

## Original Article

# Plastic surgery in rural area: A report

**Pawan Agarwal, R. Kain, V. K. Raina**

Plastic Surgery Unit, Department of Surgery, N.S.C.B. Government Medical College, Jabalpur - 482003, India

**Address for correspondence:** Dr. Pawan Agarwal, 292/293, Napier Town, Jabalpur - 482001, India. E-mail: [drpawanagarwal@yahoo.com](mailto:drpawanagarwal@yahoo.com)

### ABSTRACT

Most of our rural population does not seek the expensive specialist service of distant city hospitals due to social or financial reasons. Existing health system in rural area is not efficient enough to meet the health demands of such vast population. There is only one Government Plastic surgery unit covering the population of 40 lacs leading to huge backlog of patients waiting for reconstructive surgery. To evade this situation a team of Plastic surgeons from Government Medical College Jabalpur goes to rural areas twice a year and has operated in on nine occasions since last 4 years. The activities and experiences of the last nine visits are reported here.

### KEY WORDS

Plastic surgery, rural surgery, camp

### INTRODUCTION

In the state of Madhya Pradesh in India ninety percent of the population lives in villages. Most of our rural population does not seek the expensive specialist services in distant city hospitals due to social or financial reasons. Most of our health resources are located in the urban hospitals and medical colleges, which are unable to fulfill the health demands of such a vast and far flung population.<sup>1</sup> Medical College Jabalpur is a tertiary referral centre and caters to the health needs of surrounding 19 districts. There is only one Government Plastic surgery unit covering a population of 4 million. It is impossible to cater to the increasing demand for plastic and reconstructive surgery in this area leading to long waiting lists for patients. To deal with this situation a team of plastic surgeons from Government Medical College Jabalpur goes to rural areas twice a year and has operated there on nine occasions since the last 4 years. The aims of these camps are to provide cost effective surgery at

the doorstep, teach local doctors and train residents in Plastic Surgery. The objectives of this report are to outline the activities and experiences of the last nine visits by our plastic surgery teams to a rural area in central India. This is an attempt to stimulate others to participate in such projects or undertake new projects on their own. The questions which are addressed in this report include whether it is feasible to do this kind of surgery in a district hospital safely and to compare the cost and quality of work done in a district hospital with the medical college. Funds for the projects are derived from multiple sources including the Red Cross, local Rotary and Lions Clubs and the state government. The local host covers travel cost and local hospitality of the teams.

About three months in advance the arrival of the team is advertised in the local newspapers and announced by the Sarpanch in each village. Health workers in each block conduct a door-to-door survey and a list of patients is made. Then a preliminary diagnostic camp is conducted

at the district hospital and local doctors register all the suitable patients for surgery. Patients from different blocks are called on specified days according to the team's visit schedule. The team consists of two consultant plastic surgeons and four residents. In the last two visits, we have one orthodontist joining the team helping in orthodontic management of the cleft lip and palate patients. Basic investigations of these patients are done a day before the surgery. The team brings all necessary instruments and surgical material. Frequently, the hospital's general instruments may be used. The team's daily routine consists of transportation of team to the district hospital in the morning from the hotel or guesthouse. The first operation starts at around 9 a.m. and working lunch, coffees, tea with snacks are served in the operating area. Following surgery, patients are kept in the recovery room adjacent to the operating room and then shifted to the wards when it is considered safe by the anaesthesiologists. During the day, previously operated patients come from the wards for wound dressings, suture removal and application of splints if any. When the operations are finished, at the end of the day, the patients posted for operation the next day are examined in the outpatient department by all team members and case list is made for the next day. Now and then registered patients do not turn up, others are not fit for surgery, while still others unexpectedly present and fill up the list. The patients return to their wards from this examination with necessary preoperative instructions. At the completion of the camp the entire team returns back to the Medical College Hospital except two residents who stay back to take care of postoperative management including dressings. They follow-up the patient till stitch removal and advise them regarding physiotherapy. They also make sure that proper splints have been made for each patient.

Detailed records along with pre and postoperative photograph of all the patients have been kept. These photographs were compared with the photographs of patients operated in the medical college to determine the quality of surgery. Average cost of each operation was calculated by adding the hospital charges, consumables for surgery, medicine for patients and expenses of team and dividing it with total number of operations.

Since 2000, we conducted nine camps in different districts. 685 patients have been operated so far in nine

team visits, averaging 76 patients per camp. Assuming 29 operating days of the nine camps, this means 23.6 patients per day. The majority of patients operated in the last nine camps were cleft lips and post-burn contractures; together comprising 92% of all patients. The remaining patients had congenital hand deformities, haemangioma and post-traumatic deformities. [Table 1] Results of patients were satisfactory [Figures 1-3]. Complications include dehiscence of one side of one case of bilateral cleft lip. This patient had a very wide defect with projecting premaxilla. One case of long-standing post burn flexion contracture of finger had dry gangrene of fingertip, which healed over a period of 3 weeks with dressings. Comparison of cost of surgery in camps and in medical college showed that cost of surgery in the camp is significantly less as compared to the medical college. (Recurring expenses per patient being Rs. 633 and Rs. 1275 respectively). [Table 2]

A total of 685 patients have been operated by the team in last nine camps but this is not the true number of operations that have been performed, because in many patients more than one deformity was corrected, e.g. cleft

**Table 1: Types of operations**

<i>Diagnosis</i>	<i>Number (N = 685)</i>
Post burn contractures	214
Neck	21
Axilla	24
Elbow	16
Wrist	14
Hand	96
Knee	20
Ankle & foot	23
Cleft lip	418
Cleft palate	7
Scar revision	8
Ear surgery	3
Preauricular sinus	2
Rhinoplasty/ Nasal reconstruction	2
Syndactyle / Polydactyle	8
Tendon transfer for Hansen's disease	4
Haemangioma/ Lymphangioma	5
Fracture mandible	2
Flaps-X-finger, nasolabial, forehead	5
Miscellaneous	7

**Table 2: Cost of surgery per patient**

	<i>Expenses in Rupees</i>	
	<i>Camp in district hospital</i>	<i>Medical college</i>
Hospital charges	100	550
Consumables for surgery	386	530
Medicine for patients	47	195
Expenses of team	100/ patient	0
<b>Total</b>	<b>633</b>	<b>1275</b>

lip and palate, or the congenital deformity of both the hands or the multiple contractures of one extremity. Majority of the patients were treated for cleft lips and post burn contractures. These patients ranged from three month old to un-operated adults. They presented with all variations of clefts, including secondary post cleft lip and palate deformities. Millard's rotation advancement method was used in majority of the cleft lip patients, while in cleft palate, Wardill-Kilner-Veau method was used. Almost 31% of the patients were treated for post burn contractures. Most of the burns had been caused by fire, some by acids, a few by electricity that were treated conservatively in the acute stage. All areas of the body were involved including eyelid, neck, breast, axilla, elbow, wrists and hand, inguinal, popliteal, ankle and toe contractures. If possible, Z-plasty or local pedicled flaps were the preferred method for contractures as they do not require vigorous physiotherapy and splintage. Split and full-thickness skin grafts were also used as and when required. Although the condition may have been complex,

the surgery was kept as simple as possible while at the same time trying to be most effective with the least risk of complications. Many patients required splints, which were arranged by the local administration. Out of 418 cleft lip patients 50% were more than 6-7 years of age suggesting that these patients never came to urban area for correction. Consanguinity of marriage and malnutrition may be the causes for presence of such large number of patients with cleft lip and palate. However no systematic population based survey has been done as yet.

District hospitals are reasonably equipped and have two operating theatres, recovery room, and postoperative wards. Operation theatre usually has Boyle's apparatus but local anesthetists do not always have the experience of using closed circuit and halothane. Therefore, most surgeries were performed in open ether or ketamine. Most of the anesthetists are not trained in pediatric anaesthesia, therefore cleft palates were not operated unless the surgical team was sure about safety of the patient. Majority of the cleft lips were operated under local anesthesia. Post burn contractures were operated under local/regional block or ketamine. Surprisingly most of the district hospitals do not have a cautery machine therefore cautery machine had to be carried by the team. Most of these hospitals and their pathology laboratories are not equipped with transfusion facilities therefore those cases, which require blood transfusion were not



**Figure 1:** Case of cleft lip operated at Chitrakoot (left) and Postoperative result (right)



**Figure 2:** Case of post burn axillary contracture operated at Ambikapur (Top) and postoperative result (Bottom)



**Figure 3:** Bilateral syndactyly operated at Guna district (Top) and Postoperative results (Bottom)

done. At three places two camps were conducted at the interval of 6 months. In the second camp about 30% of patients came for follow-up. This shows the faith of the patients in camp surgery.

These camps are valuable only when they are conducted continuously at regular intervals. Regular camps give an opportunity to follow up the patients of previous camps. Incidental camps at odd intervals are far less effective. These camps throw up such a large number and variety of patients with cleft lip/palate and other congenital or acquired deformities that it merits scientific studies by an academic team.<sup>2</sup> Addition of an anesthetist and a pathologist in the team will greatly influence the outcome of these camps as cases that are more complicated can be done which require long operating hours and blood transfusion. Taking part in one camp proved contagious and stimulated one to come again. Apart from treating patients, teaching of local doctors is one of the aims. In the hospital, the local surgeons regularly assisted at operations and exchanged ideas, opinions and experiences. They were also asked to divide pedicles of forehead flaps for nose reconstruction, cross finger flap and Abbe-flaps to the upper lip; in general, they along with the residents did the after-care of the patients.

The District Authority and Red Cross sponsored all these

camps. The same team treated all patients in these nine camps. The operations in themselves were very rewarding if only by changing a life due to closure of a cleft lip or making the post burn deformed hand fully functional. The fact that 30% of the last camp's patients were followed in the next camp at three places proves the confidence of the population in camp surgery. Most of the surgeries can be done safely in district hospital with reduced cost and results at par with medical college. However, the teaching aspect might be underscored, demanding that young local surgeons be present for further training.

Therefore we recommend that one must select one or two district places and conduct camps regularly. This enhances the faith of people in camp surgery and gives opportunity for follow-up. Before starting the camp the local conditions for surgery must be carefully considered since patient's safety is of paramount importance. Quantity should not get priority over quality and the operating team should do some sort of academic studies.

## REFERENCES

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## Announcement

The 29th Annual Conference of the Indian Society for Surgery of the Hand is being held from 26th to 28th August 2005 at Kochi, Kerala . The venue is The Renaissance Hotel in Kochi.

For details contact

Dr R Jayakumar

Organising Secretary ISSHCON 2005 .

Conference Secretariat ,

Specialists' Hospital,

Ernakulum North Kochi 682 018, Kerala

Email: scientific@isshcon2005.com

Website: www.isshcon2005.com