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Kathmandu Model Hospital – Plastic and reconstructive surgery

1. To describe the pattern and multidisciplinary management of post burn contractures within the local population and contrast with the impact of burns globally.

The WHO estimates that worldwide 265,000 deaths each year are a result of burns, and that the majority occur in middle to low income countries. This is particularly the case in rural Nepal where burns account for 5% of disabilities and are the second most common cause of injury. Often the primary interventions of prevention and early treatment are not possible in rural areas, and so the majority of patients present late. As a result post burn skin contractures form a large percentage of work for the plastic surgery team. These are often a result of accidental injury from hot liquids, hot solids, flame burns and electrical burns. A higher risk is associated with females due to the culture of open fire cooking, using kerosene lamps for lighting and poorly maintained cooking equipment such as pressure cookers. In the same way children are at higher risk from the unsupervised home environment and are often the victims of abuse (Figure 1).

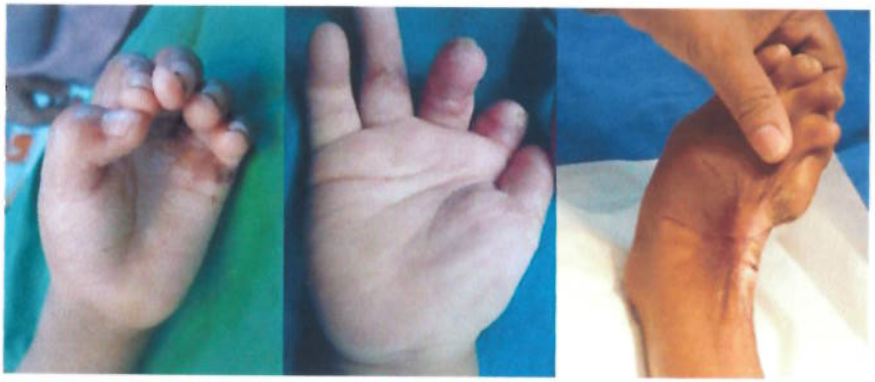


Figure 1 – A selection of post-burn contractures in paediatric patients.

With efforts to improve prevention and early treatment of burns progressing slowly, the multi-disciplinary plastic surgery team provide two main areas of treatment. Firstly, if the burn occurred in the previous 3-4 weeks then surgical debridement and preparation for grafting are possible. This service is provided by the newly opened Nepal Burn and Cleft Centre in Kirtipur, Kathmandu. Here a dedicated burns unit with access to theatres, intensive care and skin bank services provides free treatment to patients with extensive burns. The multidisciplinary team consists of surgical residents, consultant plastic surgeons, specialist nurses and physiotherapists. Initial debridement is carried out by the surgical team, with regular post-operative dressing changes performed by both doctors and nurses. A range of hydro-foam, gel and silver impregnated dressings are available along with routine monitoring and nutritional support. Patients with extensive burns are often debrided within two weeks of the initial injury before auto-grafting is performed. Later in the healing process the role of physiotherapy is particularly important to avoid developing disabling skin and joint contractures.

Secondly, a large number of patients present many years after their initial burn – this can range from one year to twenty years. For these patients the team provide a plastic surgery service of contracture release using Z-plasty techniques and auto-grafting. For example a 32 year old female presented to one of the surgical camps with a contracture sustained from a hot liquid burn as a child. The left upper arm, axilla and lateral chest wall were all involved, with a single band of tissue running from the axilla to the left flank (Figure 2a).

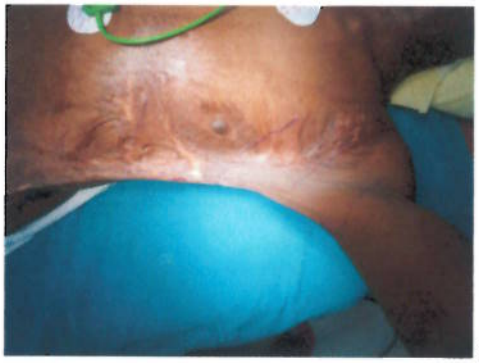
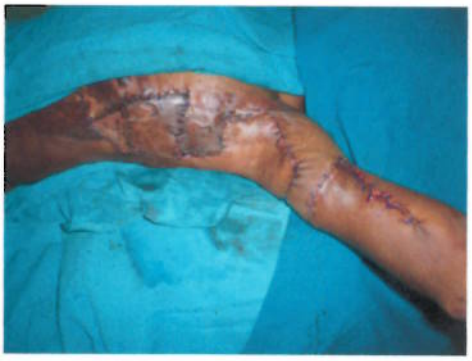
a)  b) 

Figure 2 – Post burn contracture in a 32 year old female, preoperatively (a) and following multiple z-plasty and grafting (b).

This was released using a multiple z-plasty technique, where the contracted band of tissue is incised along its length and triangular flaps of tissue are raised either side. By re-orienting these flaps the scar is lengthened and area lacking skin coverage is left distally. This defect is covered with a full thickness auto-graft taken from the healthy skin around the ileac fossa. This surgical technique is simple but highly effective. Often the contractures occur over a joint and can severely impair function, and so release of the contracture allows an increased range of motion of the joint. The patient in Figure 2 had 90 degrees of abduction at the shoulder pre-operatively and 130 degrees post-operatively.

2. Explore the organisation and delivery of reconstructive plastic surgery services and training in Nepal.

The plastic surgery service I observed is unique in Nepal. It is run by an entirely Nepali team of doctors but is funded by an overseas organisation: ReSurge International. A programme of free surgical outreach has been running here since 2003. There are now six regional centres across the country with a multidisciplinary team of around 50 members. This includes surgeons, dentists, nurses, physiotherapists, speech therapists and administrative staff. Visits to the regional centres are arranged every month with either a single surgeon visiting or 2-3 team members.

3. To gain an insight into the provision of free surgical camps in rural Nepal. To contribute to a programme of health promotion with the local population.

The plastic surgery team here provide surgical outreach to six rural areas of Nepal: Butwal, Bharatpur, Pokhara, Birganj, Nepalgunj and Biratnagar. The latter two are in the far south east and south west of the country on the border with India, and so anyone visiting must take a flight there. They are usually attended by a single surgeon from Kathmandu who works with local coordinators and theatre staff. The other camps also have local coordinators and theatre staff, but are attended by a surgeon, scrub nurse and occasionally speech therapists. These camps are generally accessible by road. During my time on elective I visited two of these camps: Bharatpur and Butwal.

Surgical outreach camp Bharatpur 20th April – 22nd April.

Bharatpur is a large city around 150km south west of Kathmandu which can be reached in around 4 hours by car. The city has a population of around 150,000 and is served by several hospitals. The plastic surgery team has an agreement with the main teaching hospital (College of Medical Sciences Hospital) to use the theatre and anaesthetics services over the weekend when the department is less busy. A team of local administrators and nurses prepare a list of suitable patients ahead of the surgical team arriving. This means the team can arrive, pre-assess the patients and begin surgery.

Surgical outreach Butwal 7th – 10th May

Butwal is another large city (population around 120,000) in the Terai region of southern Nepal. It is a major gateway to Nepal from the open Indian border and is round 240km south west of Kathmandu. The private Lumbini Nursing Home Teaching Hospital provides the plastic surgery team with operating theatre time and anaesthetics support. This is financed by the various charitable organisations which support the plastic surgery team here.

4. To reflect on the health and social inequalities in Nepal. To gain a more detailed understanding of limb anatomy. To consolidate and develop history taking and basic surgical skills.

Most specialised healthcare is centralised in Kathmandu, Nepal. As a result patients from rural areas often have to travel long distances to have any more than basic treatment. Many hospitals provide outreach programmes like the surgical team I was involved with, and much of the time they are supported either by NGO's or foreign charitable foundations. This funding is necessary because the majority of Nepali people are subsistence farmers and so do not have a measurable income. Instead they tend their crops and live off the produce - as a result they have little income to spend on healthcare. In addition, people from the rural villages are often superstitious about healthcare and practice Ayurvedic medicine in line with their religious beleifs.

For my last two learning objectives I was allowed to assist in all the operations and was taught the basic principles of handling skin. The surgeon taught me some hand anatomy as I assisted and allowed me to take several full thickness skin grafts.

Timothy Buick

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