8.Helped people with HD to treat their own planta ulcers.About 30% planta ulcers had been cured.

9.Six hundred and nineteen pairs of shoes given to people with HD who had foot trouble.

10.Made 250 new clothes for people with HD at three villages.

11.Gave scholsrship,25,000 RMB (about US$ 3,000) worth,to 45 children of people with HD to attend school.

12.Sent 4 people recovered from HD to work at shoe factory.

13.Sent 6 people recovered from HD to attend three international meeting on rehabilitation of HD in Brazil,Korea and Spain.

RE24

KIVUVU.
MORE A REFUGE THAN A REHABILITATION CENTER

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Kivuvu Rehabilitation Center is located in Bas-Congo Province, Democratic Republic of Congo.

Previously used as "Leprosy Hospital", Kivuvu had no choice but to be transformed into a rehabilitation Center for almost 10 years, after Primary health care and Integration became national health policy in the country.

As a rehabilitation center, mostly Kivuvu takes care of severe ulcers, reactions and foot wear needs. Some projects, as mill, beans and onion fields, are managed in order to assist admitted patients.

20 patients were almost permanent in the center during the year 1996, among them 14 with severe ulcers needing strict bed rest, and 6 with less severe lesions staying around in the village. During that year, the average of stay period in the center was 3 months.

From different surveys done, it appears that most of the RFT patients (Released from treatment), would prefer to stay at the center rather than going back in their villages where they live abandoned by relatives and friends.

That raises the problem of leprosy stigma that is still high among the population, remaining a big obstacle for leprosy integration both in the public health system, and in the society. Good heath education, self-care group initiatives, and also health workers motivation remain the key for real integration.

SURGERY

SU01

OUTCOMES OF RECONSTRUCTIVE SURGERY IN LEPROSY - A FUNCTIONAL, SOCIO-ECONOMIC AND REHABILITATION PERSPECTIVE.

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Sonepur district with a population of 500,000 had prevalance rate of 228/10,000 and deformity rate of 7%. In the past 3 years over 200 patients from this district have had reconstructive surgery for hands and feet following completion of MDT. Most patients are from a rural background and enyayed in agriculture. A study was undertaken to asses the outcomes of deformity correction on the individual, family and society. The thrust was to asses the effects of deformity correction on function, cosmesis, work performance, earniny level, personality, attitude, confidence and expectiations. The impact on the family, relationships, social barriers and chanyes in acceptance was assessed. An effort was made throuyh village discussions to determine the impact that deformity correction has had in makiny the disease socially acceptable. Most clients returned to their original occupation and to their own homes. Motivation was an important factor in the individual's final rehabilitation. Nearly all surgical failures (8%) had poor motivation and did not adhere to post operative programme. The factors influencing the outcome of surgical reconstruction alony with the impact of deformity correction on the individual and the socio-economic asspects will be presented.

SU02

LONG-TERM FOLLOW UP OF JOINT STABILIZATION PROCEDURES IN THE TREATMENT OF DEFORMED FEET IN LEPROSY

Zai-ming Wang, Fu-tian Li and Li-wen Dong
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Joint arthrodesis has been proved very effective in correcting leprosy deformed feet and in treating leprosy sole ulcers as well, and consequently can prevent some patients from suffering due to amputation. Foot joint stabilization procedures were performed in 41 feet (24 of them with sole ulcers) of 36 patients. Triple arthrodesis was done in 12 feet, ankle arthrodesis in 27 and pantalar in 2. Satisfactory immediate results of the procedure were observed in 37 but the remaining 4 not in success. The former 37 feet were followed up for a period of 2-32 years, 35 (94.6%) among them more than 10 years. It was found that the walking ability of all 37 feet improved, sole ulcers occurred in 15 feet less than 10 years and only one amputation was done 20 years after doing joint stabilization procedures were performed respectively. Correction of deformed feet in leprosy by joint stabilization procedures has helped the patient to retain and use his own limb with its advantages for more than 10 years in average at least. The time of use for the operated limbs will definitely be prolonged if the patients could persist in doing self care.

SU03

Title : RECONSTRUCTIVE SURGERY OF DEFORMITIES IN HANSENS DISEASE IN THE CAMPS. AN EVALUATION AND LONG TERM FOLLOW UP.

Authors : Dr.K.S.Rao, Dr.M.K.Siddalinga Swamy, Dr.Betal, Dr.Patond.
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Abstract : Deformities are quite common in Leprosy patients. Very few centres are available for reconstructive surgery which may be quite faraway from the place of residence of the patients. A novel method of reconstructive surgery on a camp basis at a near place to the patients was undertaken. Chandrapur a district in Maharashtra was considered after a rapport with the district leprosy officer. He was advised to examine and collect the case of deformities at his district hospital. A team of surgeons from central leprosy teaching and research institute along with local orthopaedic surgeons a camp was held during 1992, 1993 and 1994. All the patients were examined and correctable deformities like claw fingers, drop foot and lagonthalmos were selected for surgery. The surgical camp was held in two days in an year. The patients were given preoperative and postoperative exercise leaflets by the physiotherapist . A total of 70 case were operated in 3 yeras. After surgery the patients were sent home and called for regular follow up which was done by the local orthopaedic surgeons. The physiotherapist visited their houses to give and advise postoperative excercises. The expert team examined the operated cases when they went for the next year for surgery. 48 claw finger, 10 drop foot and 12 lagoptnalmos corrections were carried out in these years. Correction was satisfactory in 90% of patients. Complications were mainly due to non coperative patients, who did not come for followup regularly. Therefore it is ideal to conduct reconstructive sugery in leprosy patients in the camps with the cooperation of experts and local organisations. More over the patients stays in his house and the hardship of travelling and staying in leprosy hospitals in prevented.

SU04

LEPROSY AFFECTS FACIAL NERVES IN A SCATTERED WAY FROM THE MAIN TRUNK TO ALL PERIPHERAL BRANCHES

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A recent study reports that leprous facial neuropathy is located at the main trunk close to the first bifurcation and that the disease may indeed develop fusiform swellings *(Plast Reconstr Surg-accepted 1998)*. These findings stay in contrast to Antia's study (1966) in which the disease is described to exclusively affect the nerves peripheral zygomatic branches, but also confirm two previous reports which had expressed valid doubts about the solely peripheral localization of the disease. Based on these observations, we assumed that Antia's and our findings might be rather complementary than contradictory, and hypothesized that leprosy affects the seventh cranial nerve in a scattered way. This would mean that the -presumed- *undetected proximal involvement* of Antia's eleven leprous facial nerves (1966) had not been recognized due to their *incidentally* inconspicuous aspect at the main trunk.

To clarify this hypothesis, we decided to repeat Antia's study: facial nerves of 10 leprosy patients missing sufficient motor improvement after completion of their WHO-medication were first exposed at the main trunk; after evaluation of their macroscopically aspect, the functional status was investigated with intraoperative electroneurodiagnostics; all 10 nerves showed a lesion at the the first bifurcation; subsequent lateral parotidectomy revealed further lesions more farther distally, with all peripheral branches to be irregularly involved in a scattered way. Epineuriotomy showed various degrees of fibrosis of the epi-and interfascicular epineurium. Histopathological probes from the epifascicular epineurium confirmed these findings.

We conclude that 1) leprosy affects facial nerves in a scattered way from the main trunk to all peripheral branches 2) intraoperative electroneurodiagnostics is an effective means to detect the site and most proximal involvement of leprous facial neuropathy.

SU05

RESULTS OF TEMPORALIS MUSCLE TRANSFER PROCEDURE FOR CORRECTION OF LAGOPHTHALMOS

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Lagophthalmos in Leprosy patients can be corrected by Temporalis Muscle Transfer using palmaris longus or fascia lata as a graft tendon. 28 of the patients underwent such procedure using Modified procedure of JOHNSON'S TECHNIQUE during the period between 1995 - 1997.

The post - operative evaluation of these patients will be presented with relation to gap corneal pathology, vision, cosmetic effect, watering etc. The modified procedure gives good cosmetic appearance and good visual Rehabilitation.

SU06

INTRAOCULAR LENS IMPLANTATION IN LEPROSY PATIENTS

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Leprosy affected people like everyone else, develop cataracts due to various factors-age, diabetes, oral steroid therapy, ocular trauma, chronic ocular inflammation - to name a few. This study reviews our experience with intraocular lens (IOL) implantation in 126 eyes of 104 leprosy affected patients over 2 1/2 years. The purpose of this study is to analyse the visual outcome of the surgeries, to determine the etiology of cataracts in these patients, to determine the effect of pre-existent ocular disease if any, on the outcome of the surgeries, to determine whether the visual outcome of the surgery was affected by the type of leprosy, smear positivity or ongoing anti-leprosy treatment and to analyse the post-operative complications. The study concludes that IOL implantation offers the best form of visual rehabilitation for leprosy affected patients when they develop cataracts as it gives very good visual results. The surgery is associated with very few post-operative complications when cataracts are age related. Cases with past history of iridocyclitis however were associated with more intra and post operative complications. Smear positivity, type of leprosy and anti-leprosy treatment have little effect on the visual outcome of the surgery.

SU07

ABSTRACT EYEBROWS RECONSTRUCTION BY TRANSPLANTATION OF MULTIPLE PUNCH SCALP GRAFTS

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Leprosy remains a serious health problem in Brazil. The social stigma attached to the disease is strong and visible deformities may prevent the patients' adequate rehabilitation. Loss of eyebrows (madarosis) is a well recognised although pathognomonic sign of leprosy; it's very frequent, bilateral and permanent. In this study, the missing eyebrows were reconstucted by transplantation of multiple punch full thickness scalp grafts. The cosmetic results were observed on 17 patients, 8 months after each operation. Of the 34 reconstructed eyebrows 22(64.70%) looked good, 6(17.65%) looked acceptable and 6(17.65%) looked poor. The cosmetic appearence was considered satisfactory in 14(82.35%) patients and unsatisfactory in 3(17.65%) patients. The full thickness scalp grafts showed a successful take to the recipient sites and the technique proved to be simple, safe, eficient and didn't lead to any important complication. These advantages assure the possibility of eyebrows reconstruction in a large number of leprosy patients, helping their rehabilitation and reintegration in normal society.

SU08

Title : SURGICAL CORRECTION OF LAGOPTHALMOS BY TEMPORALIS MUSCLE TRANSFER IN HANSENS DISEASE.

Authors : Dr.M.K.Siddalinga Swamy, Dr.K.S.Rao
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Abstract: Leprosy is known for the deformities it causes due to involvement of nerves. Temporal branch of facial nerve is commonly involved resulting in Lagopthalmos. If conservative treatment fails surgery has to be done to prevent eye complications like exposure Keratitis, Iridocyclities. During the period from 1987 to 1994 44 Lagopthalmos were corrected by temporalis muscle transfer using a free graft. Most of the cases belong to boderline tuberculoid leprosy. Duration of paralysis varied from 8 months to 20 years, age of the patient varied from 30-60 years. 32 were males and 10 were females. Two patients underwent bilateral correction. Follow up of the patients varied from 1 year to 4 years with an average of 2.5 years. Corrections were satisfactory in 42 cases and failed in two cases due to adhesions. There were complications in 3 patients namely, tight band, corneal injury, and conjunctivitis which were corrected. Spontaneous blinking was present in most of the patients and the eyes remained closed during sleep.

SU09

TWO METHODS FOR INTRINSIC REPLACEMENT OF THE LEPROSY HAND; A COMPARISON OF HAND FUNCTION

Roland Kazen, Catherine Benbow, Asrat Mengiste, Yesabnech Abate, Fikre Mekuria Chachu, Philippe Thevoz

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Methods for intrinsic replacement (Ulnar paralysis) of the hand in leprosy have limitations as to applicability and effect on hand function. Intrinsic replacement procedures do not essentially improve the metacarpal arch. Some procedures even exaggerate the arch deformation. Correction of the metacarpal arch is seldom performed. Only one method corrects the metacarpal arch at the same time as stabilising the metacarpophalangeal joints.

The aim of this study is to compare the immediate impact on hand function of two methods for intrinsic replacement, the *Superficialis Pulley Insertion (Zankolli)* and the *Intrinsic Reactivation (Palande)*. A phase of long term follow up will be added later on.

A test battery for hand function has been developed taking into account the effect of an improvement of the metacarpal arch, measuring *impairment, disability* and *personal assessment of hand problems.*

Patients with mobile clawhands, with or without an additional median paralysis, are alternatively chosen for one of the procedures. For pre- and post-operative assessments the new test battery is used, including a new assessment method for the metacarpal arch. Results are compared.

SU10

ADDUCTOR REPLACEMENT FOR THUMB BY TRANSFER OF HALF-INDEX SUBLIMIS TENDON

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In Hansen's disease paralysis of the ulnar nerve resulting in claw deformity of fingers and Z-deformity of thumb on attempted pinch is the most common deformities seen. Though surgical correction of the fingers in done the thumb is very often neglected, even in a median involvement. In the latter an abductor opponens plasty is done to correct claw thumb but the ulnar paralysis of thumb due to paralysis of adductor and part F.P.B., is often ignored. We have used half-index sublimis transfer as adductor replacement routing the sublimis along the course of the adductor and attaching it at the adductor insertion, to correct the Z-deformity and produce an effective pinch and found the results satisfactory. Importance of the adductor, details of the operation and results in 25 patients who had half-index sublimis as adductor replacement is presented in this paper.

SU11

POSTERIOR TIBIAL NERVE DECOMPRESSION IN PREVENTION OF PLANTAR ULCER

I.L.E.P. PTND Multicentric Study Group, India

This is a study to determine whether Posterior Tibial Nerve Decompression (PTND) will prevent recurrence of plantar ulcer. It involves 7 centres in India with 246 feet (233 patients) having one or two scars of the healed plantar ulcers and sensory impairment on the plantar surface. Allocation of individual feet was done on random basis to PTND + foot care and foot care alone. Comparability of feet for the relevant factors in the 2 groups was ascertained. Total duration of follow-up was 3 years with six-monthly examinations. Patients were also to report as and when ulceration of foot occurred. Follow-up was completed by 31st January 1998. Interim analysis was done for the data available till August 1997. It reveals that coverages for 1st to 6th follow-up examinations were 94%, 92%, 87%, 86%, 79% and 78%. Variation in recurrence rates for plantar ulcerations for the different centres in the two groups were within acceptable limits. (Analysis of variance with Arc sine transformation and weighting, between centres $F = 3.32$, $p = 0.08$). Overall recurrence rates were 39.5% and 36.9% for PTND + foot care and for foot care alone, and were very similar (Mantel-Haenszel Summary $\chi^2 = 0.06$, $p = 0.80$, Mantel-Haenszel weighted relative risk = 0.94). Various factors related to patients were considered to understand the reasons for this no difference and none was found to be significant. Sensory status (improvement or worsening) was similar in both the groups at the end of 4th follow-up. Healing time for the recurrent ulcers was also similar in the two groups.

Thus, PTND did not prevent recurrence of plantar ulcers, under the conditions of this study. Final results from the study will be presented.

SU12

FLAP REPAIR FOR PLANTAR ULCERS OF LEPROSY

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The authors performed flap repair on 45 leprosy patients (35 males and 10 females) with plantar ulcers from 1982 to 1995. The patients' age ranged from 24 to 66 years. Of them 4 were active cases (MB) and 41 cured persons affected by leprosy (MB 25 and PB 16). As regards of the sites of ulcer, there were 6 in heel, 8 in lateral plantar, 2 in medial plantar, 5 in the first metatarsal head, 12 in the 2nd - 5th metatarsal head, 1 in big toe, 2 in medial ankle, 3 in lateral ankle, 4 in lower third of leg and 2 with forefoot defect. Subdermal vascular network skin flap had been used in 5 cases, local pedicled flap in 8, muscular in 12, composite tissue flap in 6, free flap in one, island flap in 8 and reverse island flap in 5. Fourty flaps totally survived (but 2 with partial margin necrosis) and 5 failed to survive. The survival rate of flag was 90%. In the follow-up period of 112 years, all flap-survived cases were satisfied with the results functionaly and cosmetically, but blisters occurred in 6 cases in the early stage of weight-bearing. The authors suggested that various kinds of flaps could be used in repairing plantar ulcers of leprosy by experienced surgions, but the flaps used in this study could not solve the problem of insensitivity of the foot. Self care education and protective footwear should be carried out and provided.

SU13

HEEL ULCERS IN LEPROSY TREATED WITH A FASCIO-CUTANEOUS ISLAND FLAP FROM THE INSTEP OF THE SOLE: 10 YEARS EXPERIENCE.

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Feet with heel ulcers, with major soft tissue loss, and often complicated by osteitis of the calcaneum, have seldom been successfully restored with conventional transposition flaps. Attempts using tissue from outside the glabrous skin area have shown high failure rates. Below knee amputation has often been the final outcome in the past.

In 1991, ALERT (P.E. Gravem) published preliminary results of reconstruction with a transposed fascio-cutaneous island flap from the instep, performed on 23 leprosy patients. The observation time was up to two years. We now review all patients operated on with this technique from 1986 onwards, including the patients from the first study. The observation time is up to 10 years.

The results are very encouraging and we feel this procedure should be recommended as a standard method for heel reconstruction in most cases where there is major soft tissue loss. Surgeons with some experience in basic plastic surgical principles should be able to perform the operation safely. The operation should become part of the surgical menu in major referral centres for leprosy patients. However, the operation is a relatively complicated plastic surgical procedure, and the technical hazard should not be underestimated.

The method will be presented in detail together with short and long term follow up results of the patients.

SU14

THE DEFORMED FOOT: THE PLACE OF CORRECTIVE SURGERY. A 12 YEAR REVIEW.

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The anaesthetic foot in leprosy can lead to recurrent ulcer formation and neuropathic disintegration of the foot, resulting in marked deformity and disability. Corrective osteotomy/arthrodesis, attempts to restore a more functional anatomical position leading to decreased impairment.

We present a retrospective review of major corrective foot surgery, performed at Anandaban on 49 patients (55 procedures) over a 12 year period. The commonest procedure was ankle joint fusion (51%) followed by combined ankle and sub-talar fusion (24%). Union occurred in greater then 95% of patients. A positive outcome was found in 84% of those with recurrent ulcers with a low amputation and failure of fusion rate.(7%)

The role of corrective surgery as a salvage procedure in the deformed foot as an alternative to amputation is established.

SU15

A FUNCTIONAL HAND ASSESSMENT

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Objective: To develop a reliable and valid hand assessment battery to evaluate the results of surgical correction in the hand affected by leprosy.

Design: The assessment is made up of 3 components:
1. Impairment (muscle, sensory and range of motion testing)
2. Disability (qualitative and quantitative functional tests)
3. Subjective assessment of hand problems

Method: Standardized tests were selected for the assessment of impairment. Functional tests were developed to measure disability. A short questionnaire was designed to record the patient's opinions of the difficulties experienced in daily life. 13 normal people, 15 pre-op and 15 post-op were each assessed by two out of three randomly assigned assessors.

Results: *Inter-observer reliability*
Close agreement between pairs of observers was achieved for impairment in 97.5%, for disability in 82.4% and for the subjective assessment in 77.5%.

Validity
1. Spearman's Rank Correlation Coefficient (r_s) was 0.90 for the correlation between standardized scores of impairment and the non-standardized test results for disability. $r_s = 0.79$ for the correlation between impairment and subjective assessment.
2. Although the pre- and post-operative groups were different cohorts, the mean values of the impairment, disability and subjective assessment scores show improvement of 8% for impairment, 24% for disability and 55% for subjective assessment.

Conclusion: This hand assessment battery can be used to evaluate the results of surgical correction.

SU16

THERAPEUTIC SURGERY FOR LEPROSY PATIENTS PERFORMED IN MANAUS, STATE OF AMAZONAS, BRAZIL.

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The high affinity of M. leprosy for peripheral nerves is the key to the association between leprosy and disability. Besides the invasion of nerves by M. leprosy, resulting in inflammation with the consequent possibility of nerve damage, the pathogenesis of nerve destruction is closely linked with leprosy reactions and most of nerve damage occurs during reaction.

This prospective study examines the outcome of therapeutic surgery, mainly nerve decompression, for leprosy patients suffering the effects of chronic neuritis. From January to December 1996, 138 leprosy patients were included in the study; all the patients except 12 of them, had taken prednisone 1mg/kg/day. The pre operative selection of patients was by pain or thickness of the nerve with the presence of anesthesia of hands or feet combined with muscle weakness, and the failure to improve the patient clinical condition by steroids treatment alone.

Detailed voluntary muscle testing (VMT) and sensibility testing (ST) was done before and each 3 months after nerve decompression, during 1 year, on 126 cases of the total included. Based on patients information all of them except 5 showed lack of spontaneous pain and no one claimed to feel worse. All patients but 19 showed improvement in protective sensation; two patients showed to feel worse. All patients but 25 had informed muscle strengthening during recovery. These results when compared with those obtained from VMT and ST testing were similar.

In this essay the optimum time for nerve release, the more adequate surgical procedure and the patient progress have been discussed. The procedures were simple and quick, not required general anesthesia, hospitalization and there were no relevant complication. It has shown that neurolysis have had encouraging results.

SU17

PLASTIC AND RECONSTRUCTIVE SURGERY IN THE TREATMENT OF PLANTAR ULCERATION OF LEPROSY: PRINCIPLE AND PRACTICE

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+ Wu County for Skin Diseases Control, Suzhou City

Since early 70's, the authors have employed microscopic surgical technique to reconstruct the plantar ulceration with 8 types of the flaps in 76 leprosy patients. Postoperatively, all the flaps survived, and the long term curative effects were proved satisfactory through our follow-up. Because of the neurovascular malnutrition in some patients who suffered from complete drop feet resulting from the damage of common peroneal nerve and high part of the tibial nerve, the osseous healing rate by the routine procedure of joint fushion was low. To avoid this problem, the authors have designed and used free fibula graft based on the fibular artery pedicle for ankle joint fushion. Postoperaturely, the osseous healing situation appeared sound.

SU18

SURGICAL EXPERIENCE IN OCULAR LEPROSY

This paper deals with our experience in various intraocular operations done in leprosy patients over a period of 15 years.

The intraocular operations done are
1. Cataract extraction with or without I.O.L.
2. Phaco Emulsification
3. Trabeculectomy
4. Combined extraction
5. Extraction with vitrectomy.

The aim of the presentation is to highlight the likely complications and precautions to be taken before and after surgery in these patients as they have less corneal sensations, weakness of the orbicularis oculi. They have very less symptoms for the post operative complications.

PROBLEMS WE FACE WITH THEM :

- Reduced nucin content in tear film
- Reduced corneal sensation
- Cannot feel the injury or foreign body
- Weakness of the orbicularis
- Rubbing with infected hands
- Minimal symptoms.

This paper will be presented with Slides.

SU19

TOTAL INTRAVENOUS ANAESTHESIA (TIVA) FOR INTRAOPERATIVE ELECTRONEURODIAGNOSTICS (IOE) AND TIME CONSUMING NEUROLYSIS OF PERIPHERAL NERVES AFFECTED BY LEPROSY

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Intraoperative electroneurodiagnostics during surgery of leprous nerves require full relaxation of patients and extensive interventions lasting several hours. We report about the specifics of 19 general anaesthesias performed on leprous patients in the Green Pasture Leprosy Hospital, Pokhara-Nepal.

For intubation all patients were relaxed with small bolus of vecuronium 0.5-1 mg/kg. For surgery of leprous facial nerves 9 patients (I) were anaesthetised with continuous infusion of propofol alone (5-10 mg/kg/hr). 8 patients scheduled for tibial nerve surgery and 1 patient for surgery of both nerves received at first continuous infusion of ketamine (1-2 mg/kg/hr) followed by propofol after performing IOE (II). Intraoperative pain treatment was performed with fentanyl (0.05-0.1 mg). For ventilation a positive-pressure respirator (East Healthcare, Oxford) in a half-open system was used. Oxygene was administered only during induction and at the end of anaesthesia. ECG, oxygene-saturation (criticare) and blood pressure were continuously monitored. We registered the time between end of infusion and the moment when patients were able for verbal reaction (waking time) and the occurence of vomiting and confusion during the following 24 hours.

	operating time	fentanyl amount	waking time	number of patients	
				vomiting	confused
I	390 Min (430,270)	0.45 mg (0.5,0.0)	20 Min (25,10)	0	0
II	400 Min (610,280)	0.5 mg (0.5,0.0)	20 Min (50,10)	2	3

Median (Max,Min)

Both TIVA-regimes produced adequate anaesthesia for the operating procedures, they did not require more than 0.5 mg of fentanyl and the waking time was similar. The analgetic properties of ketamine was sufficient for the extended skin incision in tibial surgery.

SU20

NURSING CARE OF PRE-AND POST-SURGICAL CORRECTION OF FOOTDROP IN LEPROSY

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Transfer of post-tibial muscle tendon for correcting footdrop has been extensively used in leprosy patients usually with satisfactory results. However, the pre- and post-surgical care will distinctively influence its results. Twenty-one feet in 21 male patients with footdrop including 3 with plantar ulcers received above mentioned surgical procedure. At the same time, the authors provided them with nursing care of best quality. Before the operation, they were asked to learn how to do the functional exercise of posterior tibial muscle by themselves, and after the operation they exercised gradually and practiced their gait until had the gait corrected. Patients were followed up for 3 months when the plaster had been removed. The results should that: 1) three plantar ulcers all healed without reoccurrence; 2) nineteen patients had a correct gait; 3) two patients still had a mild steppage gait due to old age and insufficient exercise; 4) angle of every foot in an active dorsiflexion was less than 85 ° and in an active plantar flexion reached 100-110 ° . The authors suggested that footdrop patients complicated with plantar ulcers could be given the treatment of transfer of post-tibial muscle tendon if they could be well managed.

SU21

ABSTRACT EXTRACAPSULAR CATARACT EXTRACTION AND INTRAOCULAR LENS IMPLANTATION IN LEPROSY PATIENTS VISUAL OUTCOME AND COMPLICATIONS

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In Belo Horizonte, Brazil, 55 leprosy patients of all clinical types and grades (70 eyes) underwent extracapsular cataract extraction and intraocular lens implantation during a period of 4 years. The authors analysed the visual outcome and complications of these surgeries. The visual acuity improved in 92.9% of the eyes and in 65.7% the acuity improved by 4 lines or more on the Snellen chart. 39 eyes (55.7%) had at least one of the following postoperative complications: astigmatism 2 (3.0%), inflammation 13 (18.6%), synechiae 7 (10.1%), sphincter tears 19 (27.2%), debris adherent to lens surface 11 (15.8%), dislocation of the IOL to anterior chamber 1 (1.5%), descentration of the lens 7 (10.1%), opacification of posterior capsule with loss of visual acuity 22 (31.5%). YAG capsulotomy was performed to restore the vision in 18 (25.7%) of these eyes.The postoperative complications were not too serious and could be controlled; most of them couldn't be associated to leprosy infiltration only.

SU22

PUNCH GRAFTING IN NON-HEALING TROPHIC ULCERS IN LEPROSY.

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Trophic ulceration is the consequence of repeated trauma, deformity and bone damage in anaesthetised limb. In many cases it could be a constant source of agony and embarassment even after patient is cured. Punch grafting is very useful technique which promotes complete healing of the ulcer in most cases.

21 cases of non-healing trophic ulcers were selected after completion of regular MDT. Multiple 6 mm punches were grafted after debridement of the floor. Tight dressing applied. Dressings removed after 7 days.

More than 90% of grafts were taken-up in 17 cases (80.9%) after 7 days and healed subsequently. In 4 cases grafts were rejected leaving a healthy granulating base with partial healing of ulcer. These were regrafted and healed uneventfully. Stitching done at donor site in all cases.

Punch grafting is very useful, simple, inexpensive and least aggressive surgical procedure for non-healing trophic ulcers in leprosy.

SU23

SURGICAL CORRECTION OF THUMB OF MEDIAN AND ULNAR PARALYSIS

LONG TERM COMPARATIVE FOLLOW-UP STUDY IN 111 HANDS

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The commenest cause of deformity of thumb in leprosy is median and ulnar paralysis. Surgical abductor-rotator replacement is done by transfering Extensor Indicis Proprious or Flexor Digitorum Superficialis or Palmaris Longus as motor. The often associated metacarpophalangeal instability is corrected by using the same motor used for abductor-rotator replacement with double insertion or by using a seperate tendon.

During the ten year perioa from 1979 to 1989, 111 patients with thumb deformity aged between 13 and 61 and paralysis of one year to twenty years duration underwent surgical correction at this centre and were followed up for periods ranging from 1 year to 15.5 years (mean 7.29 Years).

The results of abductor-rotator reconstruction by different procedures were evaluated using active abduction and rotation of the thumb and ability to perform pinch as parameters. They were compared and advantages and disadvantages of different procedures were discussed. The results of different procedures for metacarpophalangeal stabilisation were also analysed, compared and discussed.

SU24

THE RESTORATION OF PROTECTIVE SENSIBILITY IN THE HAND BY DIGITAL NERVE TRANSLOCATION

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All techniques used for correction of traumatic paralysis give the same result in leprosy paralysis. But the leprotic hand also involves loss of sensation. Therefore, it is of great importance to reconstruct the motor nerve function of the hand together with protective sensitivity.

In this study loss of motor function and sensibility are regarded as components of a complex event. During restoration of motor function, translocation of functional digital nerves which

innervate relatively less important areas of sensibility to nonfunctional digital nerves are performed in order to restore at least a protective sensibility in these otherwise anesthetic regions.

20 cases were operated between 1985 and 1994 (18 male, 2 female). The patients age ranged from 13 to 42 years. Our first case was a leprosy patient. Four cases emergency, 11 delayed cases of traumatic nerve legions, 5 leprosy patients. 12 cases had N. ulnaris, 6 cases N. medianus, 1 case N. medianus+N. ulnaris, 1 case N. medianus+ N. radialis lesions.

The duration of paralysis ranged from 1 day in emergency cases to 20 years.

Postoperative follow-up ranged from 28 months to 119 months. The return of functional sensation was evaluated by FSR described by Tenny and Lewis, and BMRC classical sensation improvement rating. Subjective results were evaluated by use of 100 point scala of classic 6 questions prepared by Lewis.

FSR result were 10% very good, 40% fair, 10% poor; BMRC sensational improvement was 10% S3+, 30% S3, 40% S2, 10% S1; and subjective evaluation results were 10% very good, 60% good, 20% fair, 10% poor.

Digital nerve translocation can be chosen in selected cases, in addition to the motor function reconstruction procedures for its easy application, dependability and sufficient results.

SU25

FLEXOR APONEUROTIC RELEASE FOR RESISTANT ADAPTIVE SHORTENING OF LONG FLEXORS IN CLAW HANDS IN LEPROSY.

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Adaptive shortening of long flexors (ASLF) occurs in long standing neglected claw deformity of hands in Leprosy. The inability to completely extend the proximal interphalangeal joint initiates shortening of the long digit flexors, mostly of the flexor digitorum superficialis. ASLF is classifed as mild, moderate and severe when PIP angles are present with wrist in 30° extension, neutral and 30° flexion respectively. Gentle passive stretching along with serial digital casting and night splinting is routinely instituted for all ASLF and on full correction splintage is discarded for two weeks prior to tendon transfer. Flexor aponeurotic release (FAR) is considered for 1) resistant ASLF despite adequate physical therapy for 6 weeks 2) persisting swelling of PIP joints 3) pain during gentle stretching 4) reduction of grip power during therapy and 5) recurrence of ASLF after discarding splintage. FAR consists of excising a 3-4 cms wide flap of deep fascia along with inter-muscular septum and fibrous bands of flexor origin in upper forearm. In 12 patients ASLF was corrected by FAR peroperatively and tendon transfer was done 4 weeks later. The procedure of FAR for resistant ASLF, its indications, clinical results and its advantages will be presented.

SU26

CATARACT SURGERY IN PAL'S— CALCUTTA EXPERIENCE

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36 Eyes of 28 Leprosy patients underwent Cataract surgery at Premananda Memorial Leprosy Hospital in year 1997. About 40 percent of these eyes were implanted with intra ocular lenses. 92 percent of these patients had Multi-bacillary leprosy. 27 percent of these patients were smear positive at the time of surgery. 75 percent of these eyes were blind i.e. vision < 1/60 and 25 percent of the eyes were severe visually impaired i.e. vision <6/60. 90 percent of the eyes were restored to vision >6/18. Success Rate and the Sight Restoration Rate in these patients will be presented.

In conclusion, quality vision can be given to PAL's following Cataract surgery with Intra ocular lens implantation.

SU27

CORRECTION OF FOOT DROP IN LEPROSY BY TIBIALIS POSTERIOR TRANSFER

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Paralysis of the anterolateral group of muscle of the leg resulting in Foot drop is one of the major factors contributing to the lower limb morbidity in the patients of Hansen's disease.

The Foot drop compells the patient to walk with a 'high stepping gait' subjecting the forefoot and the lateral border to high pressures resulting in trophic ulcerations. In established cases, reconstructive surgery is the only definitive means to correct the drop foot and entails the use of Tibialis Posterior muscle and rerouting it on the anterior aspect of the ankle to function as a dorsiflexor.

This study was done at Dr. Bandorawalla Leprosy Hospital, Pune 48. Fiftytwo patients were studied. Cases were predominently males and ranged from 18 to 45 years. Apart from details of surgical technique, emphasis has been laid on the importance of Biomechanical factors and Podiatric factors which must be looked into in obtaining an evenly weight bearing foot and providing a good ground clearance. Details of pre operative and post operative physiotherapy and role of footwear modifications in the functioning of the operated foot is also stressed.

SU28

NEWER DIMENSIONS IN TISSUE COVER FOR PLANTAR ULCERS

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The understanding of tissue deficit in the specialised skin of the sole of the foot is necessary for management of chronic plantar ulcers in leprosy feet. Author has devised the neurovascular subcutaneous island pedicle flap for forefoot ulcer, the distally based transposition flap for metatarsal head ulcers, the inferiorly based flap (with or without muscular component) for heel ulcers to provide for issue deficit. The techniques, follow-up and long term results will be presented for a series of cases.

SU29

INTRAOPERATIVE ELECTRONEURODIAGNOSTICS IN PERIPHERAL NERVES AFFECTED BY LEPROSY: TECHNIQUES, IMPLEMENTATION AND LIMITATIONS

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Leprous nerves are affected in various ways according to the type of disease, duration of disease and the characteristics of the nerves. If surgery is to be performed in leprous neuropathy, it is crucial to release all affected segments to ensure effective interventions. Conventional nerve conduction velocity studies (NCV) are commonly performed preoperatively to verify the clinics and to determine the site of lesion. However, these routine techniques are limited in two

ways: the proximal extend of lesion cannot be detected and a second affected site in case of scattered lesions (median nerves, tibial nerves) would not be identified. Furthermore, measurements would be impaired if the common stimulation site is affected as well, which frequently is the case (distal upper arm/ulnar nerve, cubital region/median nerve, fibular head/peroneal nerve, popliteal region/tibial nerve). In contrast, with intraoperative electroneurodiagnostics nerves are stimulated at the most proximal possible and unaffected site of the nerve, the roots. This enables a precise localization of the disease's proximal extend.

Since five years, intraoperative electroneurodiagnostics have been performed on leprous nerves during several international pilot studies (Bombay-India/1992+1994; Cairo-Egypt/1995; Pokhara-Nepal/1996+1997). In limb nerves, spinal root were electrically stimulated with surface electrodes, in facial nerves their exit at the pontal region were stimulated with needle electrodes over the temporal region. Efferent nerve compound action potentials were registered from the nerve's surface with bipolar wire electrodes moved proximally and distally along the exposed segments. Patient were fully relaxed to avoid volume conduction.

We report about our experience from over 2000 intraoperative recordings with various techniques, the implementation of the different methods, the interpretations of results and the limitation of the techniques.

SU30

MICROSURGICAL INTERFASCICULAR NEUROLYSIS OF THE MAIN TRUNK AND ALL AFFECTED PERIPHERAL BRANCHES OF LEPROUS FACIAL NERVES CAN AVOID TRANSFER PROCEDURES

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Since 1966, musculofascial transfer procedures remain the only surgical treatment of leprous facial neuropathy. The goal of this study was to evaluate the possible benefit of invasive neurolysis in leprous facial neuropathy given the fact that the surgeon can reliably detect all affected nerve segments.

10 patients suffering from leprous facial neuropathy were enrolled in this international prospective pilot study. All patients were medically treated according to WHO recommendations and had undergone clinical and electrophysiological investigation prior to surgery. Interventions consisted of exposing facial nerves at the main trunk and to perform lateral parotidectomy. Subsequently, all affected nerve segments identified as such either by intraoperative electroneurodiagnostics and/or by their macroscopical and microscopical aspect were surgically treated by epineuriotomy and, if necessary, by microsurgical, interfascicular neurolysis.

Follow up was performed 10 months and 22 months after surgery. Despite the fact that patients represented a negative selection as far as duration and severity of the disease was concerned, clinical evaluation showed improvement of lagophtalmos and/or other functions of facial muscles in all but one patient.

We conclude that microsurgical interfascicular neurolysis, properly performed on all affected nerve segments, can be recommended in leprous facial neuropathy and can avoid transfer procedures.

TRAINING

TR01

METHODS OF TRAINING BASIC HEALTH WORKERS AND PATIENTS IN PREVENTION OF DISABILTY

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The prevention of disability project in the People's Republic of China is probably the largest project in the world addressing the problem of prevention of disabilities due to leprosy. Disabilities have been the major cause of social stigma in leprosy patients in China and present major hurdles in their rehabilitation.

We have implemented the Prevention of Disability (POD) programme of leprosy patients in 15 provinces in China which has involved the planning and implementation of training of both health workers and people affected by leprosy in self care. The methods of training used at National, Provincial and County levels have included lectures, group seminars, demonstrations and on the job training. Training to the health staff i.e doctors, supervisors and basic health workers was the key to the programme's success. A total of 325 training courses were conducted and a total of 11,891 participants were present. 2,078 supervisors were also trained in this programme. The programme involved the process of transferring POD technology from experts to basic health workers to leprosy patients. However the follow-up surpervision and re-inforcement of training has been a key to the success of the programme.

Evaluation of the achievements of the training programme was conducted by a independent team of national and international experts in 1998. Change in attitudes and behaviour of the patients to the problem was assessed. The response of patients to neuritis was good and patients followed the instructions careful, particularly if there was pain associated with the neuritis. Patients learned self care of eyes well, partly because eye problems are visible and closely linked to stigma. Self care of the hand was comparatively better than self care of the foot which may be related to function of the hand and visibility.

The evaluation of the effectiveness of training reflects on the importance of follow up supervision and reinforcement of training; and patients learning related to presence of pain and the visibility of the potential disability (deformity).

TR02

BASIC ACTIVITIES AND SKILLS DETERMINED IMPORTANT IN PREVENTING IMPAIRMENTS AND DISABILITY IN HD AND THEIR IMPACT ON TRAINING AND SUPERVISION IN BRAZIL IN 1997 AND 1998

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Brazil has 27 states and over 5,000 municipalities. It continues to have over 36,000 new cases of HD diagnosed yearly. The coordinator of CNDS of the Ministry of Health in Brazil requested a collaborative National Prevention of Disability (POD) Project between the government and ALM in August of 1996. One outcome expected was to integrate essential POD activities into all HD control programs. Therefore is was necessary to identify essential activities and skills needed for preventing impairments and disability.

A consensus of basic activities and skills were developed by the National POD advisory committee combined with the results from four 1997 national supervisory training workshops. The combination represented disease control realities throughout Brazil.

Using these activities and skills, standardized training courses and systematic supervision were developed and implementation started in 1997. This presentation will also show the course content and objectives of two standardized training courses. One course developed for the trainer/supervisor and the other course for local health care workers. The skills learned in the courses are than followed up in systematic supervision activities. Supervision was felt to be the key component to maintaining and improving quality care as well as key to giving feedback for future training needs.

TR03

THE RESULTS OF 5 NATIONAL STANDARDIZED PREVENTION OF DISABILITY IN HANSEN'S DISEASE COURSES FOR THE TRAINER SUPERVISOR WHICH COVERED ALL 27 BRAZILIAN STATES IN 1997 AND 1998

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