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Immediate Fitment of Prefabricated Orthoses in Corrective Surgery Camps

S Keshkar, R Kumar, AK Agrawal, A Equebal, P Lenka, N Jungindro Singh

National Insitute for the Orthpaedically Handicapped, Kolkata

Abstract

In surgical camps, deformity correction and immobilization by Plaster of Paris (POP) cast is a routine method followed in about four weeks by removal of sutures/ plaster and provision of orthosis. A new technique was developed in which after corrective surgery, instead of POP cast pre-fabricated orthosis were fitted in 236 cases with lower limb deformities following post polio residual paralysi and cerebral palsy.

Use of pre-fabricated orthosis, immediately after surgery in these camps reduced the cost markedly besides being convenient to fit the orthosis in one go.

Key Words: Surgical Camp, Prefabricated Orthosis, Locomotor disability.

Introduction

Majority of the population in India live in the villages, remote and backward areas. According to National Sample Survey Organization (NSSO) report 2002, about 1.86% population of our country is suffering from one or the other kind of disability, out of which majority (57%) is of locomotor disability[1]. Since most of them are living in the remote areas, their sufferings are further aggravated due to poverty, ignorance and lack of availability of rehabilitation services. Camp approach is an accepted method to make rehabilitation services reach their door steps.

Camps are usually done for awareness, distribution of aids and appliances or for surgery The surgical camps are being done in three stages[2]: (1) Selection of the patient for corrective surgery, (2) Corrective surgery on selected patients and then immobilization of the corrected limb on POP cast and (3) Follow-up after 4 weeks to remove sutures and POP and fitment of appropriate orthosis for long-term use.

It was felt that application of POP cast for immobilization of limb after corrective surgery was expensive and could be avoided in some cases. Instead the limb could be directly fitted with the modified version of orthosis. it ensured early and definitive provision of orthosis.

Material and Method

From August 2004 to March 2008, twenty two surgical camps were organized for deformity correction in patients at different places around the country. Camps were held in collaboration with government, public and private sectors. A total of 1026 patients were benefited by surgery, out of which the majority were suffering from Post Polio Residual Paralysis (PPRP) followed by Congenital Talipes Equino Varus (CTEV), Cerebral Palsy (CP), post-traumatic deformity and post burns contractures. These camps were conducted in three stages. We used the new technique (fitment of prefabricated orthosis immediately after surgery) in 236 cases of lower limb deformity in PPRP and CP cases only, where feasible.

In this method, surgical and orthotic teams were required simultaneously. During the selection phase, the patients selected for surgery were prescribed appropriate orthosis by the orthopaedic surgeon. The measurement of the prescribed orthosis was done by the orthotic team pre-operatively.

Authors and their Affiliations

Dr Sanjay Keshkar, MS (Ortho), Asst. Professor (Ortho.), National Iinstitute for the Orthopaedically Handicapped (NIOH), Kolkata

Dr Ratnesh Kumar, MS (Ortho), DNB (PMR), Director, NIOH, Kolkata

Dr AK Agrawal, MS (Ortho), Professor & HOD, Dept of PMR, CSM Medical University, Lucknow

Dr A Equebal, MD (PMR), Asst Director (Training), NIOH, Kolkata

Dr P Lenka, BPO, M Tech., PhD, Lecturer (P&O), NIOH, Kolkata

Dr N Jungindro Singh, MBBS, DNB (PMR)Trainee, NIOH, Kolkata

Bibliography

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Correspondence

Dr Sanjay Keshkar
Asst. Professor
National Institute for the Orthopaedically Handicapped
BT Road
Bon- Hooghly
Kolkata – 700090

E-mail: s_keshkar@yahoo.co.in

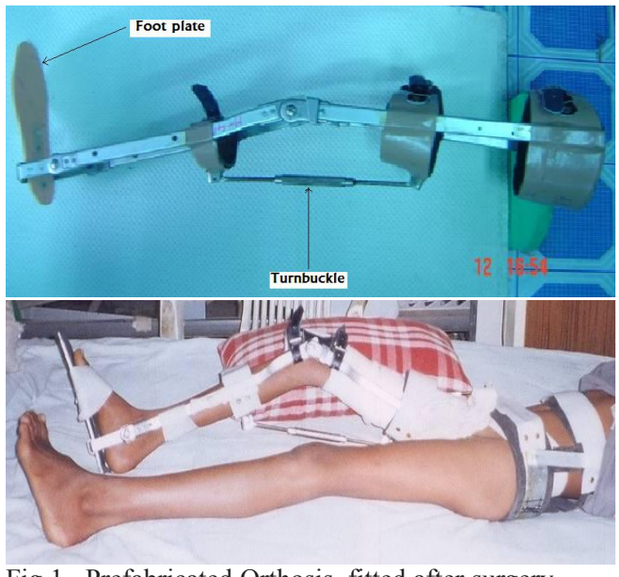

Fig 1. Prefabricated Orthosis, fitted after surgery.

Fig 2. Orthosis fitted after surgery converted for long term use by replacement of foot plate with shoe.

During the surgical phase, surgical team went to the operation theater (OT) for corrective surgery and orthotic team went to the workshop (a nearby room from OT was converted temporarily into a workshop) for fabrication and assembling the orthosis. After surgical correction, the patient was brought to the recovery room without plastering, where fitment of the pre- fabricated orthosis was done. From there the patient was sent to the ward.

Conventional orthotic kit of Artificial Limb Manufacturing Corporation, India (ALIMCO) was modified for the purpose of immediate fitment after surgery. In the orthoses two modifications were done. Foot plate was used instead of fitting a shoe to the orthosis. The foot was secured using Velcro straps. In addition a turnbuckle was fixed to the orthotic joint for the surgically corrected joint to keep the limb under maximal possible corrected position initially to avoid neurovascular complications which was later stretched gradually on daily basis by adjusting the turnbuckle (Fig 1).

Patients were kept in the ward for 2-5 days and then discharged with advise about the use of orthosis. Patients were followed up after four weeks when the sutures were removed and readjustment of orthoses were done by removal of turn-buckle and replacing the foot-plate by shoes. The same orthosis was thus adjusted for long term use for the patient (Fig 2).

Complications like Pressure Sore, Local Swelling and Neurovascular Compromise were also seen in a few cases which were minor and managed by medication and local treatment.

In the camps surgery was done only for those patients who needed minimum surgical procedures with maximum expected results.[3] The procedures were Steindler's, Tendo Achilles lengthening, postero-medial soft tissue release, Yount's, Soutter's, Burn contracture release, Modified Jone's, etc. (mostly soft tissue surgery). Patients requiring bony surgery were neither operated in the camps nor for this new technique of immediate fitment of orthosis.

Observation and Results

Over 9000 patients were screened through different camps, out of which 1026 patients were operated. Majority of the camps were done in the state of Uttar Pradesh followed by the states of Madhya Pradesh, Chhattisgarh, Orissa, Uttranchal, West Bengal and Rajasthan. Most of the cases were of PPRP followed by CTEV and CP. Majority of them were in the age group of 5-10 years (Table 1).

Age	**Total No.**	**PF Orthosis**
0-5 yrs.	293	12
5-10 yrs.	508	151
10-15 yrs.	135	73
15-20 yrs.	56	—
20-25 yrs.	23	—
> 25 yrs.	11	—
Total	**1026**	**236**

Table 1. Age distribution of patients operated. PF: Prefabricated Orthosis fitted.

Cause	Total No	PF Orthoses
Post Polio	531	191
CP	116	45
CTEV	290	00
Post Trauma	35	00
Post Burn	54	00
Total	**1026**	**236**

Table 2. Cause of deformity of patients operated. PF: Prefabricated Orthosis fitted.

Out of the 236 patients where surgical correction was followed by immediate fitment of orthosis, Ankle Foot Orthoses (AFO) was fitted in 120 patients, Knee Ankle Foot Orthosis (KAFO) in 69 patients and Hip Knee Ankle Foot Orthosis (HKAFO) in 47 patients. 191 patients had PPRP and 45 had CP. All those patients who were fitted with immediate prefabricated orthoses came for follow up. Success rate of patients who underwent immediate fitment of prefabricated orthoses was found to be 98%.

Discussion

Camp approach is considered to be one of the quickest way to reach the needy population in a country where facilities for rehabilitation of the persons with disability are minimal. Most camps are financed by the public or private sectors. POP casts tend to increase the costs keeping in view the large number of patients needing it. The plaster casts have their own disadvantages after surgery since surgeons find it inconvenient to open the cast and defer cutting it to take care of the surgical wounds and their complications. After cast removal, patients go without orthosis unless fitted immediately. To the organizers it adds up to the costs. Fitting the immediate orthosis not only reduced the possible complications like pressure sores, local swelling and neurovascular compromise etc. but also ensured that the orthoses where needed were fitted right in the beginning with minor modifications at the follow up period thereby cutting the costs tremendously as well as ensuring better rehabilitation and possible reduction in the complications of the POP casts.

Conclusion

After corrective surgery, immobilization of the corrected part by POP is routine method. However in some cases one can immobilize the corrected part by the newly designed prefabricated orthosis with added advantages. It was cost effective and convenient.

References

1. Ray S. Summary of Survey Findings. In: Ray S, ed. Disabled Persons in India. Kolkata: NSSO, Min. of Statistics and Program Implementation, Govt. of India; 2003: 8-11.
2. Khare R, Agrawal AK, Kumar R. Polio Rehabilitative Surgery Camp. IJPMR 2007; 18 (1) : 21-3.
3. Krol J. Basic techniques. In: Krol J, ed. Rehabilitation Surgery for Deformities due to Poliomyelities. New Delhi-India: Jaypee Brothers; 1994: 37-48.