

Field Workers' Forum

THE RECOGNITION AND MANAGEMENT OF NERVE DAMAGE UNDER FIELD CONDITIONS

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Introduction

Recognition that nerves are being damaged may not be easy, because it can occur without causing pain. It is often overlooked by leprosy workers, and may even be overlooked by the patients themselves. Each time the patient comes for treatment the field worker should:

- (1) Test for neuritis by examining the important nerve trunks for tenderness;
- (2) Test for nerve damage by:

(a) questioning the patient about his general health. Most patients who are developing nerve damage also have other symptoms such as vague aches and pains, mild fever, burning or numbness of the skin, or simply do not feel well.

(b) Examining the face, hands and feet for signs of weakness of the muscles.

Correct management of nerve damage and neuritis is most important. It is the one thing that can prevent the development of disability.

Recognition

- We shall consider:
1. Symptoms
 2. Signs
 3. A Severity Scale
 4. An "At Risk" Register

1. *Symptoms*

(a) *Pain*. Patients with nerve damage often complain of pain of the nerves or joints. This pain may be severe enough to prevent sleep or work. Pain may also be very mild. Some patients are strong and used to pain. They expect to have pain with leprosy and may not complain unless asked about it.

(b) *Numbness*. Patients often complain of numbness. It is important to be certain that they really mean loss of feeling. Good records of the extent of loss of

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feeling at the time the patient is first seen are very important; without them it is impossible to tell whether the loss of feeling is becoming greater or not. Only if it is becoming greater is it evidence of nerve damage.

(c) *Burning feeling in the skin.* This may be the first sign that nerves are being damaged.

(d) *General symptoms.* Many patients developing nerve damage do not feel well, and may have mild fever.

(e) Very commonly nerve damage occurs when there is also reaction developing in skin lesions.

2. Signs

(a) *Signs in the nerve trunk itself.* In cases of neuritis, nerve trunks will be enlarged, tender and may be hard. Feel these nerves gently, using the pulp of the fingers and not the extreme tip. The ulnar nerve can only be examined properly with the patient's elbow bent, and the peroneal nerve with the patient sitting down. Watch the patient's face as you feel the nerve. Compare right and left sides as this will help you to estimate size. You can only get to know the size, tenderness and hardness of normal nerves by examining many, many cases. Practise this often. But remember that nerves can be damaged even if they are not painful or tender.

(b) *Loss of feeling.* Dryness in hand or foot is a useful guide to loss of feeling, as dryness and loss of feeling usually go together. The following test has been found to be of practical value for hands and feet:

With the patient's eyes shut, use the point of a ball-point pen or pencil and touch the palm of the hand or sole of the foot firmly. If the patient has protective sensation he will feel this touch and be able to point exactly to the spot where he was touched. If his sensation is seriously diminished he will miss the mark. Record in centimetres the distance by which he misses.

Sensation in the eye must be tested with a wisp of clean cotton wool.

(c) *Weakness.* Simple tests for weakness include:

- (i) Outward movement of the little finger.
- (ii) Pinch between thumb and little finger.
- (iii) Dorsi-flexion of foot against resistance.
- (iv) Attempted closure of the eyes.

(d) *Swelling.* Swelling (oedema) may be found together with nerve damage. If oedema develops first, it is a warning that nerve damage may soon follow.

(e) *Signs of reaction in skin lesions* often occur when nerves are being damaged.

3. A Severity Scale

Always record the severity of the patient's symptoms and signs according to these definitions:

(a) *Pain.* Mild pain—discomfort not sufficient to interfere with work or sleep. Severe pain—the patient is unwilling to move the limb, and sleeping is disturbed.

(b) *Tenderness.* Mild tenderness—shown by firm pressure on the nerve trunk. Severe tenderness—shown by light touch on the nerve and by tenderness in the skin overlying the nerve.

(c) *Enlargement.* Try to estimate the size of the nerve in millimetres.

(d) *Hardness*. Nerves may be:

- (i) Normal—that is, a little bit soft so that you feel you can squeeze them rather like microcellular rubber used in shoes.
- (ii) Firm—like very hard rubber.
- (iii) Hard—as hard as bone or marble.

4. "At Risk" Register

Use some simple record to draw your attention to cases at risk of getting neuritis. This may be done by putting a red star, for example, against the patient's name in your treatment register or on the top left-hand corner of his card, if the card is used every time he comes for treatment. Cases at risk include:

Active cases in the borderline group.

Lepromatous cases who have had ENL (Type 2 Reaction).

Management

It is worthwhile to remember that not *all* cases of neuritis in leprosy patients are due to leprosy. Types of polyneuropathy which may mimic leprosy neuritis include:—

1. Vitamine B₁ (thiamine) deficiency which may be seen in alcoholics and in association with beri-beri or diabetes.
2. Vitamine B₆ (pyridoxine) deficiency, or over excretion as in patients on isoniazid.
3. Other toxic neuropathies associated with drugs or poisons e.g., heavy metals, including pesticides containing arsenic.
4. Infectious neuropathies including those associated with diphtheria and the Guillain-Barré syndrome.

The cause of mononeuropathies is usually local and obvious but the carpal tunnel syndrome, ulnar or common peroneal neuritis due to trauma and lateral femoral cutaneous nerve entrapment may also mimic neuritis due to leprosy and require appropriate treatment.

Management of neuritis due to leprosy depends upon the classification of the case. We shall consider:

1. Borderline and Tuberculoid cases under treatment.
2. Lepromatous cases under treatment.
3. Cases not under treatment.

1. Borderline and Tuberculoid Cases under Treatment

(a) *Mild cases*. i.e. mild rheumatic pain, mild tenderness alone, or tenderness with swelling.

- (i) Aspirin two tablets three times a day. Ephedrine 7 mg three times a day. Continue anti-leprosy treatment.
- (ii) Tell the patient to report immediately if pain increases or loss of function occurs.
- (iii) Put the patient on your "At Risk" register.

(b) *Severe cases*. i.e. severe pain and tenderness with swelling and often acute loss of function.

- (i) Refer the patient immediately to hospital or a centre where steroids are available.

- (ii) If permitted to do so, give 30 mg Prednisolone in a single dose before the patient is sent to hospital.
- (iii) Splint the limb if possible, or use a sling for the arm.
- (iv) Make careful records of your findings and send them with patient.
- (c) *Late discovery of pain or loss of function.* If loss of function or pain has been overlooked for some reason, hospital referral is still worthwhile in all Borderline/Lepromatous cases up to six months after it occurred. In Borderline/Tuberculoid cases it is probably only worthwhile up to about three months after it has occurred.

2. Lepromatous Cases Under Treatment

(a) *Neuritis associated with ENL of the skin.* See Leprosy Review "Field Workers' Forum", December 1974.

(b) *Neuritis not associated with ENL in the skin.* Treat in the same way as borderline and tuberculoid cases (see section on Management, I(a) or (b) according to severity). But do not give Prednisolone for pain unless there is also loss of function of the nerve.

(c) *Gradual loss of function during treatment.* This sometimes happens in lepromatous cases when there are no painful or tender nerves. We know of no effective treatment for this process.

3. Cases not under Treatment

Nerve damage and neuritis hardly ever need specific treatment in patients with untreated lepromatous leprosy. But this is not so in borderline and tuberculoid cases.

(a) *Borderline and Tuberculoid cases not previously diagnosed.* Neuritis and loss of function are often the reasons for patients coming for diagnosis. They should be placed on anti-leprosy treatment and treated for nerve damage as under Management I(a) or (b) (according to severity).

(b) *Borderline and Tuberculoid Relapse Cases.* Nerve damage is often an early sign of relapse and may appear before skin lesions. If there is any doubt that the leprosy has relapsed such cases should be referred to hospital for assessment. If however, it is clear that relapse has occurred, restart treatment and treat nerve damage as under Management I (a) or (b) (according to severity).

Health Education

This is a subject in itself, and will be considered in a later article in this series. All that need be said here is that, even if there is permanent nerve damage, severe deformity can be prevented by simple exercises and skin care. These exercises should be known by every field worker, and taught to all patients whose nerves are damaged and who may therefore develop deformities.

Conclusion

Recognition and correct management of nerve damage is well worth while. Permanent nerve damage and deformity can be prevented in most cases if it is recognized early and correct treatment is given immediately. Even if nerve damage is permanent, severe deformity can be prevented by exercises and education.