Elephantiasis Nostra Verrucosa at Autopsy

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Acad Forensic Pathol. 2019 9(3-4): 243-249

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ETHICAL APPROVAL

As per Journal Policies, ethical approval was not required for this manuscript

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STATEMENT OF INFORMED CONSENT

No identifiable personal data were presented in this manuscript

DISCLOSURES & DECLARATION OF CONFLICTS OF INTEREST

The authors, reviewers, editors, and publication staff do not report any relevant conflicts of interest

FINANCIAL DISCLOSURE

The authors have indicated that they do not have financial relationships to disclose that are relevant to this manuscript

KEYWORDS

Forensic pathology, Elephantiasis, Autopsy, Pathology, Microscopy, Nostra

INFORMATION

ACADEMIC FORENSIC PATHOLOGY: THE PUBLICATION OF THE NATIONAL ASSOCIATION OF MEDICAL EXAMINERS FOUNDATION

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Submitted for consideration on 17 Oct 2019. Accepted for publication on 14 Dec 2019

In 1933, Sir Aldo Castellani presented a paper on elephantiasis nostras at the Tropical Diseases and Parasitology Section of the Royal Society of Medicine and used the term to indicate nonfilarial elephantiasis, but which was otherwise indistinguishable from infection with *Wuchereria bancrofti* (1). Castellani stated the term had been used in a very lax way to denote all kinds of conditions of different etiology, including elephantoid conditions due to climatic bubo, syphilis, tuberculosis, and tumors. He described autochthonous cases from England that could not have been of filarial origin and used the term “nostras” meaning from our region. Elephantiasis nostra verrucosa (ENV) is the name now given to this condition, which is also referred to as mossy foot (2). It affects dependent parts of the body and is typically reported in the legs but may be seen in other areas including the abdomen (3).

Castellani reported the disorder as chronic and progressive with no tendency to spontaneous cure. It was felt to be of bacterial origin, with skin changes as a consequence of recurrent infections. Occasional cases have been reported in the literature, but descriptions of pathological changes and autopsy reports are limited (4-6).

This case involves a 58-year-old woman found dead sitting in a chair. There was a past history of mobility issues. She spent her time in the chair or rested in her bed which was very close by. She never left the house and took no medication. On examination, the chair appeared urine and fecal stained. Concerns were raised about whether she had been properly looked after.

At autopsy, the woman was 149 cm tall and weighed 55 kg. She was dressed in heavily soiled clothing. No traumatic injuries were present. The legs and feet were covered in homemade bandages extending from just below the knees to the feet. On removing the bandages, the legs and feet were seen to be grossly distended from chronic edema and massive verrucous hyperplasia of the skin and had a cobblestoned appearance (**Images 1 and 2**). There was ulceration of the inner aspect of the right ankle 4 cm × 3 cm × 0.7 cm and further ulcers were present on the back of the right ankle 6 cm × 3 cm × 1.5 cm and 2 cm × 1 cm × 1 cm. The ulcers were infected and contained pus.

On internal examination, the lungs showed no evidence of pneumonia. The liver, kidneys, and spleen were normal. The brain, spinal cord, and heart were submitted for detailed neuropathology and cardiac pathology consultation. There was no abnormality in the brain and spinal cord. The heart weighed 240 g. The myocardium and valves were normal. There was coronary artery atheroma with maximal stenosis of 50% in the left anterior descending coronary artery.

Toxicological examination was negative. Vitreous biochemistry did not show any significant findings. Microbiological cultures grew multiple bacteria from the ulcers. Group B streptococcus and viridins group streptococcus were found grown from blood cultures.

Histology of the skin revealed verrucous hyperplasia of the epidermis with edema in the dermis and subcutaneous tissue (**Image 3**). Fibroblastic proliferation was seen and there was chronic inflammation around some vessels (**Image 4**). Lymphatic and vascular dilation was present, but no hemosiderin was seen (**Image 5**). No filarial parasites were present. The features were those of ENV.

A number of reports have described ENV (1-6). It is a skin condition secondary to chronic lymphedema and is associated with obesity and chronic heart failure. It may be complicated by ulceration. Causes of lymphedema include primary lymphedema (Milroy's disease, Meigs disease, and lymphedema tarda) and secondary lymphedema, which may be caused by a variety of conditions including parasites (filariasis), malignancy, and immobility (“armchair legs”). Lymphedema can be complicated by infection and ulceration. Unlike with venous ulceration, where there is hemosiderosis, with chronic lymphedema, there is hyperplasia of keratinocytes and fibroblasts in the dermis with evidence of previous bleeding.

Sato and colleagues reported a case of a 22-year-old man who developed ENV after spending 2 years in a reclining chair (6). The features were similar to this case, where there was also a period of immobility. Similar histological features were reported.

Image 1: Gross appearance of the legs.

The presence of ENV in cases like this woman and the case reported by Sato and colleagues raises the question of neglect. Elephantiasis nostra verrucosa is go-

ing to be more prevalent with the increasing incidence of morbid obesity and chronic heart failure.

Image 2: Appearance of thickened skin on dissection.

Image 3: Microscopic appearance of the epidermis and dermis (H&E, x25).

Image 4: Appearance of the dermis (H&E, x100).

Image 5: Appearance of the dermis (Masson trichrome, x100).

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