

CLORELASE — A THERAPEUTIC TRIAL

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Plantar ulcers and burns and scalds on anaesthetic hands with ulcer formation are a common sight among leprosy patients, especially those of the tuberculoid and borderline types. The ulcers, either superficial or deep, are not caused by lepra bacilli but by trauma on the anaesthetic parts. Bechelli (1938) concluded that the cause was "nervous" and secondarily mechanical stress. This observation still holds good today, although other factors such as Vascular lesions, the dyscrasias and certain intoxications have been invoked to explain the pathogenicity.

Various forms of medication, with or without surgical intervention have been in use in Trafalgar Home, the mainstays being Eusol dressing and application of Plaster Cast to the affected foot. The former unfortunately takes a long time, while the latter's use is limited by two factors:

1. ulcers discharging pus tend to soak the plaster and produce an intolerable foul smell, and
2. the stiff edges of the plaster not uncommonly, cause pressure ulceration on the leg.

In this study, a new ointment, CLORELASE, was used. Clorelase is an ointment compounded of Elase with the broad-spectrum antibiotic Chloramphenicol. Elase itself is a combination of two lytic enzymes, fibrinolysin and desoxyribonuclease (Bovine). It is said to assist in dissolution of undesirable exudates from wounds, ulcers or burns on the surface of the body. In addition to this indirect anti-bacterial action, Clorelase provides the direct bactericidal action of Chloramphenicol.

The sole aim of this trial was to determine the usefulness of Clorelase ointment in the treatment of ulcers, post-operative wounds and infected second degree burns. As supplies of the ointment were limited, use was restricted to those patients who did not respond to previous medication, with three exceptions (see below—Cases 2, 11 and 12).

Clorelase ointment was used to dress the affected part once a day. Inspection and assessment were carried out weekly for 8 weeks. No systemic antibiotic was given in conjunction

with Clorelase. Whatever antibiotic that was given previously, was taken off as soon as Clorelase medication was instituted. There was a total of twelve patients on whom the trial was carried out.

RESULTS

The results of treatment with Clorelase are described below.

Case 1. L.S.P. M/26

This patient was admitted on 2nd November 1961 for treatment of an ulcer on the right sole, 3 in. × 3¼ in. For 4 years he was put on various dressings, including Eusol, Eusol paraffin, Flavine, Novolep and Cod Liver oil. Excision of the ulcer followed by immobilisation in a Plaster-of-Paris boot was carried out on three occasions. Tetracycline and Midicel were also prescribed on separate occasions. After 4 years, the ulcer had reduced to 1 in. × 0.7 in. Clorelase dressing was commenced on 28th December, 1965. After 2 months, the ulcer had shrunk further to 0.5 in. × 0.25 in.

Case 2. T.E.S. M/45

This patient had a deep perforating ulcer on the plantar aspect of the left heel. The ulcer was of 1 in. diameter and ¾ in. deep. Clorelase dressing was commenced on admission on 29th December, 1965. Within 2 weeks there was definite subjective and objective evidence of healing. Complete closure of the ulcer occurred at the end of 7 weeks.

Case 3. G.L.H. M/32

A mental defective, he was admitted in 1963 for a recurrent large ulcer on the dorsum of the left foot. Split skin graft was done which took poorly. However, the ulcer had almost healed after 1½ years when the patient scratched the affected part, causing a flare up. Sepsis set in. Various antibiotics were tried, *viz.* tetracycline, Chloramphenicol and Midicel, and a host of different preparations used to dress the wound, *eg.* Eusol, Varidase, Viscopaste, Tulle Gras with Pulv. Chloramph, Eusol paraffin, but in vain. The Orthopaedic surgeon found the ulcer unsuitable for skin grafting because of the thick hard

edge surrounding the ulcer. At this point the ulcer was $\frac{1}{2}$ in. \times $\frac{3}{4}$ in. and there was a new ulcer of $1\frac{1}{2}$ in. \times 1 in. on the dorsum of the right foot. Clorelase dressings were instituted. However, there was no appreciable reduction in the size of the ulcers at all, although they appeared cleaner.

Case 4. T.C.L. M/40

This patient suffered a burn on the lateral aspect of the right 5th toe. This was initially dressed with Tulle Gras and Pulv. Chloramphenicol, and systemic tetracycline was given. After 5 months the ulcer had shown no sign of healing and was $\frac{1}{2}$ in. diameter, when Clorelase therapy was begun. Complete healing of the ulcer took place after 4 weeks.

Case 5. Y.C.T. M/34

This man underwent a tendon transplant for a left foot drop in September, 1965. After removal of the plaster cast 6 weeks later, a pressure ulcer had developed on the lateral border of the foot. This was first dressed with Glycerine Mag. Sulph., then Eusol paraffin, Ung. Chymar, Eusol, Viscopaste, in turn. He was on tetracycline for 3 weeks, Midicel for 1 month, and Chloramphenicol for 5 days. After $2\frac{1}{2}$ months, the ulcer had still not healed, in fact, it had become worse and discharged sero-purulent material. An X-ray showed destruction of the bones of the 5th metatarsal phalangeal joint. Clorelase therapy was instituted on 9.2.66 on the ulcer which was now $\frac{3}{4}$ in. in diameter. After 2 weeks there was a noticeable improvement in the ulcer which closed completely after 7 weeks.

Case 6. T.G.P. M/55

This patient's right forearm was scalded on 15th March, 1966. The wound had become septic when the patient was admitted to the Infirmary. Therapy consisted of Chloramphenicol and Tulle Gras with Pulv. Chloramph dressings. After 2 weeks there was no sign of improvement. An ulcer, 3 in. \times $1\frac{1}{2}$ in. had formed with greenish slough at the base. Clorelase dressing was then begun. The sepsis cleared after a week and the ulcer healed at the end of 3 weeks.

Case 7. G.S. M/29

An attendant, this patient had his right 4th toe amputated for gangrene on 11th March 1966. The stump became infected and an ulcer formed. He was given Inj. Pro. Penicillin 1 mega. daily and Inj. Streptomycin 1 grm. daily for 10 days, followed by Oracyn for 5 days. The wound was dressed with Eusol. After 3 weeks, it had still not healed (see Fig. 1.). Clorelase ointment was

then used to dress the wound. There was complete healing after 2 weeks (see Fig. 2.).



Fig. 1.

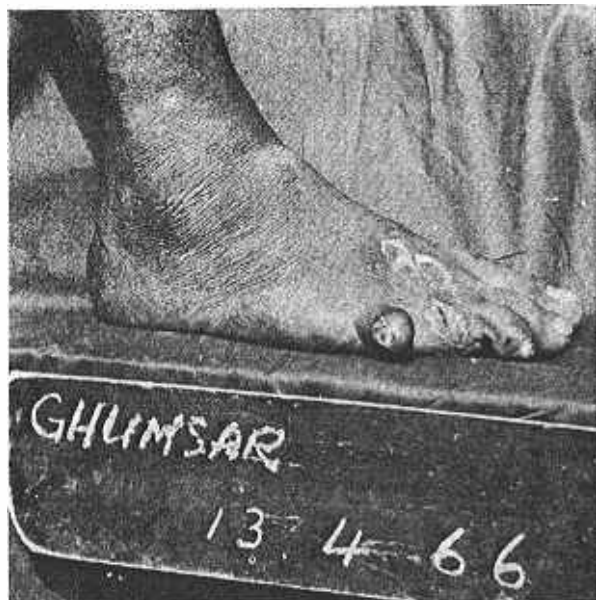


Fig. 2.

Case 8. L.A.M. M/57

This patient had an ulcer on the left lateral malleolus, about 2 in. in diameter. (see Fig 6.). He was treated with Inj. Pro. Penicillin, and Eusol dressing for 1 week, then Viscopaste for 3 weeks. No improvement could be detected after 1 month. After the institution of Clorelase ointment dressing, the ulcer healed at the end of 9 days.

Case 9. L.G.H. M/45

This man sustained burns on his right 2nd, 3rd, and 4th fingers which were anaesthetic. He was given tetracycline for 1 week, and the wound was dressed with Tulle Gras. On the 8th day, when no change had occurred, Clorelase was used to dress the ulcers which had formed. These healed in 3 weeks.

Case 10. P.R. M/42

A tendon transplant for a right foot drop was done on 31st January 1966. After removal of the sutures, there was partial breakdown of the wound on the anterior part of the right lower leg and ankle and a superficial ulcer formed (see Fig. 3.). The wound was first dressed with



Fig. 3.

flavine. A sensitivity reaction developed in the form of papules around the wound which were very itchy. Clorelase was then used in place of flavine. The wound healed on the 10th day. (see Fig. 4.).

Case 11. A.J.S. M/59

This patient in the ambulatory section was cut by a glass splinter on the dorsum of his right foot, causing a linear wound 1 in. long, and $\frac{1}{4}$ in. deep. Clorelase therapy was instituted at once. The wound healed in 1 week.

Case 12. T.S.S. M/40

This patient had a perforating ulcer on his left heel $\frac{1}{2}$ in. in diameter (see Fig. 5.). This was dressed with Clorelase. Closure of the ulcer occurred after 2 weeks. (see Fig. 6.).

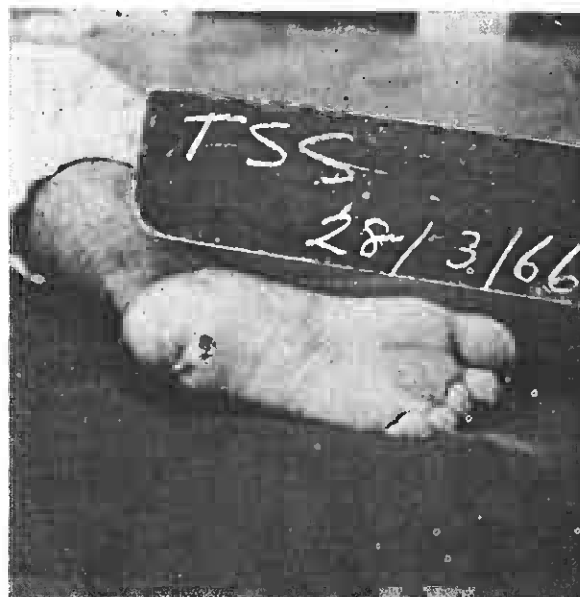


Fig. 5.

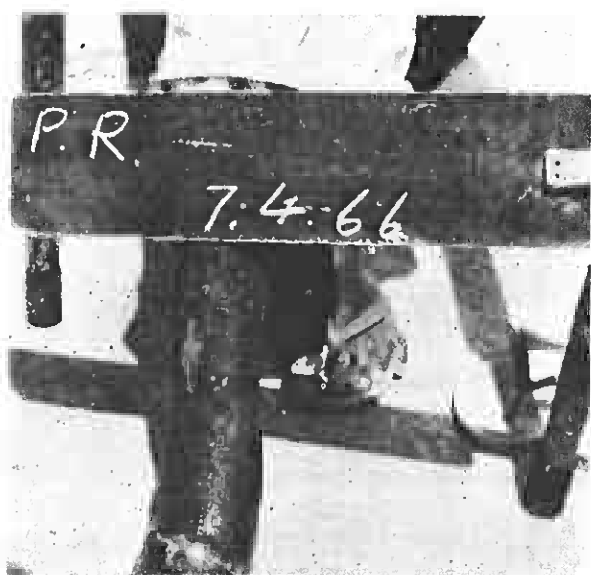


Fig. 4.



Fig. 6.

It can be seen that of the 12 cases, complete healing with Clorelase took place in 10 cases within 7 weeks; of these 3 healed after 3 weeks' treatment; of the remaining 2 cases, one (case 1) showed some improvement, while the other (case 3) showed no improvement at all. 9 of these patients had previous local applications, 4 being for more than 3 months, and 5 for less than 1 month.

No side effects were encountered with Clorelase ointment.

DISCUSSION

A brief survey of some of the previous attempts at treating trophic ulcers in leprosy provides a useful and interesting background to our present study.

Maynard (1938), in an attempt to bring nourishment to the parts, used a mixture of beef suet, ghee and beeswax to dress the ulcers in 60 cases. Healing occurred completely in 6 months in 50 per cent of cases. Tisseuil (1937) using intravenous injections of a sulphur derivative 1 ml. twice weekly, produced an amelioration of the general condition, an arrest of suppuration of the ulceration and healing in 4 patients after 10 to 20 injections.

Oberdoerfer and Collier (1939), working in Chiengmai Leprosy Asylum, tried weekly dressings with an ointment made up of Mercurochrome, honey, cod-liver oil, zinc oxide powder bismuth subnitrate and vaseline. He found that this mixture produced a beneficial reaction.

Languillon (1959), at the Institut Marchoux, used Asiaticoside (the active principle of the plant *Centella asiaticae*) on 10 patients, and obtained healing in 8 patients in 3 to 9 weeks. Fritschii (1959) did a controlled study on 19 patients in Karagiri, India, giving 10 of them 0.25 mg. Hydergine thrice daily in the form of sublingual tablets, and 9 were controls, being given a placebo. He found that there was no substantial difference in the progress of the ulcers in the 2 groups.

Sampath Iyengar (1959), using Chloromycetin cream found that the small and superficial ulcers healed up completely within an average duration of 21 days, and some of the extensive and deep ulcers took about 60 days for complete healing.

The incidence of trophic ulceration in the anaesthetic hands and feet of leprosy patients in Singapore is so high that it constitutes a major problem. It is the commonest cause of disability

amongst leprosy patients resulting in frequent and prolonged abstentions from work and consequent loss of employment. Two wards with 48 beds in the Male Infirmary of Trafalgar Home, are almost invariably fully occupied by patients with ulcers. Languillon (1964) observed that among 3,000 leprosy patients examined, 403 patients had 1,049 perforating plantar ulcers.

So very often we find these ulcers becoming secondarily infected. 7 of the 9 patients who had previous medication were given systemic antibiotics, 5 having had more than one antibiotic. The value of systemic antibiotics and lytic enzymes in the treatment of trophic ulcers is questionable because of the poor blood supply in these anaesthetic areas and the presence of dense fibrous tissue around the ulcers. The metabolism of these drugs further diminish their activity.

In the cases studied, there was no exhibition of systemic antibiotics during Clorelase therapy. The local application of Clorelase permits the use of the largest concentration of antibiotic and lytic enzymes on the affected part and thus allows for maximum effectiveness. This is borne out by the experience that despite the fact that no systemic antibiotics were used, sepsis cleared and complete healing occurred in 10 of the 12 cases studied. The failure in the 2 cases (cases 1 and 3) could be explained by the presence of thick hard edges around the ulcers.

SUMMARY

Clorelase is an ointment compound of Elase and Chloramphenicol.

The above trial involves the use of Clorelase in 12 patients for the treatment of trophic ulcers, septic wounds and burns. 9 of these had previous medication.

Successful and complete healing occurred in 10 patients.

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