

LEPROUS NERVE ABSCESS: REPORT OF TWO CASES

S. G. BROWNE, M.D., F.R.C.S., M.R.C.P., D.T.M.

Superintendent, Yalisombo Leprosarium, Belgian Congo

Leprous nerve abscesses, or "cold abscesses" associated with tuberculoid (or, more rarely, with lepromatous) leprosy, have long been recognised as a rare complication of the involvement of a major superficial nerve trunk or a principal branch.¹ The incidence is variable, being fairly common in India, and distinctly uncommon in tropical Africa.

In twenty years' practice in an area of high leprosy endemicity in Belgian Congo, the writer has encountered two cases of leprous nerve abscess in a series of upwards of ten thousand cases of leprosy personally examined.

Case Reports

Case 1

An apparently healthy, well-developed Bantu woman of about 40 years of age, presented herself at hospital complaining of a painless tumour in the region of the left elbow. The history was vague: a small painless lump had been noticed in that situation some months previously, just above the elbow on its inner aspect. There was coincidentally some tingling along the ulnar border of the left hand, and in the ring and little fingers. The swelling had been increasing gradually in size, until it had interfered with her gardening work. She did not complain of any other symptoms.

On examination, an ovoid cystic swelling was present on the inner border of the left arm and forearm, posterior aspect, in the neighbourhood of the elbow joint. Its long axis measured $4\frac{1}{2}$ in. (11 cm.), and its short axis $2\frac{1}{2}$ in. (6 cm.). The skin surface was regularly smooth, as was the surface of the tumour; the tumour itself was not attached to the skin, which moved very freely over it. It was attached deeply, probably throughout its entire length. The swelling was uniformly cystic, and appeared clinically to consist of a single thin-walled sac containing liquid. The skin was of the same temperature as elsewhere.

A large inactive tuberculoid macule covered the outer aspect of left arm and forearm, enclosing the elbow. The centre was normally pigmented, but of the appearance that suggested an old healed minor tuberculoid lesion—small, smooth, shiny plaques of atrophic skin, separated by shallow furrows. The periphery of the macule was slightly raised and pebbly, but presented no

clinical evidence of activity. The process of flattening, repigmentation and cicatrization was proceeding here and there along the periphery, i.e. the lesion was becoming a healed tuberculoid macule, the process being more advanced inferiorly, where the lesion faded indefinitely into skin normal in colour and texture.

The little and ring fingers were slightly flexed, and active full extension was impossible. The nail bed of these two fingers was shiny and atrophic; the fingers themselves were slightly more pointed than the remaining unaffected fingers. No trophic ulceration was present. Complete anaesthesia to cotton wool was present along the ulnar border of the hands, and on the ring and little fingers, with dulled appreciation of pin-prick and absence of tactile discrimination and temperature sense.

Bacteriological examination by standard methods of the least inactive portion of the edges of the macule (i.e. superiorly and externally) gave negative results for *M. leprae*.

Operation

Under brachial block anaesthesia (20 ml. of 1% procaine) an incision was made over the most prominent aspect of the swelling. The very thin adhesions between subcutaneous tissue and cyst wall were easily broken down by gauze dissection. The cyst wall was punctured in so doing, and very freely running yellow fluid escaped.

The entire cyst was then freed by gauze dissection except on its deep aspect. As a precautionary measure, the contents of the cyst were completely evacuated to reveal the nature of the deep attachments. The ulnar nerve, swollen and red, was seen lying along the base of the cyst, and the wall of the latter was continuous with the nerve sheath. The thin wall was carefully dissected from the nerve and removed entire, the perineurium being longitudinally incised in the process. Since the nerve itself did not appear to be under tension, anterior transposition was not performed.

Areolar tissue was loosely stitched over the nerve, and the deep tissues brought together, and the wound closed with drainage. The drainage tube was removed on the second day, and the wound healed virtually by first intention.

Subsequent history

The ring and little fingers showed no improvement in spite of nocturnal splinting and remedial exercises.

Examination of the pus from the cyst by standard methods was negative for all bacteria, including *M. leprae* and *M.*

tuberculosis. The cells present were very degenerate, their nuclei scarcely taking the stain.

The subsequent history of the patient is unknown, as she cannot be traced.

Case 2

A Bantu schoolboy of 14 years of age complained of a painful swelling behind the left knee of four weeks' duration. There was no history of infection via the skin, or from a wound on the foot or leg; he attributed the swelling to the fact that he had been standing in a canoe for some three days, paddling sixty miles upstream against the Congo current.

The calf muscles seemed subjectively "heavy", and numb, and the patient complained of painful paraesthesiae in calf and foot, painful sensations of heat and cold in the left foot, and painful sensations of cold first noted in the lower calf and in front of the ankle.

On examination, the left knee was held flexed, and extension was actively resisted because of pain. A diffuse tender swelling occupied the popliteal region; its borders were ill-defined, and merged into the surrounding tissues. Its centre was fluctuant. The inguinal glands of the same side were enlarged and tender. The skin over the swelling was normal in appearance, and was of the same temperature as distant skin. In particular, there was no evidence of leprosy or any cutaneous infection locally or within the drainage area of the popliteal gland. There was no excess of fluid in the knee joint, and no evidence of gonorrhoea, bacillary dysentery or tuberculosis. There was no tropical myositis in sites of predilection.

The general condition of the patient was excellent; temperature and pulse were normal, and no pathological signs were revealed on examination of the systems. The white cell count was within normal limits, and the differential count normal.

Operation

Under chloroform anaesthesia, a longitudinal incision 4in. long was made over the swelling, and the subcutaneous tissues were incised. Gentle dissection of the oedematous wall of the abscess cavity superficially, disclosed a mass about 4in. (10 cm.) long, and 2in. (5 cm.) in breadth at its widest. The tense wall was incised, releasing about 40 ml. of moderately thick yellow pus. The cavity was explored with the gloved finger, and several fragile bands broken down. When all the pus had been evacuated, and

the cavity flushed with 1/1000 aqueous acriflavine solution, the walls were examined. Running longitudinally along the floor, appearing superiorly in the apex of the popliteal space, was the red and swollen popliteal nerve. The popliteus muscle was intact, and no lymphatic glands were seen. The sheath of the nerve was incised in the direction of its fibres, and the nerve itself freed with the finger from the recent adhesions to its bed.

The wound was closed with drainage, and the leg splinted in 10° of flexion.

Subsequent history

Examination of the pus by standard methods revealed very degenerated white cells, and disclosed no bacilli colorable by methylene blue, Gram's stain, or Ziehl-Neelson's stain.

The operation wound healed with slight superficial secondary infection, and the local pain behind the knee disappeared completely. The pain and paraesthesiae in the leg below the knee persisted, and within a few months of discharge from hospital, the patient noticed weakness in his left foot and early foot-drop.

Complete clinical and bacteriological examination still revealed no sign of leprosy.

Shortly afterwards, he developed a typical tuberculoid macule embracing the left knee and encroaching on the lower third of the thigh and below the head of the fibula; the extensive lesion appeared rapidly, not increasing gradually and centrifugally from a small papular tuberculoid macule as is the more common mode hereabouts. The whole area involved became uniformly hypopigmented; the border was slightly raised and papular, active and succulent.

The evidence of nerve involvement was furnished by the typical combination of wasting of the calf muscles, foot-drop and trophic ulceration of the first and fifth (left) toes. Examination of cutaneous and deep pressure, sensation and temperature sense, provided confirmatory evidence.

Further widespread tuberculoid lesions made their appearance within the next few years—on shoulders, right cheek, trunk. In the absence of cutaneous involvement on the right leg and thigh, signs of nerve complications became apparent, followed many months later by tuberculoid lesions similar to those on the left thigh and leg.

Meanwhile, the patient had been treated with standard doses of Dapsone (which had by that time become available), with good

clinical results as far as the cutaneous lesions were concerned. The results of nerve involvement remained unchanged.

Comment

Both cases concern the appearance of a bacteria-free collection of pus in association with a major nerve trunk near an articulation.

In the first case, an extensive tuberculoid macule undergoing spontaneous retrogression, involved the skin overlying the abscess and beyond. In the second case, no cutaneous lesion was present at the time, but an extensive minor tuberculoid macule appeared subsequently, involving a widespread area of skin in the vicinity of the abscess.

In both cases, the nerve trunk was the seat of an oedematous inflammation, and signs and symptoms of motor and sensory involvement were present when the abscess cavity was evacuated. In the first case, the nerve involvement had been present some months; in the second, it appeared *pari passu* with the developing abscess.

In each case, incision of the nerve sheath was performed too late to reverse the changes due to compression of the nerve fibres.

In the first case, a long-standing collection of pus was enclosed in a definitely walled thin sac; in the second case, subacute rather than chronic, the abscess wall was thick, soft and oedematous, and less well-defined. The first sac was removed easily, complete; the second had to be left *in situ*, so closely was it adherent to adjacent tissues.

After evacuation of the pus, the wounds healed without difficulty, and with only superficial infection. In both cases, the pus contained no organisms demonstrable by standard methods of examination.

Summary

Two cases of leprosy nerve abscess associated with main nerve trunks in cases of tuberculoid leprosy are reported from the Belgian Congo. In one case, the tuberculoid lesion was long-standing and quiescent; in the other, cutaneous lesions had not made their appearance at the time the abscess was forming, but appeared later.

1. ROGERS, L., and MUIR, E. (1946). *Leprosy*, 3rd Ed. John Wright & Sons Ltd., Bristol.