LETTER TO THE EDITOR

Hemorrhagic neuropathy associated with vasculitis

Dear Editor,

We read with great interest the recent case reported by Moon *et al. (2007)* on a fulminant painful quadriplegia due to extensive intraneural bleeding in the setting of idiopathic thrombocytopenic purpura and hemorrhagic areas predominated in the endoneurium very close to the perineurium. Another case had impressive hemorrhagic areas in the perineurium, and nerve specimens had been taken from the amputated left leg after operation of an aortic dissection and intravenous administration of 30,000 units of heparin *(Korthals et al., 1994)*. There are few reported cases of hemorrhagic polyneuropathy, and they were observed in bleeding disorders *(Moon et al., 2007)*.

We have observed such an intraneural hemorrhage on a peripheral nerve biopsy, without any known bleeding disorder. A 45-year-old man was in good health and had run several marathons in spite of having Hbs antibodies in his serum for several years. Three months ago, he had myalgias and severe cramps in both legs for 2 weeks and then complained of burning pains in both feet and had lost 3 kg in weight. At examination in

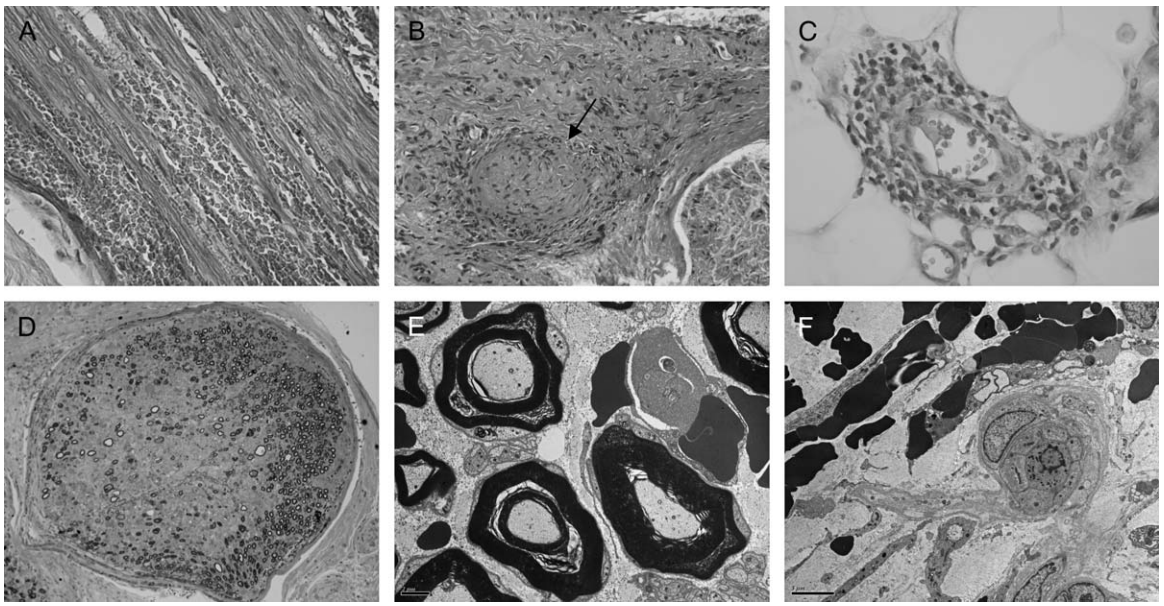

Figure 1. (A) Nerve biopsy using hematoxylin-eosin: nerve fibers are dissociated by collections of red cells (×50). (B) This arteriole exhibits a lumen occluded by fibrosis (arrow), and a few inflammatory cells are visible at the periphery (×50). (C) Inflammatory cells infiltrate the wall of an epineurial small vessel and its surroundings (×80). (D) Semithin nerve section using toluidine blue: this fascicle exhibits a large ischemic area surrounded by myelinated fibers (×100). (E) Electron microscopy of nerve: a few red cells are scattered in the endoneurium, and two of them are engulfed in a histiocyte (bar = 2 μm). (F) Several red cells are present between perineurial lamellae (bar = 5 μm).

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June 1994, he had a distal sensorimotor neuropathy in both legs, predominating on the left side, and electrophysiologic study evidenced an axonal mononeuropathy multiplex in both legs. Cerebrospinal fluid was not modified, and Hbs antibodies were the only abnormality present in his serum. A neuromuscular biopsy was performed on the left leg. Paraffin-embedded specimens of the superficial peroneal nerve showed several modifications. Three fascicles showed large areas of recent hemorrhage predominating in subperineurial zones (Fig. 1A). Accumulation of red cells was also visible in the peri- and epineurium. In the epineurium, an arteriole wall was thickened by fibrosis and the lumen was totally occluded (Fig. 1B). A few small vessels showed features of microvasculitis (Fig. 1C). On semithin sections, two fascicles showed a large round area of ischemia (Fig. 1D), and at ultrastructural examination, red cells were present in the endoneurium (Fig. 1E) and perineurium (Fig. 1F).

Hemorrhagic polyneuropathy is rare and should be diagnosed only in cases with large areas of accumulated red cells and should be differentiated from endoneurial purpura, which is rather common. It is mainly observed in cases of vasculitic neuropathy, consists in a few scattered red cells, and was first described in peripheral neuropathy with mixed cryoglobinemia *(Vital et al., 1988)*. It was also reported in cases of microvasculitis *(Dyck et al., 1999)*. Anyway, red cells are harmful for nerve fibers, and their presence inside degenerated nerve fibers has been nicely demonstrated *(Moon et al., 2007)*. Up to now, hemorrhagic polyneuropathy has not been reported in a setting of vasculitis, and the case reported here was probably due to the rupture of an aneurysm located in the perineurium. Such aneurysms are very rare on nerve biopsies but one was visible in a muscle biopsy specimen *(Aupy et al., 1983)*.

Sincerely,

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