

was found between the degree of SNH and the severity of dopaminergic innervations impairment⁴; moreover, SNH seems not to change during the course of PD, so that the progression of PD cannot be monitored by TCS³.

Future longitudinal studies must address if SNH can help to identify PD patients at preclinical stages mainly if

considered in conjunction with other nonmotor signs of PD, such as depression, olfactory dysfunction, neuropsychological deficits and idiopathic REM sleep behavior disorder⁵. If this idea is true, PD could be identified before manifestation of typical signs and symptoms, allowing development of neuroprotective therapies¹⁻⁵.

References

1. Berg D, Godau J, Walter U. Transcranial sonography in movement disorders. *Lancet Neurol* 2008;7:1044-1055.
2. Bor-Seng-Shu E, Fonoff ET, Barbosa ER, Teixeira MJ. Substantia nigra hyperechogenicity in Parkinson's disease. *Acta Neurochir (Wien)* 2010;152:2085-2087.
3. Berg D, Merz B, Reiners K, Naumann M, Becker G. Five-year follow-up study of hyperechogenicity of the substantia nigra in Parkinson's disease. *Mov Disord* 2005;20:383-385.
4. Barsottini OG, Felício AC, de Carvalho Aguiar P, et al. Heterozygous exon 3 deletion in the Parkin gene in a patient with clinical and radiological MSA-C phenotype. *Clin Neurol Neurosurg* 2011;113:404-406.
5. Berg D, Jabs B, Mershdorf U, Beckmann H, Becker G. Echogenicity of substantia nigra determined by transcranial ultrasound correlates with severity of parkinsonian symptoms induced by neuroleptic therapy. *Biol Psychiatry* 2001;50:463-467.

Vasculitic neuropathy following influenza seasonal vaccination

Neuropatia por vasculite após vacinação para influenza sazonal

Paulo J. Lorenzoni, Rosana H. Scola, Cláudia S. Kamoi Kay, Eustáquio de Queiroz, Juliana Cardoso, Lineu C. Werneck

Neuromuscular Disorder Service, Neurology Division, Internal Medicine Department, Hospital de Clínicas da Universidade Federal do Paraná (UFPR), Curitiba PR, Brazil.

Correspondence: Rosana Herminia Scola; Serviço de Doenças Neuromusculares; Hospital de Clínicas da UFPR; Rua General Carneiro 181 / 3º andar; 80060-900 Curitiba PR - Brasil. ; E-mail: scola@hc.ufpr.br

Conflict of interest: There is no conflict of interest to declare.

Received 02 August 2011; Received in final form 02 September 2011; Accepted 12 September 2011

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 perivascular infiltration in the small vessel in epineurium and a reduction

in the number of large myelinated 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^{1,2}. Guillain-Barré syndrome is the most common of the peripheral nervous system complications reported

after vaccination². Recently, attention has focused again on patients who developed vasculitic neuropathy as a complication of the influenza vaccination¹. 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 years¹⁻⁵.

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.

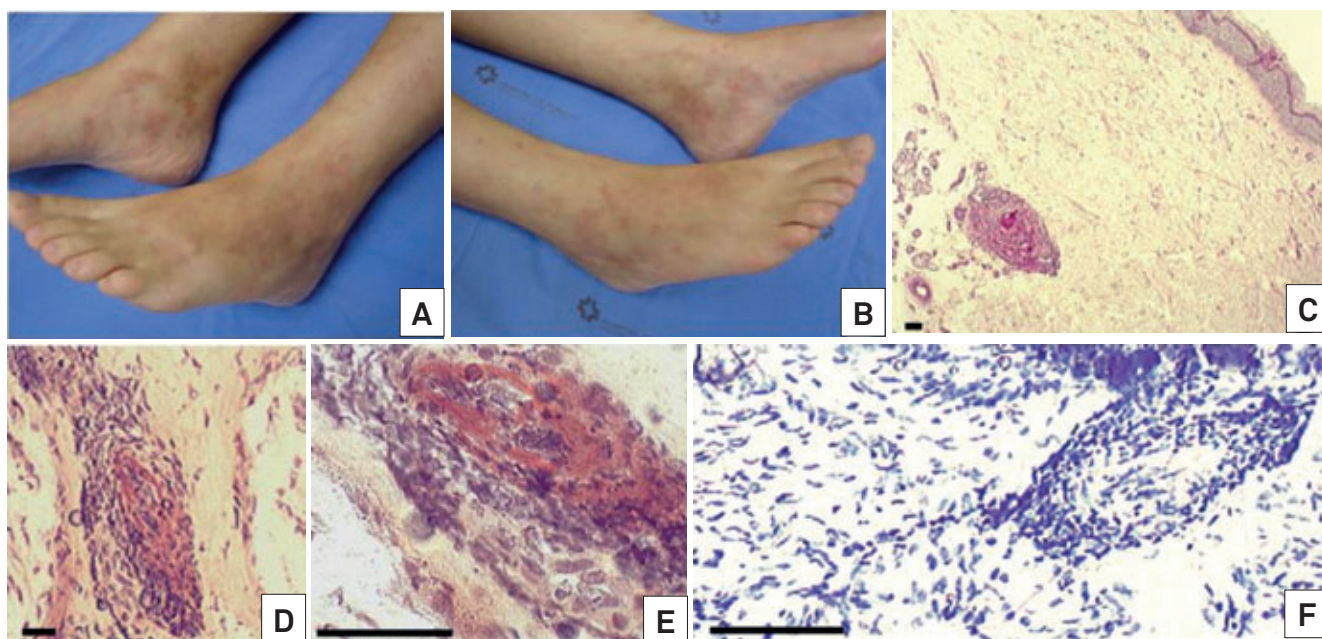


Fig. Purpuric cutaneous rash on both legs (A and B). Skin biopsy shows leucocytoclastic vasculitis (C: PAS stain). Nerve biopsy reveals inflammatory perivascular infiltration in the small vessel in epineurium (D and E: congo red stain; F: SDH stain). Bar=50 μ m.

References

- Schattner A. Consequence or coincidence? The occurrence, pathogenesis and significance of autoimmune manifestations after viral vaccines. *Vaccine* 2005;23:3876-3886.
- Hull JH, Mead SH, Foster OJ, Modarres-Sadeghi H. Severe vasculitic neuropathy following influenza vaccination. *J Neurol Neurosurg Psychiatry* 2004;75:1507-1508.
- Uji M, Matsushita H, Iwata S. Microscopic polyangiitis after influenza vaccination. *Intern Med* 2005;44:892-896.
- Kelsall JT, Chalmers A, Sherlock CH, Tron VA, Kelsall AC. Microscopic polyangiitis after influenza vaccination. *J Rheumatol* 1997;24:1198-1202.
- Mader R, Keystone EC. Infections that causes vasculitis. *Curr Opin Rheumatol* 1992;4:35-38.