 17 years, the average being 4 years 4 months (Table 1). Twenty-

Table 1 Age at operation of 42 patients

Age at operation	Number of patients
6–11 months	3
1–2 years	10
2–4 years	11
4–8 years	12
8–12 years	4
12–17 years	2

three of our patients were between 2 and 8 years at the time of surgery. A one-stage postero-medial release was performed in all the patients except one 17-year-old boy with bilateral clubfeet both of which required triple arthrodeses.

Results

Group A: patients from a remote rural area

Twenty-four patients (16 male and 8 female) were from a very remote isolated district. This group contained 13 bilateral and 11 unilateral clubfeet. A 16-year-old girl with bilateral clubfoot had only had the right foot operated on at the time of this study and 2 children were lost from follow-up. The remaining 34 feet were followed-up for an average of 2 years (6 months – to 3 years) (Table 2). The age at operation ranged from 14 months to 17 years with a mean age of 7 years. The results in the 34 feet of this group were excellent in 3, good 21, fair 6 and poor 4. There were no intra-operative complications but six patients developed a wound infection. The patients were discharged on the seventh postoperative day and at 3 weeks all the sutures were removed and a long leg plaster cast applied for 4 weeks with the knee flexed to 90° and with the foot in 60° of lateral rotation. Postoperative management including the care of complications was performed by local NGO paramedical personnel. The patients were advised to wear 'reverse shoes' for several years. As it was expensive for these patients and their families to travel to our clinic one of our senior surgeons (F.H.) visited this group once a year. At the first consultation it was often found that the original postoperative plaster cast had rapidly disintegrated and had not been holding the limb in correct position. At later consultations it was usually noted that the patients were not wearing any shoes and had received neither

physiotherapy, splintage nor supervised walking practice.

Group B: patients from a semi-urban area

Eighteen patients came from a semi-urban area 25 km from our clinic, and contained 11 males and 7 females with 10 bilateral and 8 unilateral cases. A 2-year-old boy was lost from follow-up. The age at operation ranged from 6 months to 9 years with an average of 6 years. Of the 25 cases, 12 were excellent, 8 good, 1 fair, and 4 were poor. There were no intraoperative complications, but one patient developed gross postoperative edema of the foot followed by skin necrosis. There were four superficial wound infections. The postoperative management was the same as in Group A, and was undertaken in our clinic. We visited all the children in this group every 3 months and when necessary arranged further management such as special shoes, 4 weeks in a below-knee walking plaster, physiotherapy, supervised walking practice, locally made splints and general and specific health education.

Discussion

It is widely accepted that complete and permanent correction of an untreated and rigid clubfoot is often difficult and that there is an approximate 50% risk of recurrence [1, 2, 3, 5, 6]. In this study we were only concerned with severe untreated feet often presenting after the child had started to walk.

Operative treatment is only indicated when conservative management has either failed to correct the deformity, or to maintain the corrected position. It can be seen from Figure 1 that the results achieved in group B (semi-urban) where there had been better follow-up were slightly superior to those in Group A (remote rural). Study of the two groups of patients revealed that those from a semi-urban area and who received adequate long-term postoperative care had slightly better (80% >70% good or excellent) results than those for patients from a rural area. We believe that most failures after an adequate one stage posterior medial release are not due to a loss of correction during the postoperative period of immobilization in plaster but to a late spontaneous relapse.

Table 2 Follow-up period in months

Period of follow up	Number of feet
6–11 months	14
12–23 months	15
24–35 months	22
36–47 months	2
48–59 months	2
60–71 months	4

Fig. 1 Results of the two groups

This emphasizes the need to for proper surveillance and adequate treatment after the foot has been released from the postoperative plaster. Whenever possible this should be arranged before starting treatment and it is generally accepted that treatment should be started at the earliest possible age.

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