Vasculitic neuropathy following influenza seasonal vaccination

Neuropatia por vasculite após vacinação para influenza sazonal

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Influenza seasonal vaccination is widely performed and clearly justified on public healthy grounds. However, neurological complications have been reported following influenza vaccinations1.

We describe a case of small vessel vasculitis with involvement of skin and peripheral nerves after influenza seasonal vaccination.

CASE REPORT

A 24-year-old woman presented 21 days after influenza seasonal vaccination arthralgias on ankles and knees associated with skin rash in the legs. Four days after initial symptoms, she developed paresthesia in her fingers, toes and lateral region of right leg associated to weakness in left hand and right foot.

On physical examination, she had purpuric cutaneous rash on both ankles and lower limbs (Fig A and B). Neurological examination revealed weakness in left hand and right foot, and diffuse reduction in deep tendon reflexes. Pain, pinprick and light touch were impaired distally in the arms and legs, more pronounced in region of left ulnar nerve and right peroneal nerve.

Laboratory tests, as well as serological tests, were normal. Electrophysiological study showed an asymmetrical sensory-motor axonal neuropathy consistent with multiplex mononeuropathy. Skin biopsy showed leucocytoclastic vasculitic (Fig C). Sural nerve biopsy showed inflammatory perineurial infiltration in the small vessel in epineurium and a reduction...
in the number of large myelinized fibers with axonal demyelination (Fig D, E and F). Muscle biopsy had inflammatory reaction spread from infiltrated vessels to adjacent muscle fibers associated to necrosis and phagocytosis.

The diagnosis of vasculitic neuropathy following influenza seasonal vaccination was made and management with prednisone (60 mg/day) controlled her disease and resulted in marked and progressive improvement of her symptoms after four months.

All studies were done following informed consent.

**DISCUSSION**

Neurological complications have been reported following influenza vaccinations; however, disorders involving the peripheral nervous system have been rarely described\(^1\). Guillain-Barré syndrome is the most common of the peripheral nervous system complications reported after vaccination\(^2\). Recently, attention has focused again on patients who developed vasculitic neuropathy as a complication of the influenza vaccination\(^1\). Vasculitic neuropathy is characterized by a necrotizing vasculitis involving the small arterioles of peripheral nerves. Although systemic vasculitic can occur in a patient submitted to influenza vaccination, there were only rare cases reports of influenza seasonal vaccination complicated with vasculitic neuropathy, but are many the number of vaccinated patients in the lasted years\(^1\)-\(^5\).

We believe that influenza seasonal vaccination predisposed our patient to develop vasculitis in skin and nerve, but the precise pathogenesis leading to the vasculitis following vaccination is unknown. Two mechanisms of damage to vessel wall have been suggested: a direct effect of the vaccine itself and an immunological activation.

Although treatment of vasculitic neuropathy after vaccination remains empirical, our patient showed improvement after adjustment of prednisone dose.

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**Fig.** Purpuric cutaneous rash on both legs (A and B). Skin biopsy shows leucocytoclastic vasculitis (C: PAS stain). Nerve biopsy reveals inflammatory perivascular infiltration in the small vessel in epineurium (D and E: congo red stain; F: SDH stain). Bar=50 um.

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**References**