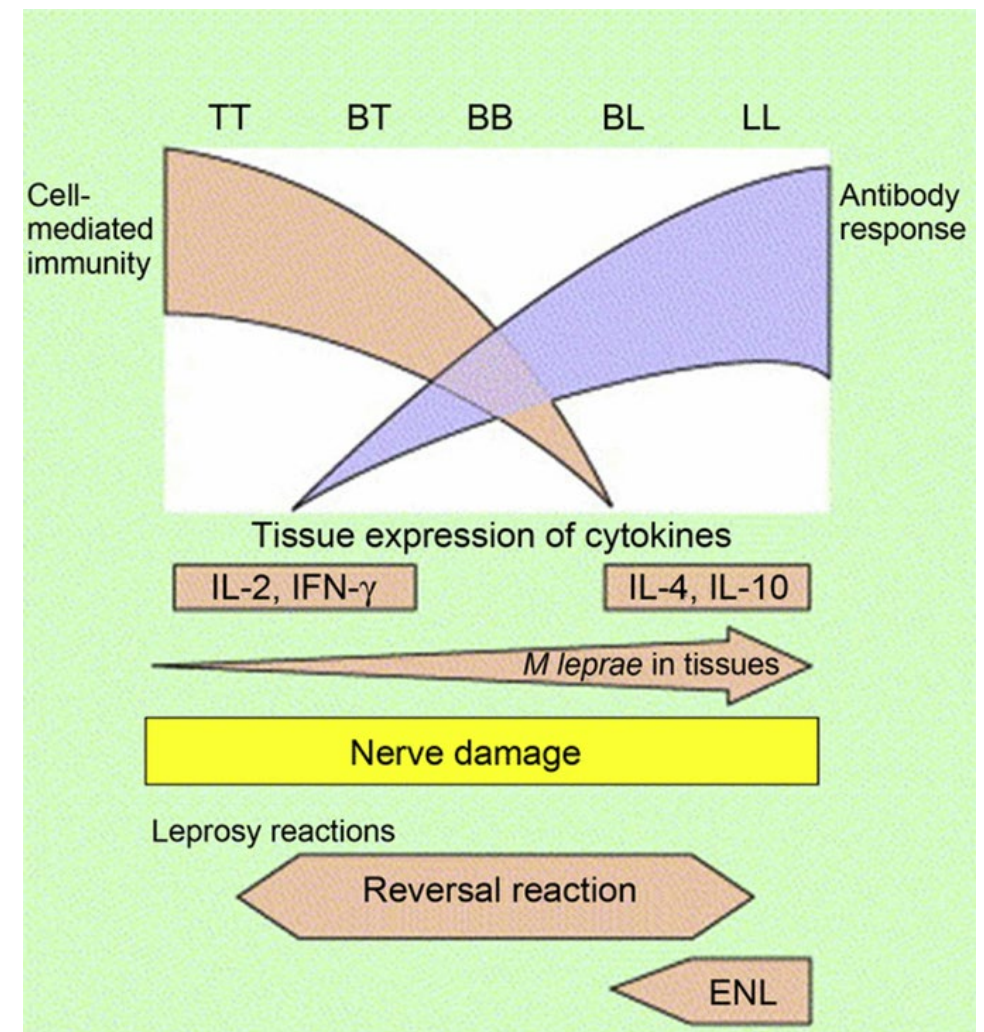


Nerve damage

The level of nerve damage in leprosy is high, with up to 60% of multibacillary (LL) patients having clinically apparent nerve damage at the time of diagnosis; 30% of patients may develop further nerve damage during treatment and 10% may develop new nerve damage after drug treatment.*

According to WHO, India discovered 114,451 new cases of leprosy in 2019, which accounts for 56.6% of the global leprosy cases. Although easily treatable yet due to a grievous lack of awareness, many cases are reported after the disease has already progressed to a Grade-II disability (visible deformity and damage present).

Ridley-Jopling leprosy classification.



* Lockwood DN, Saunderson PR. Nerve damage in leprosy: a continuing challenge to scientists, clinicians and service providers. *Int Health*. 2012 Jun;4(2):77-85. doi: 10.1016/j.inhe.2011.09.006. PMID: 24029146.

Deformities

The main cause of deformity in leprosy patients is nerve damage. This occurs because the leprosy bacteria grow in the cooler parts of the body, such as skin and peripheral nerves. The body tries to get rid of the bacteria and the resulting inflammation compresses and destroys these delicate fibres with more or less complete loss of function. The affected nerves lose sensation and muscles get paralysed, thus paving the way for disability/deformity, anaesthesia, ulceration, damage through injury and eventually permanent deformities.

Claw-hand in a MDT treated leprosy patient.



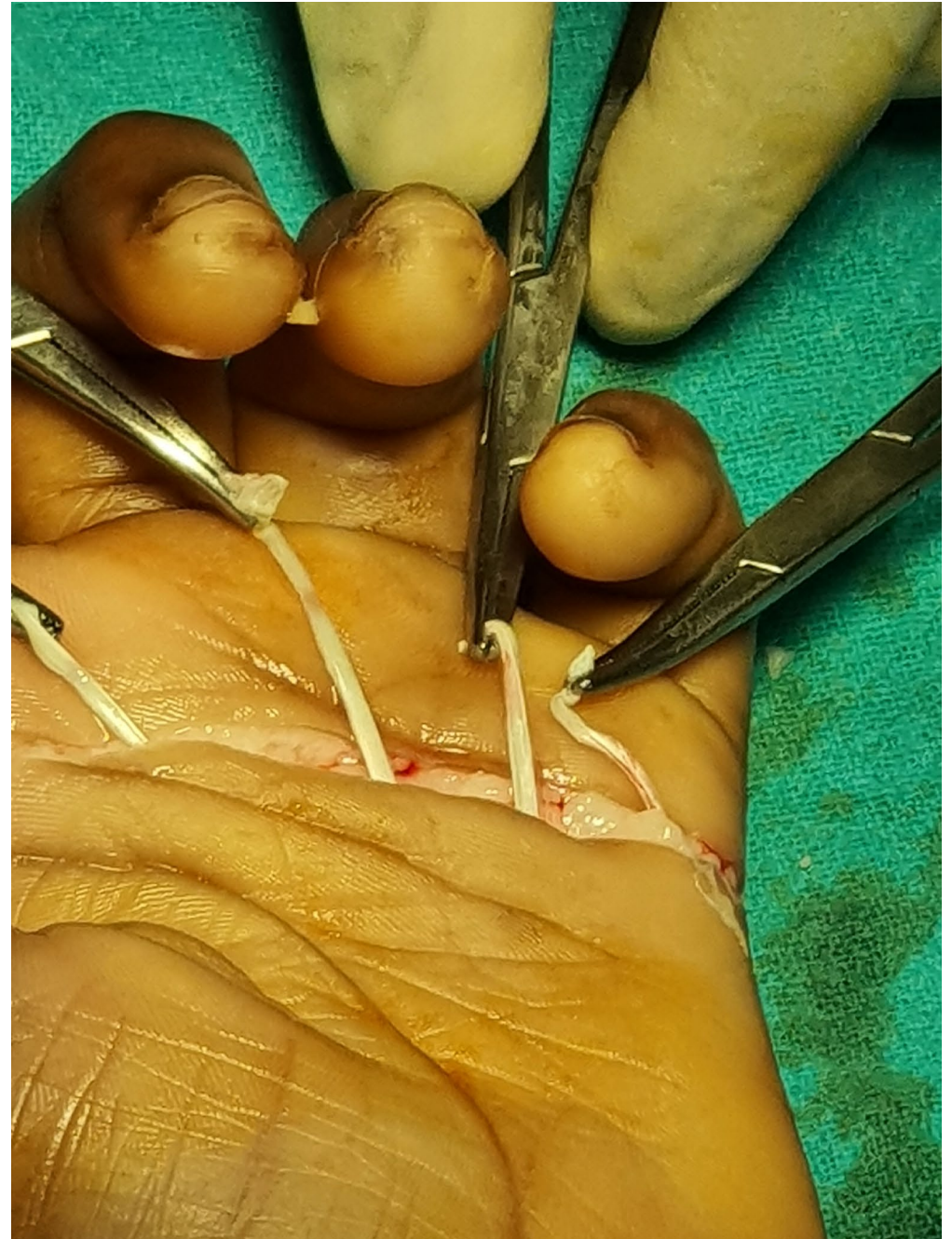
T cell-mediated inflammation is the main pathological process in leprosy nerve damage. That is why treatment with anti-inflammatory or immunosuppressive agents are a necessary supplementary treatment when giving MDT (Multi Drug Therapy).

RCS* project in India

In this project for TLM Norway, started in March 2023, 20 persons got corrective surgery by tendon transfer for claw-hand.

Surgery was conducted according to the Zancolli lasso procedure, which has been proven easy, it restores synchronous finger flexion, and spares other superficialis tendons, thus avoiding swan neck deformity of the fingers.*² This is well known, and the procedure is often used in India.

*²Gupta V, Consul A, Swamy MK. Zancolli lasso procedure for correction of paralytic claw hands. J Orthop Surg (Hong Kong). 2015 Apr;23(1):15-8. doi: 10.1177/230949901502300104. PMID: 25920636.



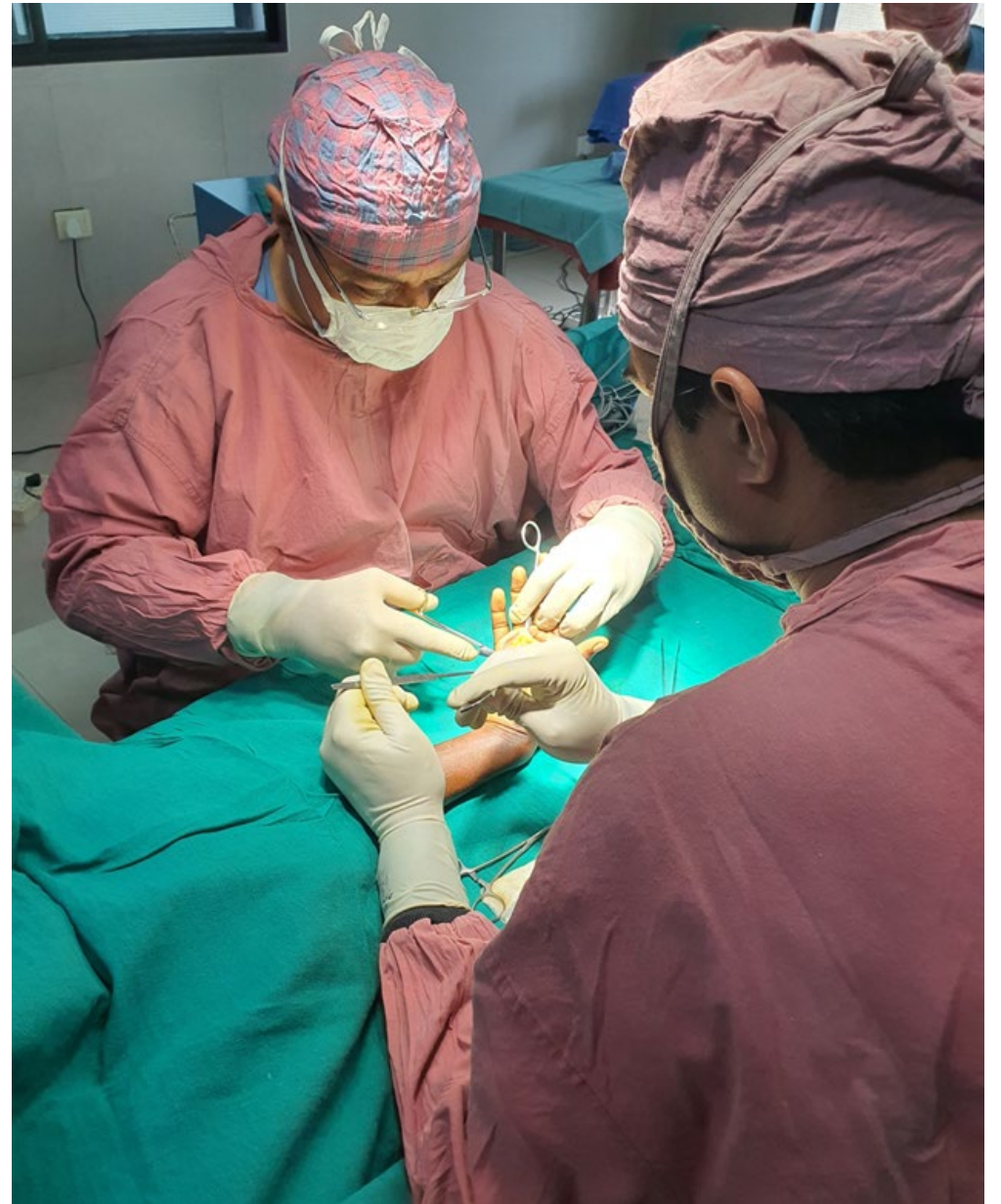
* Reconstructive surgery

RCS project in India

Surgeon: Monitoring of patients, recommends pre-operative and post-operative physiotherapy. Postoperative cast for 4 to 8 weeks before physiotherapy.

Physiotherapy unit: All patients admitted for surgery undergo pre-operative and post-operative physiotherapy treatment.

Post-operative care: Patients may use ortosis after removal of the cast, they do active and passive movement, and they learn to use the fingers in a new matter with bio-feed back.



Dr. Premal Das performing a tendon transfer at the hospital in Naini, Prayagraj, Uttar Pradesh, India.

RCS project in India

A rehabilitation plan is made for each individual patient who undergoes corrective surgery. The plan takes into consideration their occupation before admittance for surgery and what they intend to do after surgery. Based on their academic, technical qualification, previous experience, interests, disabilities and needs of the community they are also referred for The Leprosy Mission Trust India's community programs, with the goal to help them to be self-sustained.



Bio-feed back training for mastering the use of the transferred flexor tendon as an extensor.

Outcomes of RCS

Physical Outcomes:

- Improved function
- Cosmetic appearance restored

Psychological Outcomes:

- Increased self-confidence in patients
- Helps to restore lost self-esteem in patients

Social Outcomes:

- Increased work output
- Eligibility for education

Socioeconomic Outcomes:

- Reduction in Disability adjusted life years



Scar after reconstructive surgery. The patient is able to fully extend and bend her fingers.

Lessons learnt

Treating patients with nerve damage is a long and costly project. The aim must be to trace and treat persons afflicted with leprosy as early as possible in the course of the disease, to prevent secondary damage from the infection. This by intensifying outreach activities, information and early intervention.

In the meantime, we will continue to contribute to those with already nerve damage from Leprosy, with both conservative and surgical treatment, with the aim of helping people to be self-sustained.



An earlier patient back in his village, with good function and hope for the future.

General considerations

WHO in January 2023 urgently addressed gaps in leprosy services disrupted by the COVID-19 pandemic, to accelerate efforts towards zero leprosy infection and disease, zero leprosy disability, and zero leprosy stigma and discrimination.

Post-Exposure Prophylaxis, PEP*, is a new initiative to, if possible, prevent close contacts of those who are infected from developing the disease. More scientific evidence are needed for safe preventive treatment, as the PEOPLE project.*²

A test to detect the bacteria is urgently needed to achieve the goal of eradicating leprosy, and more prevent nerve damage.



*WHO's PEP recommendation on chemoprophylaxis is a single-dose Rifampicin.



*² The PEOPLE project, a large, multi-partner clinical trial, four methods of preventive treatment are tested, to stop the disease in the Comoros and Madagascar, led by Institute of Tropical Medicine in Antwerp, Belgium.