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Nerve Abscesses in African Leprosy

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Wheate (1964) has recently drawn attention to the rarity of so called nerve 'abscesses' in Africa. Browne (1957) reported but two instances in some ten thousand leprosy patients seen in the Belgian Congo. In some parts of Africa, e.g. Northern Uganda, the condition is apparently somewhat less uncommon, but in countries outside the African continent, e.g. India, especially the North (Int. J. Leprosy, 1955) nerve 'abscesses' are of relatively frequent occurrence. Lowe found a 2% incidence among five thousand patients at Dichpali (1934).

Prevalence in Eastern Nigeria

While precise figures are impossible to come by, it is indicative of the rarity of nerve 'abscess' that only three patients out of about eight thousand seen during the past seven years at Uzuakoli itself or at the district clinics have been diagnosed as having a localized area of autolysis of a peripheral nerve trunk of such dimensions as to be appropriately designated by the term 'abscess'.

CASE REPORTS

Case 1

A male patient, age 42, was admitted to Uzuakoli Settlement suffering from major tuberculoid leprosy. He had numerous lesions, including a large one embracing the left elbow and the adjacent skin of the arm and forearm. After three months of treatment with standard doses of dapsone, at a time when the skin lesions were flattening and repigmenting rapidly, he developed a localized swelling in the neighbourhood of the left ulnar nerve above the elbow. On admission, the nerve had been enlarged and hard in this situation. The swelling rapidly became fluctuant, and was aspirated, about 20 ml. of thin fluid being withdrawn. The cavity was completely emptied. There was no recurrence and no sequelae, and when the patient was discharged two years later, no sensory or motor loss in the area of innervation of the nerve could be detected.

Microscopical examination of the fluid revealed recognizable acid-fast bacilli in moderate numbers, in spite of the fact that none had ever been found in routine smears of the skin. The cellular elements present in the fluid were very degenerate, and no cocci or other organisms were found.

Case 2

A male patient, age 28, was admitted to Uzuakoli Settlement for treatment of 'major tuberculoid leprosy'. He had right foot-drop, and had already received treatment at a district clinic for some six months. On admission, some of the lesions were raised centrally, and slightly positive bacteriologically. The superficial nerves of the extremities were enlarged in the usual situations, and hard.

Within two months of beginning dapsone treatment at Uzuakoli, the patient experienced an acute exacerbation of existing lesions, and new skin lesions appeared. The right external popliteal nerve in its subcutaneous course became very large and exquisitely tender. Exposed at open operation, the nerve was seen to be about an inch in diameter, its oedematous and hyperaemic sheath being surrounded by thick bands of adhesions. When the sheath was incised, creamy 'pus' exuded. The incision was prolonged, and masses of necrotic débris and slough were removed from about three inches of enlarged nerve. The wound was drained and closed in layers. Convalescence was uneventful, and the wound healed rapidly.

Examination of several smears taken of the exudate, and of necrotic material from the surface of the nerve, all failed to show any acid-fast whole bacilli or débris, or any pyogenic organisms. On his discharge three years later, the foot-drop had completely recovered, and the skin lesions were inactive. The peripheral nerves were still slightly enlarged, but not hard or tender on palpation.

Case 3

A male patient of 19 years of age had been under treatment for major tuberculoid leprosy at a district clinic for four years. Extensive lesions covering both palms were accompanied by marked anaesthesia of the hands and severe clawing. Both ulnar nerves had been greatly enlarged since before treatment began; the external popliteal nerves also were considerably enlarged. All skin smears were bacteriologically negative.

At operation, each of the ulnar nerves above the elbow was found to be well over an inch in diameter. In the right nerve, there was an obvious abscess cavity full of thick pus. In the left nerve, the abscess appeared to have eroded the thickened sheath to involve the adjacent epitrochlear gland. The pus evacuated was similar to that on the right side.

Microscopical examination of loose necrotic tissue removed from both nerves revealed masses of caseating material showing typical tuberculoid granulomata with numerous giant-cells. In the case of the left nerve, small collections of acid-fast bacilli were found both in the fibrous tissue of the degenerate nerve sheath and in the necrotic but recognizable nerve tissue. No other organisms were seen. Scanty degenerate pus cells were present.

On his discharge from treatment a year later, no improvement was observed in the sensory or motor deficiency in the hands.

DISCUSSION

The infrequency of caseation of peripheral nerves in Africa is worthy of remark. In centres where a high proportion of patients with acute neuritic symptoms are submitted to open operation for 'decapsulation' or 'stripping' or simpler procedures, many of them are found to have small areas of caseating autolysis in the nerve, but local and circumscribed accumulations of fluid are rarely sufficiently large to justify the term 'abscess'.

The large numbers of patients with tuberculoid leprosy in Africa, attaining sometimes 92% of the total requiring treatment for leprosy, and including a variable proportion of cases of major tuberculoid leprosy which pass through phases of acute exacerbation, should make for a larger number of nerve 'abscesses' than is actually the case. Many examples of localized caseation do not proceed to frank abcedation, but resolve spontaneously and are absorbed. Others may even calcify.

The patients recorded in this paper were suffering from major tuberculoid leprosy, but the clinical appearances, the stage of the disease reached, the history of acute exacerbation varied within wide limits.

The quantity of fluid evacuated and its nature varied: it was thin and sanious or thick, even viscid. The colour varied from dirty white to ochre. Necrotic material appeared as small flakes in a thin fluid, or as large fragments in a pultaceous mass. Acid-fast bacilli were sometimes found, usually in degenerate form. Pyogenic cocci were consistently absent, and the cellular exudate was uniformly scanty.

Usually, the more localized the 'abscess', the more acute and severe are the local and neurologically distant symptoms. A small quantity of caseating material under tension within an unyielding tough and fibrous nerve sheath, will occasion severe pain both locally and throughout the area of distribution of the nerve whereas a slowly-developing 'abscess' containing perhaps over 200 ml. of thin exudate may be almost symptomless.

The amount of destruction of the nerve fibres bears little relation to the volume of the abscess contents. In the second case reported above, clinical recovery from foot-drop of some months duration was apparently complete. In the third case, however, long-standing tension within the nerve sheaths resulted in permanent nerve damage.

There thus appears to be a great variation in the pathological manifestations of this presumably allergic localized autolysis of a nerve trunk at certain well-defined sites. The vigour of the immunological response to a paucibacillary infection seems to be the important factor.

SUMMARY

The clinical features of three cases of nerve abscess seen in about eight thousand patients in Eastern Nigeria, are reviewed. The comparative rarity of the condition in Africa is emphasized.

The variability of the symptomatology, of the findings at operation, and of the macroscopic and microscopic appearances, are all worthy of mention.

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