

CALCIFICATION AND OSTEOID CHANGES IN THE NERVE IN LEPROSY

REPORT OF A CASE

By J. O. NOLASCO, M.D.

*From the Pathological Section, Culion Leper Colony
Bureau of Health, Philippine Islands.*

As far as the writer is aware, there is in the literature no record of a case with calcification of the nerve in leprosy. The only mention of the condition that has been seen was made by Lie (1) who, in describing nerve changes, says: "At the points of predilection, as the elbows, the infiltration may be so great that abscess-like round cell accumulations may form and in those there may be considerable lime deposits." The following case is reported for record.

Clinical Data.—L. P., a female Filipino, 45 years old at the time of her death on April 3, 1933, was admitted to the Culion Leper Colony in May, 1908, together with her father, mother, and three brothers, all with leprosy. These relatives all died in the Colony. No clinical description of the patient's lesions was recorded when she was admitted. In June, 1927, she had improved to such a degree that she was presented to the Negative Examining Committee for examination with a view to parole in due course. At that time she was completely blind; she stated that the right eye was blind when she was admitted, and that the left eye had become affected about 1917 and was blind two years later. There was paralysis of the facial muscles and of those around the eyes. All the fingers were almost completely absorbed. From 1927 up to the time of her death, nearly six years, she was examined by the Committee 22 times. The skin was always described as without signs of active leprosy, and was never found bacteriologically positive during this period. However, she was found positive in the right septum 4 times (May, 1928; March, 1930; April, 1931; and July, 1931). The left septum was also found positive once (August, 1928) and was described then as suspiciously infiltrated. In July, 1931, the right inferior turbinate and the left cornea were also found positive. The turbinate was described as nodular and congested, while the left eyeball was uniformly congested and over the cornea there was a thickening, probably a leproma. From that time until her death she was not examined again by the Committee.

Autopsy findings.—The principal condition found as regards the cause of death was lobar pneumonia of the right basal lobe, with tuberculous cavities in both apical lobes. As regards leprosy changes, the principal findings were

as follows: The cornea of the right eye was opaque, due to the presence of what appeared to be scar tissue. The left cornea was covered by a pyramidal yellowish, papillary mass, measuring about 1 cm. in diameter at the base. All the digits of the upper and lower extremities were completely absorbed as far as their bases; only small depressions were left at their tips containing atrophic nails. The axillary and inguinal lymph nodes were congested, their cut surfaces pale red, apparently free from the yellowish infiltration of leprosy. The ulnar nerves on both sides were small, firm, and slightly nodular at the bend of the elbow. There were no such nodular formations elsewhere in these nerves, from the axilla to the wrist. On section of these thickened portions calcareous deposits were found; there were no such deposits in the rest of these nerves.

Histological findings.—Examination of both ulnar nerves at different levels shows complete, regularly laid fibrosis with hyalinization of the nerve cords or fascicles inside the perineural sheaths. There are no lesions characteristic of leprosy; there is only slight round-cell infiltration around some of the blood vessels of the perineurium, but none inside these sheaths. The portions which at autopsy were found hardened show calcium deposits, in three or more cords (Plate 7, Figs. 1 and 2). The fasciculi individually are intact and show no evidence of any past condition, like abscess-formation, which would have modified them or their perineural sheaths; the latter are well differentiated from the hyalinized fibrous tissue inside them. Except in one place the connective tissue adjacent to the calcium deposit is hyalinized and completely free from cellular infiltration of any kind. At the point mentioned, seen in a longitudinal section, there is a thin layer of osteoid tissue capping the end of a deposit (Plate 7, Fig. 3). This tissue contains a few isolated cells in typical lacunae. One small cavernous blood-filled space, arising from this tissue, invades the calcium deposit beyond it. The connective tissue covering it on the outer side is cellular and highly vascular, with a relatively large cavernous blood space filled with erythrocytes. Nothing of this sort is seen elsewhere in contact with the calcium. The cornea histologically consists chiefly of a lepromatous nodule.

Comment.—The deposition of calcium in the ulnar nerve in this case indicates that previously there was some necrotic process there, which may have been a simple degeneration. Muir (4), Lowe (2, 3), Wade (6), and Ribeiro (5) have recently made clinical and pathological descriptions of nerve abscess in leprosy, but though this condition is apparently fairly common in India it is evidently rare in most other places. This is certainly true for Cullion, where no case similar to those of India has been recorded. The few cases seen and examined adequately seem to have resulted from acute lepra reaction with degeneration in lepromatous lesions; none of them (7) showed anything like the tuberculoid condition recently described (5, 6).

Whether in the present case there had been abscess-formation of any kind before the calcification occurred cannot be said. That

may possibly have happened, but there is nothing in the clinical record that would point to it, and no suggestion of it in the histological picture—there are no disturbances of the structural features in or outside of the perineural sheaths, or irregular fibrosis, or cellular residue. It seems probable that the condition resulted from non-inflammatory degeneration of the poorly nourished, hyalinized connective tissue that replaced the functioning nerve structures. The osteoid metaplasia observed at one point is an interesting development but not an unusual one under such general conditions, though it is perhaps unique so far as the nerve changes in leprosy are concerned.

SUMMARY

A case of calcification of the ulnar nerves with osteoid change in leprosy is reported.

REFERENCES

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- (2) LOWE, J. Nerve abscess in leprosy. Indian Med. Gaz. 64 (1929) 24.
- (3) LOWE, J. A further note on nerve abscess in leprosy. Internat. Jour. Lep. 2 (1934) 301.
- (4) MUIR, E. Nerve abscess in leprosy. Indian Med. Gaz. 59 (1924) 87.
- (5) RIBEIRO, E. G. Aspectos cirurgicos da caseose dos nervos na lepra. Sao Paulo, Sociedade Editora Medica Limitada, 1934, pp. 47; abstracted in Internat. Jour. Lep. 3 (1935) 256.
- (6) WADE, H. W. Tuberculoid changes in leprosy. III. The pathology of a nerve abscess. Internat. Jour. Lep. 2 (1934) 293.
- (7) WADE, H. W. Personal communication.

ADDENDUM

After this article had been sent to press an abstract of a recent paper by Sato was seen [the Japanese Dermatological Society, Sendai Branch, *Japanese Jour. Dermatol. and Urol.* 37 (1935) 122]. In this abstract reference is made to a recent report by Ota and Sato [*Dermat. Wchnschr.* 99 No. 49] on the calcification of the left great auricular nerve in leprosy. Sato had found two previous reports of nerve calcification in leprosy, one by Merestang and Combenale (1891) and the other by H. Shiota (1909). These are not available for review.

DESCRIPTION OF PLATE

PLATE 7

FIG. 1. Ulnar nerve at elbow, transverse section, very low magnification. Showing calcification of several of the fasciculi. At the left, part of a longitudinal section of the same nerve.

FIG. 2. Longitudinal section, low magnification, showing calcification affecting all fasciculi in the section, and the hyalized condition of the connective tissue.

FIG. 3. Showing the zone of osteoid change with (left) the vascular tissue found only here, and (right) invasion of the calcium deposit.

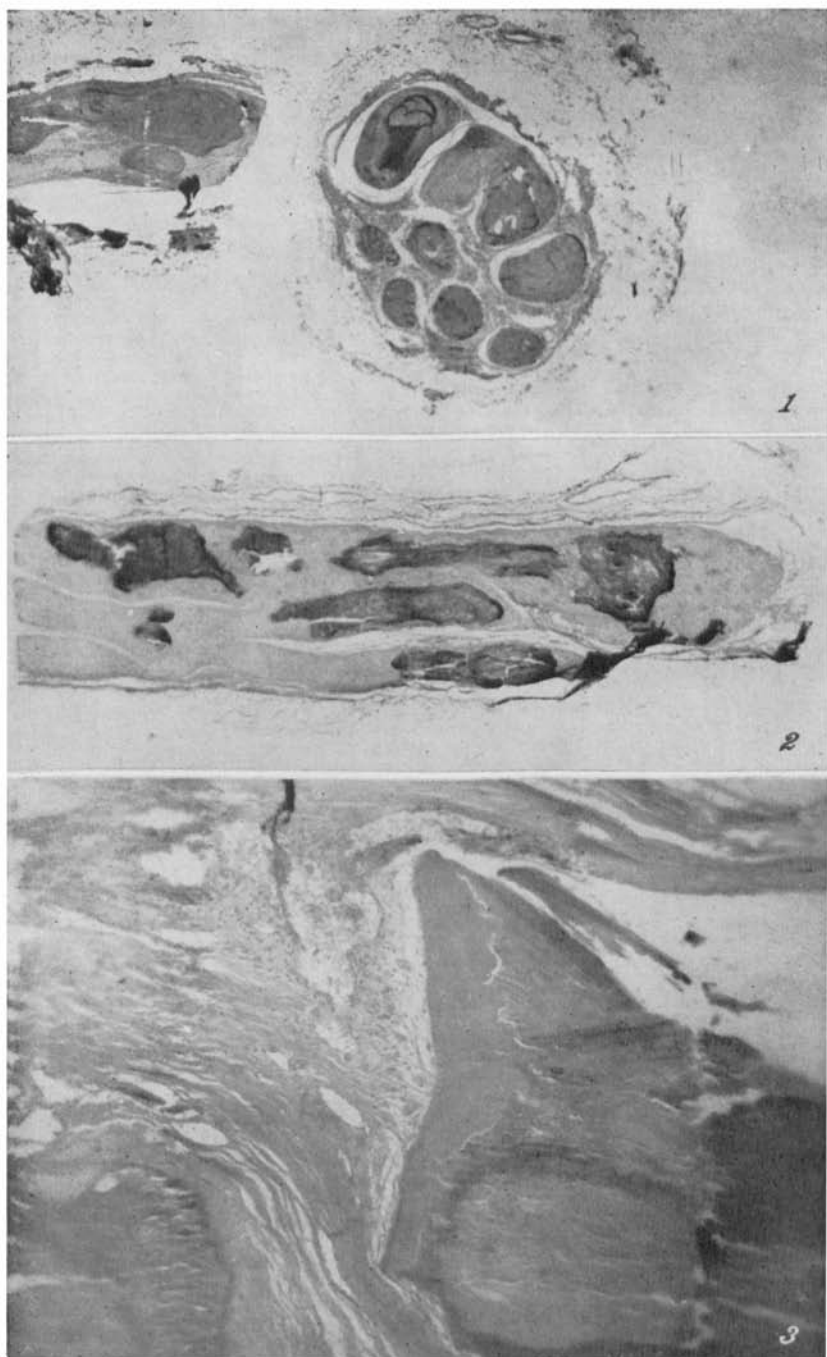


PLATE 7