Clinical and Histopathologic Findings in Osteoarticular Chronic Hypertrophic Neuritis and Differentiation from Leprosy

TO THE EDITOR:

Osteoarticular disease may damage peripheral nerves and cause peripheral neuritis. Osteoarticular disease may create pressure on peripheral nerves and hamper their growth, thereby causing pathological changes. Some of these changes may be atrophy, while others are hypertrophic neural changes. Osteoarticular chronic hypertrophic neuritis is associated with enlargement of peripheral nerves and other clinical signs which may be similar to leprosy and must be differentiated from leprosy.

Case reports

Case 1. This patient was a 42-year-old male from Xunke County, Heilongjiang Province, People's Republic of China. This is an endemic area for Kaschin-Beck disease. The patient worked as a peasant and complained of muscle weakness in both hands of 18 years' duration. The condition had been diagnosed in the past as peripheral

FIG. 1. Upper extremity of case 1.

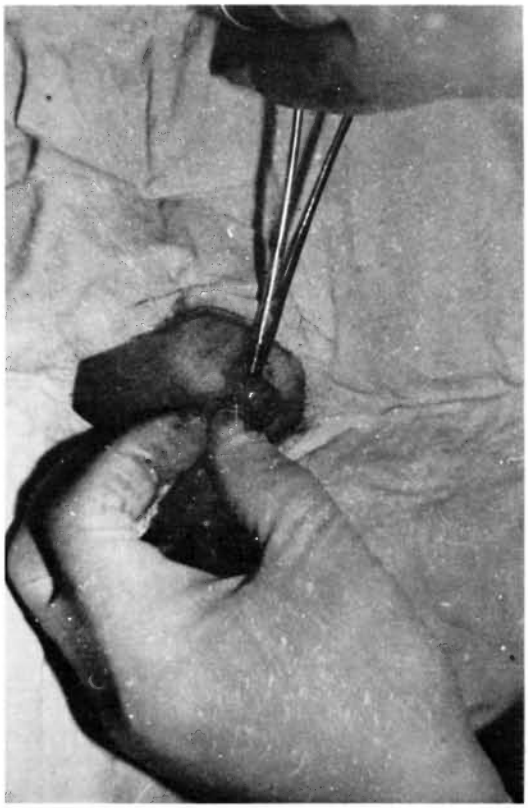

FIG. 2. Ulnar nerve, case 2.

neuritis. In 1978, he was diagnosed as having neuritis from leprosy and placed on dapsone 100 mg daily. After 7 years of treatment, there was no improvement in his condition. The patient had severe Kaschin-Beck disease with no anesthetic skin lesions on his body. The elbow, wrist, metacarpophalangeal, interphalangeal, knee, and ankle joints were enlarged and showed arthropathy. There was paralysis of the muscles in the hands, and there was loss of touch, pain, and cold sensation in the hands. The ulnar nerves were definitely enlarged but were soft to palpation. Motor strength, sensation and peripheral nerves were normal in the lower extremities. A biopsy was taken from the right ulnar nerve above the elbow and was negative for acid-fast bacilli (AFB) (Fig. 1).

Case 2. This 51-year-old male from Fuson County, Jilin Province, an endemic area for Kaschin-Beck disease, complained of crooked fingers of 8 years' duration, and had noticed bilateral hand weakness for 10 years. His disease had been diagnosed in the past as Kaschin-Beck disease, rheumatoid arthritis, and peripheral neuritis. He was diagnosed as having neuritis due to leprosy and placed on dapsone with no improvement after 5 years of treatment. Clinical examination showed no anesthetic lesions on the skin of the body, and the skin was negative for AFB. The elbow, wrist, and interphalangeal joints were enlarged bilaterally, but other peripheral nerves were normal. The fourth and fifth fingers were crooked. The hands were anesthetic bilaterally, with loss of touch, pain, cold, and heat. A biopsy and a neurectomy were carried out on the ulnar nerves bilaterally.

We have found two cases of osteoarticular chronic hypertrophic neuritis in patients with severe Kaschin-Beck disease. In the patient with multiple joint involvement, the elbow joints were particularly involved and the ulnar nerve was definitely enlarged with hand muscle weakness and paralysis. There was anethesia in a "glove" pattern. The oth-

FIG. 3. Ulnar nerve, case 2. Schwann cells arranged in multiple layers forming an "onion" appearance.

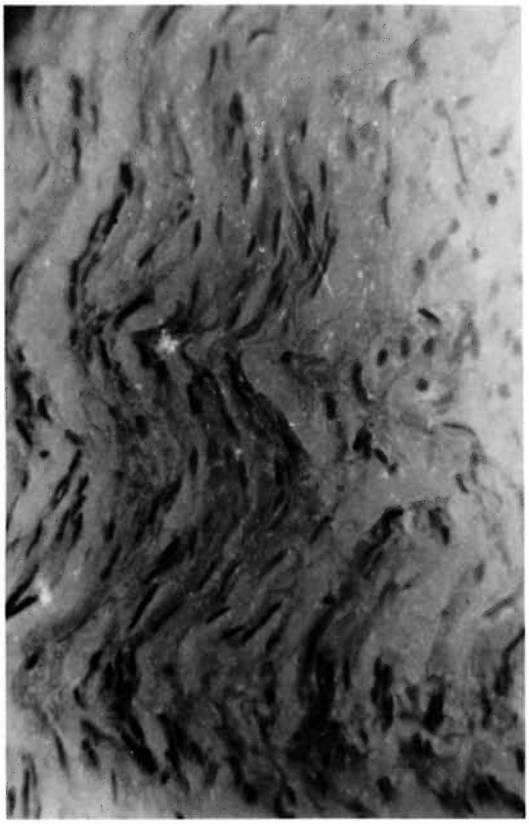

FIG. 4. Ulnar nerve, case 2. Mucinous degeneration between neurofibrils in some parts of the section, but no fibrotic changes inside the perineurium and no evidence of leprosy.

er peripheral nerves were normal, and there were no anesthetic skin lesions on the body. Osteoarticular chronic hypertrophic neuritis developed slowly. Although the ulnar nerves were enlarged, they were soft to palpation. We have surveyed 202 cases of severe Kaschin-Beck disease and found 11 cases with osteoarticular chronic hypertrophic neuritis, for an overall prevalence of 4.95%.

At surgery for the ulnar nerve biopsy in case 2, there was no gross pathology noted in the ulnar nerve except for enlargement, the diameter being approximately 9 mm (Fig. 2). After the specimens were fixed in 10% Formalin, embedded in paraffin, and sections were stained with hematoxylin and eosin and the Wade-Fite stain for *Mycobacterium leprae,* the epineurium appeared normal except for proliferation of Schwann cells in all sections. The Schwann cells were arranged in multiple layers, forming an "onion" appearance (Fig. 3). There was mucinous degeneration between the neurofibrils in some parts of the sections, but there were no fibrotic changes inside the perineurium. No changes of leprosy ([1, 2]) were seen in the sections, and acid-fast stains were negative (Fig. 4).

Osteoarticular chronic hypertrophic neuritis seems to be due to osteoarticular disease, the ulnar nerve enlargement being due to the enlargement of the elbow joint which secondarily presses on the ulnar nerve. The disease runs a chronic progressive course, and medical treatment seems to offer no benefit. Neurectomy may be beneficial.

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