



LOGISTICS OF ORGANIZING MAMMOTH SURGICAL DISABILITY CAMP (RAHAT CAMP) IN TRIBAL AREA OF CENTRAL INDIA.

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KEYWORDS :

INTRODUCTION

Departments of Orthopedics across the country are already overburdened with trauma patients and only few Physical Medicine and Rehabilitation (PMR) departments established in India yet. Physically challenged people are therefore neglected and do not get the priority for surgery and Rehabilitation. Being poor they cannot seek corrective surgery and Rehabilitation in private hospitals. Camps are therefore required for correcting deformities and rehabilitation in physically challenged people.

Physically disabled patients teach many things through their disability to many Orthopaedicians and Rehabilitation Physicians (Physiatrist). They teach us about careful examination, muscle charting, gait evaluation, soft tissue handling and much more. Primarily they teach us to carefully observe and think about the patients and effects of treatment in holistic way.

Cases of post-polio residual paralysis (PPRP) are still found in developing countries, though poliomyelitis is in its eradication phase. Other than poliomyelitis conditions making individuals physically challenged are Cerebral Palsy, Meningomyelocele (MMC), Congenital malformations like Club foot, Syndactyly, Polydactyly, Post Traumatic and Burns Contracture of hand and feet are common problems in community. Correction of deformity using simple surgical and/or nonsurgical procedures may facilitate and improve physical independence⁽¹⁾. In India most of the population live in rural areas, so most of the disabled and crippled persons are unable to reach out to the tertiary health center for Corrective Surgeries and Rehabilitation.

The Rahat Camp which was organized has become an example of what can be achieved by Public Private Partnership (PPP).

Mandla⁽²⁾ is a Tribal District situated in the east-central part of Madhya Pradesh (India). A District with a glorious history, Mandla comprises of numerous rivers and endowed with rich forests. Difficult terrain has made it difficult to provide educational facilities for the students in many remote places. Socially less developed, economically weak, and conservative attitude, blind faiths, unhygienic habits, smoking, alcoholism, careless attitude towards health and lack of education are the main reasons which have resulted in the poor literacy status and educational backwardness of the district.

The total population of Mandla District is over Ten lakh⁽³⁾ with more than 65% of the population of Mandla district live below the poverty line. Tribals account for 70%, followed by OBCs (20%) and Scheduled castes (7%).

Mandla is selected for the camp because of negligence toward the health in district, lower educational status, poverty, poor transportation, inadequate health infrastructure in district and false social belief towards disease.

MANDLA RAHAT CAMP

RAHAT camp was organized by the State Government in collaboration with Rotary International at Mandla in March 2010. The camp was organized by a combined effort of Rotary International and Madhya Pradesh (MP) Government. Planning of camp was done 1 year before the starting of the camp, in planning of camp venue of camp was decided to be at Mandla District.

Over 50,000 Patients were benefited from OPD basis. About 9,000 patients operated in this mega camp from various faculties like General surgery, Urosurgery, Plastic surgery, Pediatrics surgery, Obstetrics and Gynaecology, Orthopedics, Ophthalmology, Otorhinolaryngology, and Dentistry.

The study was aimed at finding out the logistics of organizing such a mammoth camp along with advantages and disadvantages of operative procedure for Orthopedically handicapped persons in such camp.

MATERIAL AND METHOD

This study was retrograde observational study for evaluation of logistics of organizing Mammoth surgical disability camp (Rahat Camp) in Tribal area of central India. First, we had a meeting with Chairman of the camp, the camp convener, general secretary of the camp and members of the camp. We interviewed all above authorities and got their experiences and information regarding the camp.

After that we met the team of doctors who were sent for the camp purpose. From the duty doctors, we got the records of patients operated in the camp. Then we separately interviewed the duty doctor and asked them about their experiences regarding the camp.

We visited District Mandla and met their District Collector, Superintendent of Police, President of Zila Panchayat Mandla, Chief Medical Officer and collected their experiences and information regarding the Camp. We also obtained the records of patients, operated for Physical disabilities from District Hospital Mandla. Then we went through the files of 114 patients operated for physical deformities.



Image-1: Mandla Rahat Camp OPD

SCREENING OF PATIENTS

In this camp the OPD time was 9.00am to 5.00pm, 3 teams were examining the patient at a time and some time only 2 teams were available for screening of patient. The total effective time was only 7 hours (420 minutes) and in this duration examined on an average 798 patients every day in this 8 day mega camp (last day OPD was not run) it means that per patients only one minute was available for examination and prescription of treatment.

In this camp, we operated only 114 patients out of 5558 patients (2%) while remaining patients (98%) were left untreated.

Table-1: Day Wise Breakup Of Orthopedic Operations

S.No	Day	Date	No. Of Operation
	Saturday	6/3/2010	02
	Sunday	7/3/2010	11
	Monday	8/3/2010	16
	Tuesday	9/3/2010	19
	Wednesday	10/3/2010	18
	Thursday	11/3/2010	17
	Friday	12/3/2010	16
	Saturday	13/3/2010	15
	Total		114

Table-2: Indications for Surgery

S/NO	TYPE OF DEFORMITY	NO. OF PATIENTS
1	Neglected CTEV -Unilateral	21
	Neglected CTEV -Bilateral	20
2	Post traumatic and burn contracture	13
3	CP fixed flexion deformity of the knee	3
4	PPRP fixed flexion deformity of the knee	5
5	PPRP pes cavus	3
6	CP equinus deformity	10
7	PPRP equinus deformity	7
8	cerebral palsy with tight adductors	2
9	Lipoma	3
10	Exostosis	3
12	Polydactyly	5
13	Syndactyly	3
14	Cubitus varus	1
15	Genu Valgum	6
16	Osteomyelitis of distal phalanx of great toe	1
17	VIC	3
18	Cyst	3
19	Colle's fracture	1
20	foreign body	1
	Total	114

CTEV- Congenital tallipes equinovarus
 PPRP- Post-polio residual paralysis
 VIC- Volkman ischaemic contracture
 CP- Cerebral palsy

Table- 3: Procedure Undertaken In The Camp

Type of procedures	Number
Posteromedial soft tissue release (PMSTR)	49
PMSTR with Dwyer's osteotomy	3
Triple fusion	10
Contracture release	14
Supracondylar osteotomy of Femur	9
Younts release	4
Japa's procedure	3
Excision of super nummery digits	5
Release of syndactyly	3
Excision of Lipoma	3
Hamstring release	4
Split skin graft	14
Tendoachillis lengthening open	6
Tendoachillis lengthening percutaneous	10
Steindler's procedures	5
Lambrunidis procedure	1
French osteotomy	1
Disarticulation of distal phalanx of great toe	1

Percutaneous plantar fasciotomy	16
Adductor tenotomy	2
Robert jones procedure	1
Maxpage operation	3
Foreign body removal	1
Closed reduction under GA	1
Excision of Cyst	3
Excision of Exostosis	3
Total	175

***Multiple procedures done on the same limb have been mentioned separately for a better idea of type of procedures undertaken.**

FOLLOW-UP

We went through the files of 114 patients operated for Orthopedic deformities. Among those patients addresses of 110 patients were found whereas address of 4 patients was not documented. Out of them 45 patient's Postal addresses was not proper. Then we communicated with the patients in the form of post cards. At 29th November 2010 we planned follow up camp in district hospital Mandla for that we sent post card, we also called them by phone, and gave advertisement in local newspaper for follow up.

During our 1st follow up out of 110 patients only 4 patients came for follow up. We took photographs of all patients with their consent and proper documentation was done. Then we again planned next follow up on 18th May 2011 at District hospital Mandla, we again sent post card to all patients for their follows up. We took help from district Collector and CMO of District hospital mandla to call all patient operated for Orthopedic deformities in mandla camp, we also distributed pamphlets which contained essential information about camp follow-up, in all villages of Mandla District. Finally, we visited the villages of Mandla District at all patient's postal addresses.



Block wise distribution of Mandla camp patients.

Image-2

We did home visits up to 32 patients and did follow up, Photographs of patient with consent and proper documentation was done.

In our visit we found extreme Poverty and Illiteracy in villagers, which was the main cause of negligence towards health and poor follow up after camp surgery. Then we interviewed the patients, patients' relatives & villagers and asked their experience in the camp and their benefits from the camp.

Table-4: Door To Door Follow-up (on 27 July To 30 July 2011)

Date	NUMBER OF PATIENTS
27/4/2011	8
28/4/2011	8
29/4/2011	10
30/4/2011	6
TOTAL	32

Satisfaction Scale

Name of patient:

A/S:

Dt: Operation done:

Scale

1	2	3	4	5	6	7	8	9	10

1-not satisfied 10 – fully satisfied

We were able to judge the satisfaction scale of nearly 40 patients. Rest of them were not followed up due to poor compliance.

Table-5:Compilation

S/N	Complication	No.	Percentage
1	Overcorrection of deformity	1	2.5%
2	Under correction of deformity	7	17.5%
3	Recurrence of deformity.	4	10%
4	Hypertrophic scar and keloid formation	3	7.5%
5	Postoperative sepsis. (as per H/O by parents)	5	12.5%
6	Postoperative joint stiffness.	4	10%
7	Persistent post operative pain	3	7.5%
8	Postoperative skin necrosis.	1	2.5%
9	Failure of surgery	2	5%

OBSERVATION

Table –6:Result On Scale Of Satisfaction

GOOD	8
FAIR	18
POOR	9
WORSE	5
TOTAL	40

RESULT OF VARIOUS CATEGORIES

CTEV

Result of CTEV correction showed mixed results. We had 11 patients follow up out of 41 patients operated in the camp.

The result of 4 patients was good and 4 patients had fair results, all these patients came for regular follow-ups as per camp schedules. One patient had poor result. In this patient deformity was remained under corrected despite good follow-up because this was a case of rigid CTEV in which only posterior-soft tissue release was not enough.

The result of two patients was worse in which one patient Amir 5y/M removed cast at home and there was no subsequent follow up which caused failure of surgery. The cause of poor follow-up was that poor financial status and patients lived in a remote area where there were no facilities of transport.

BURN AND POST TRAUMATIC CONTRACTURE

13 Neglected post-traumatic and burn contracture patients were operated, but we had only 4 patients follow-up which show mixed results. One patient had good result, while 2 patients had fair result and one patient had poor result.

POST-POLIO RESIDUAL PARALYSIS (PPRP)

Number of cases of PPRP was less as compared with cerebral palsy, mostly was adolescent females and adult male. In most of the patients the surgical procedures done were Triple fusion, Japa's procedure and supracondylar osteotomy of femur.

We had follow-up of 4 case of post polio residual paralysis, one with equino valgus deformity of left foot in whom triple fusion was done and the result was good, patient's deformity was fully corrected and three cases were of post polio residual paralysis with fixed flexion deformity of the knee in which Younts release was done but the result of two patient was poor and one patient had fair result.

CEREBRAL PALSY

Cerebral palsy patients face number of problems like inability to stand, inability to walk, inability to communicate and poor ADL activity. Cerebral palsy formed nearly 8-10% of the total OPD attendance in the camp. We had follow-up of total 9 cases of cerebral palsy patients with different predominating deformity.

We had two patient's follow-up of adductor tenotomy, one patient Sidharth 14 year old cerebral palsy with tight adductors with flexion deformity of knee; adductor tenotomy with Younts release was done. After removal of adductor frame there were no facilities of postoperative Rehabilitation and leads to recurrence of deformity and patient gait was not improved.

Another patient Sanyam 8-year-old cerebral palsy with tight adductor, adductor tenotomy was done. This patient gait improved after surgery. This patient came for all follow ups as per camp schedule. Apart from this, patient took post operative physical therapy and orthotic aid.

We had follow-up of 3 patients of cerebral palsy with fixed flexion deformity of knee. One patient Ramkumar 13 year, a case of cerebral palsy with fixed flexion deformity of knee where bilateral hamstring release was done but this patient was not able to walk after 18 months of surgery, patient can't perform his daily toilet activities due to which patient was socially out casted. Previously patient was able to walk without support around 700 to 800 meter distance and could perform his routine activities (as per h/o by patient attendant and villagers). The cause of poor result was multifocal. After surgery cast was applied for 6 weeks, in this duration patient was completely bed ridden and there was no availability of post operative physical therapy that lead to post operative stiffness, as well as recurrence of deformity. Apart from this, patient's parents not visited for follow –up as they think that once surgery was done, deformity was corrected. The cause of poor follow-up was that parents were very poor they could not afford follow-up expenses. Apart from this, parents were uneducated and not aware about importance of follow-up.

Two CP patients operated for fixed flexion deformity of knee and equinus deformity, Younts release and open Tendoachilis lengthening was done. In these cases the result was poor, the fixed flexion deformity and equinus deformity remained under corrected. The result was poor because of unavailability of Rehabilitation services and poor compliance.

We had follow up of 3 cases of Cerebral palsy with equinus deformity; Tendoachilis lengthening was done in which two patients had fair result while one had poor result.

Another 14-year-old cerebral palsy patient with flexion contracture deformity over left elbow and fore arm, Maxpage procedure was done but the result was poor. The cause of poor result was multifocal like low IQ, early removal of elbow slab, no post operative rehabilitation services and poor compliance.

Patient's parents uneducated as they thought once patient was operated deformity was corrected and no further need of postoperative rehabilitation and follow –up.

OTHER

We had one case of cubitus valgus, in which French osteotomy was done and the result was fair. Patient came for all follow-ups as per camp schedule.

We had one case of a neglected bilateral Genu valgum, supracondylar femoral osteotomy was done but result was worse. The probable cause of failure of surgery was early removal of above knee cast, early weight bearing and no subsequent follow-up due to which patient developed Genu varus deformity.

DISCUSSIONS

The goal of every medical mission is to fulfill a child's greatest wish: "The Chance to be Normal⁽⁴⁾ and/or independent". A unique and successful medical mission model is the foundation for providing safe surgeries for children in remote areas of the world and for working towards a long-term sustainable solution.

Mobile Surgical Units (MSU) ⁽⁴⁾ still required with improved medical facilities. Such views stem from ground realities in rural areas. In every MSU camp, a huge number of patients come to the camp irrespective of the location. It is very difficult for mobile surgical unit to fulfill all expectation of physical disabled patient in one sitting in camp only, without Rehabilitation services and with poor compliance.

Publicity plays a major role in the success of the camp but the reality is that over publicity is as dangerous as lack of publicity, as people think that every condition will be cured in these camps and surgery is the only treatment and follow-up not required after surgery and this attitude of patients leads to failure of surgery and patient faced another mental trauma after physical trauma (Surgery).

CONCLUSION

- Camp is beneficial for poor patient who never attend hospital in their whole life for their deformity and get operated and benefitted.
- Proper planning is must before starting the camp and must plan subsequent follow-up camps for success of any surgical disability camp.
- A good administration team is a must that will provide security, maintenance of the law and order, food supply and transport facility.
- In this camp one-minute time was designated for one patient due to overcrowd in OPD. Its very difficult for surgeon to complete assessment and simultaneously counseling for outcome and follow-up in one minut. Proper assessment time should be given in OPD.
- Preoperative holistic assessment is must to avoid postoperative complication and failure of Surgery.
- Preoperative short and long term goal must be planed by Rehabilitation Team (Physiatrist, Therapist, Orthotist / Prosthotist, Social warkar, psychological and peer counselor Patient and care giver) in case of physical disability corrective surgery camp.
- Such type of camp must have involvement of Physiatrist (Rehab Doctor) because rehabilitation play key role in outcome.
- Lack of rehabilitation facility and poor follow up was the main reason for the failure of surgery and recurrence of deformity, therefore those patients needs Post-operative Rehabilitation must be shifted to Department of Physical Medicine and Rehabilitation (PMR) ward for atleast 6-8 wks to achieve maximum functional level and to gain confidence of patients to improve follow-up.
- It's always better to avoid surgeries in non-compliant and severe mental retarded patients.
- A proper postoperative rehabilitation protocol should be followed for all patients.
- A proper preoperative counseling regarding goal and outcome of surgery, importance of Rehabilitation, is must for good postoperative results.
- Surgical rehabilitation camp should be organized in an area which is linked up with tertiary health care center with Physical Medicine & Rehabilitation (PMR) facility.

For Proper follow up one requires:

1. Documentation of patient's full postal address.
 2. Documentation of pre- and postoperative notes.
 3. Documentation of postoperative rehabilitation protocol.
 4. Must be shift to Physical Medicine and Rehabilitation department for implementation of Rehabilitation Protocol.
 5. Transport facilities for poor patients.
- Once the camp is over organizer did not take much attention towards result of camp surgeries.
 - In camp most of doctors came/call from other state and they never came again. There is less/nil participation of local doctors.
 - In district where camp was organized, government hospital was already suffering from shortage of doctors and could not manage extra burden of the follow up of camp patients.
 - Medical Graduate (MBBS Doctor) are primary doctors posted in Primary and Community health center, but they are not trained for Rehabilitation.
 - Our medical graduate must be trained in Physical Medicine and Rehabilitation so they can manage physical disability or guide them properly.

REFERENCES

- 1) Rahul Khare, AK Agarwal, Ratnesh Kumar, Polio Rehabilitation surgery camps: Indian Journal of Physical Medicine and Rehabilitation (IJPMPR) 2007; 18(1): 21-3.
- 2) <https://www.india.gov.in/official-website-mandla-district-madhya-pradesh>.
- 3) <https://www.census2011.co.in/census/district/321-mandla.html>
- 4) Gajanan Deshmukh, et al, Experiences of Orthopaedic Camp in a Mobile Surgical Unit (Life Line Express) in Central Part of India, Malaysian Orthopaedic Journal 2013 Vol 7; No4.