Indian Journal of Plastic Surgery (1989), 22(2), *pp.* 47-52

HISTORY AND DEVELOPMENT OF PLASTIC SURGERY IN ASIA*

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An Asian meeting of plastic surgeons is an appropriate forum to look back at the developments in plastic surgery in the past in the ancient civilizations of this continent, to review the present problems and the efforts of the plastic surgeons in tackling them and to do a little crystal gazing into the future.

"The portion of the nose to be covered over is to be measured (exactly) with a leaf and a flap of the required size is to be taken from the "gonda" (goitre or the cheek) to be grafted there and to support it a metallic frame is to be inserted with two tubes in the nostril to hold it in position and then scraping the border making the surface fresh the flap is to be carefully sutured. When the grafting has been properly made, a powder made out of Pteracarpus santalinus, Glycyrrhiza glabra and sulphate of antimony should be sprinkled over the part and then it should be covered with a lint which is to be kept moistened with oleum sesamum until the complete grafting has taken place." (1) Thus is described the earliest recorded operation of plastic surgery performed by Sus'ruta, the Indian surgeon, the disciple of the great physician Dhanwantri. That an operation described about 2500 years ago still continues to be practised with only minor modifications is an eloquent testimony to the surgical skills that were developed and practised in an era without the many advantages we enjoy today.

Sus'ruta described several other procedures including those for the correction of the ears and its lobules, this being only a part of his larger repertoire of surgery.

The operation of forehead rhinoplasty performed in the city of Pune in 1784 by a potter which was observed and reported by two British Officers in the Gentleman's Magazine in London. This was followed by its uses by Carpue and Wade in Britain being a superior procedure to the arm flap ascribed to Tagliacottzi of Padua. As late as the thirties of this century the last known case was undertaken in the Kangra valley by an indigenous practitioner.

The extensive writings of Sus'ruta and Charaka in India reveal the existence of a fairly advanced system of medicine in those times, the forerunners of the present day-ayurvedic system. The ancient traditional system of medicine in China is also practised extensively in that country even today. The Unani system of Islamic medicine with its origin in Unan (Greece) is still practised actively in Western Asia and India and is often associated with the name of the Islamic scholar Ibü Sena who lived in Bokhara in 980 A. D. Though the explanation of the causes of diseases and illness as an imbalance in the humours like 'Kaffa, Pitha, and Vata or 'yin and yang may seem strange to us, their holistic approach to health and disease has much to commend it to the modern allopathic physicians and surgeons with their increasingly narrow and dissective approach where the human being is forgotten while immersed in the technological minutae of the speciality.

Most of the ancient remedies which derived from natural sources continue to be practised even today by the common people of this continent because this is both culturally acceptable as well as affordable. Accupuncture, a much derided procedure has now been accepted

*Invitation Lecture delivered at The Fifth Congress of the Asian Pacific Section of the International Confederation of Plastic & Reconstructive Surgery, Istanbul–Turkey September 7–10, 1989

even by the sceptics and the discovery of naloxone has given it 'scientific respectability'.

Historical research into the traditional systems of medicine has helped in the reidentifying and popularizing many drugs like quinghousu for malaria, reserpine for hypertension and gum gugul for hypercholestraemia. It has also been useful in rediscovering some surgical procedures like the cure of anal fistula, but major surgical advances, even in the West, had to await the discovery of anaesthesia, aseptic techniques and resuscitative measures.

The present status of medicine including plastic surgery in Asia can only be appreciated in terms of the historical, socioeconomic and political changes during the past three centuries. During this period there was extensive colonization of the Asian countries by Western nations as a result of the military power provided to them by the powerful tool of science and technology. This not only resulted in impoverising of these countries by the transfer of their wealth but also prevented them from utilizing those aspects of this new science and technology which would have permitted their economic development.

This period also saw the stagnation of the indigenous systems while at the same time there was an influx of Western allopathic medicine whose benefits were restricted chiefly to the expatriates and spilt over to a small local elite. Since medicine was a relatively innocuous subject unlike other economic activities, a few schools of allopathic medicine were established for training of the sons of the local elite, chiefly in lucrative curative medicine.

All this changed following the second World War when most of the Asian countries achieved independence. China which chose to close its doors permitted its own genius to develop its country on egalitarian lines utilizing both its indigenous as well as Western science and technology which was appropriate for its own needs. This approach not only resulted in the eradication of poverty but managed to radically change the health status of the Chinese people using the available simple, cheap and effective medical technology.

Unfortunately in those countries which chose the softer option of a 'mixed' economy with an 'open door' policy, this resulted in the adhoc importation of Western ideas and technology which was suitable only for the affluent minority; a technology which proved almost entirely irrelevant for the vast majority of their citizens who failed to receive even elementary health care. This not only devalued their own systems of medicine which had been part and parcel of their tradition and culture, but also deprived them of the considerable benefits that allopathic medicine could have conferred, if it had been utilized in a selective and appropriate manner. Although the major effort of the medical profession in such countries has been restricted to the field of curative medicine which has benefited only a select minority, even the limited use of the powerful tool of modern preventive medicine has proved to be far more significant in improving the overall health of the people. It has also simultaneously lowered the mortality rate resulting in the vast increase in the population of these countries.

The 'open door' policy also permitted subtle but effective economic aggrandizement by the Western powers utilizing multinationals as well as local agents. This has been clearly demonstrated in the field of medicine by the pharmaceutical and instrumentation industries. This policy has also resulted in the drain of professional manpower trained at the cost of these poor countries. Even if some of them return, most of them become wittingly or unwittingly promoters of expensive inappropriate technology as a result of their cultural alienation from their own people and their country's prevailing problems.

Plastic Surgery in these countries has by and large followed the same trend. It has attempted to replicate the model of the West where the socio-economic and cultural problems and needs are poles apart from our own not only because of diseases like Concrum oris,

Leprosy, Filariasis. Cuntaneous leishmaniasis and Small pox but also for conditions which superficially look similar like Cleft l'p and palate, Burns Injuries, Cancer or TM Joint Ankylosis.

There are several reasons why solutions to the problems of these countries require a very different approach. The annual per capita expenditure on health in the USA is about $ 2000/- as compared to $ 25/- in India. In the USA there are over 5000 plastic surgeons who cater to the needs of 260 million population while in India 250 plastic surgeons have to deal with the plastic surgery problems of over 800 million people, many of the deformities being far more severe due to neglect or non availability of adequate primary care. Even if only 5% of the four million leprosy patients were to receive the benefit of plastic surgery at the estimated 2.5 operations per patient, this would entail undertaking a quarter of a million operations only to clear the backlog. If we estimate that of the 15 million new born every year, one per thousand suffer from cleft of the lip and palate and that two operations are required per child, this would mean a load of 20,000 Cleft lip and palate operations each year. I leave it to you to imagine the total load of deformities that plastic surgeons are faced with in these countries. Even if we were to increase the number of our plastic surgeons and the plastic surgery units ten fold, this would still not solve even a fraction of the total load with the present approach.

Under the circumstances, we see two entirely different approaches being promulgated in these countries. An approach which is increasingly observed in the private sector, is to offer the services of a purely Westernized types of plastic surgical care in a few sophisticated hospitals to those few who can afford to pay for these expensive services. The other approach, especially in the public sector is to build plastic surgery units, generally attached to the teaching hospitals, for dealing with problems of the poorer patients and for training new plastic surgeons. The latter is undoubtedly preferable. Even here, despite limited facilities which are swamped with an unbearable patient load, the emphasis continues to be on the 'latest' western trends as demonstrated by the undue attention given to subjects like microvascular and craniofacial surgery.

Both these approaches are based on the belief that there is no other alternative. While those who are in the private sector seek satisfaction from monetary gain, even this is denied to those who work in the public sector, often with great sincerity and under extremely difficult conditions. Frustration is writ large in those who feel helpless in utilizing their skills even for the benefit of those who come to them, leave aside the majority who suffer in silence in the villages.

While many try to bury their frustration by immersing themselves even more deeply in their work, there is a small but increasing number who are questioning this entire approach which has been accepted unquestioning by most of their colleagues. Instead of seeing the problem as an insuperable task they have taken it as a challenge like Harold Gillies did when faced single handed with 11,000 severe facial injuries sustained in the trenches of Flanders during the first World War. He not only devised radically new techniques of plastic surgery for their treatment, techniques which were later used for civilian problems, but more important, developed an organization starting from first aid in the battlefield to transportation across the channel and to the development of plastic surgery centres in Britain, the forerunners of the present day units. While much is known about his technical skills, the equally and possibly far more significant contributions to organization of plastic surgical services are for less known and hardly remembered.

In the limited time allocated for this presentation, I can try and illustrate only a few of the significant contributions which Asian plastic surgeons have made not only in the treatment of deformities resulting from tropi-

cal disease but also in elegantly simplifying old established method which can now be treated with minimal hospitalization and at a fraction of the previous cost. Many of these simplified procedures can now be undertaken by the far more numerous general surgeons and even basic doctors. If properly organized this could enormously expand the scope of our speciality and help to reach it to the common citizen even in district and rural hospitals.

The first attempt at correction of the nasal deformity in leprosy was by Jack Penn by excising the deformed nose and reconstruction by forehead rhinoplasty. The modified post nasal epithelial inlay using a simplified prosthesis was a quantum jum for it could be performed under local anaesthesia even in a leprosarium. Yet today we use even simpler procedures utilizing nasolabial or forehead flaps, eliminating the need even for a prosthesis.

The complicated manytail graft for the claw hand has now been replaced by the remarkably simple palmar fasciocutaneous excision requiring no physiotherapy or re-education and can be carried out as an out patient procedure. The ulcerated foot can be healed by nerve release combined with a new durable plastic footwear which can diffuse the dangerous pressures and yet be aesthetically acceptable to the patient.

The radial artery Chinese flap has revolutionized the scope of free flaps. The heat treatment of filarial lymphoedema, for a disease which affects hundreds of thousands of patients was due to the revival of an age old traditional non surgical Chinese method which has been able to achieve results that still cannot be achieved by major surgery.

The soap and water treatment of burns has not only simplified the care of these injuries at the fraction of the cost of a burns unit but has made such treatment available at the district and rural hospital level. Its effectiveness has not only been demonstrated by the mortality figures which are comparable to burns units in the same country but also by the prevention of contractures of the hands and feet besides considerable reduction in the need and extent of skin grafting. The simplified treatment of burns and the remarkable results using topical herbal ointments as demonstrated in Shanghai is an even more remarkable demonstration in the treatment of such a major condition. Use of the banana leaf or potato peel for burns dressing at virtually no cost is equal if not superior to the ridiculously expensive dressings and ointments marketed by the pharmaceutical industry.

I could carry on indefinitely with similar examples but suffice to say that there is ample evidence to demonstrate that human ingenuity when put to the test and if devoid of the commercial motive, can help solve many problems which have been considered insurmountable. The elegance of such discoveries and inventions often make them superior to the far more complicated and expensive practises we have adopted as the gospel. These new methods and techniques have not only demystified and reduced the cost of plastic surgery but have been original contributions to the world wide practise of this speciality such as reconstruction of the ear reattachment of amputated limbs, or transfer of tissue as free flaps by vascular anastomosis.

The question may be justifiably asked as to why these techniques have not achieved the wider use they deserve. The reason lies to a considerable extent in the 'dependency syndrome' that continues to affect the professionals and elite of our countries four decades after achieving independence. This is responsible for the unintelligent import of inappropriate methods and technologies which is continuously foisted on us under the garb of being the 'latest and the best'. China which achieved both physical as well as intellectual liberation under its great leaders did not suffer from this handicap and not only developed its health services including plastic surgery according to its own needs but has till recently avoided the pitfall

of frittering away its limited resources in chasing the Western mirage.

It is not enough to develop appropriate technology, unless it is made available to those for whom it is devised. Otherwise it remains a mere sterile intellectual exercise. The diffusion and widespread utilization of technology needs a high order of organizational skills as stated earlier. In countries with limited financial resources and trained manpower and with a vast population spread in myriad villages, health services can be reached to the masses only through a decentralized service through a Basic Health Care approach. Once again China has demonstrated this not only by its bare foot doctor in each village but also through its network of county hospitals which provide broad based medical and surgical facilities. Similar decentralized facilities are now being attempted in other countries with varying degrees of success. Since it is not feasible to have a plastic surgeon at each rural hospital, it does not mean that plastic surgery cannot be availed of by the people. It is well known that about 80% of the really useful aspect of every speciality can be effectively undertaken by the general surgeon or general physician with a few extra facilities and appropriate training. Only thus can the benefits of our speciality and newly developed appropriate technology can be made available to the common man, woman and child and surely this is our goal.

The role of the plastic surgeon should be—

a. To explore at the frontiers of knowledge in this speciality.
b. To select the most relevant aspects whether new or old, simplify them and adopt them for generalized usage.
c. To pass this knowledge and technology to the general surgeon and help in organizing the outreach of this knowledge for the benefit of all who need such help.
d. To train plastic surgeons in appropriate technology and organize centres for the care of those who need skills and facilities for the few conditions which cannot be dealt with by the generalist and need greater skills and/or facilities.

Only thus can plastic surgery become a meaningful exercise and a boon to the people of our countries.

With this approach neither money nor facilities can pose the insuperable obstacle to the delivery of plastic surgery to the needy as it seems at present. Only thus can it become a meaningful exercise and overcome the frustration which is so commonly observed among those who practise plastic surgery in our countries.

In conclusion I would like to reiterate that the problems of Asia as well as of Africa are entirely different from those of the affluent Western world; also that they can be solved only by their own people. The so-called help and assistance of Western plastic surgeons and their governments to 'teach' and 'train' our postgraduate students has even with good intentions resulted in compounding our problems. At best it has resulted in perpetual dependency and has curbed thinking on our own problems. The glamorous expensive high technology approach which can often be questioned even in the West itself has disoriented our younger generation of easily unimpressionable trainee plastic surgeons who fail to see the almost total lack of relevance of this to our own requirements. This together with the pressure salesmanship of multinationals has successfully imposed a type of technology which has drained our limited resources from what could be highly effective into an almost entirely inappropriate type of surgical practise, as it has done in many other flelds of our national endeavours.

The task of plastic surgery does not end with mere technology. Success can be gauged only when the patient is rehabilitated either by a simple prosthesis or when the person can return to his manual labour and achieve gainful employment through modification of the tools if his hand is still deformed.

Intelligence demands that it is better to

prevent disease and deformity than take pride in its correction. Education of village health workers can enable even illiterate tribal women to treat leprosy and prevent the onset of deformity by ensuring compliance. China has demonstrated how this most major deforming disease can be controlled and eventually eradicated through a bare foot doctor approach.

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