

THE MOST FREQUENT MEDICAL AND SURGICAL NEURALGIAS: PHYSIOPATHOLOGY AND CLINICAL PICTURES

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[Le nevralgie medico-chirurgiche più frequenti. Elementi di fisiopatologia e clinica]

ABSTRACT

Neuralgia is a painful acute paroxysmal access, with sudden onset and rapid resolution, of very short duration (a few seconds to minutes). The level of pain is the essential quality of the dramatic neuralgic disease, which can affect the quality of life of patients and their autonomy. This overview is dedicated to these diseases to increase their knowledge and possibilities of therapy.

Key words: Neuralgia, trigeminal neuralgia, glossopharyngeal neuralgia, paroxysmal pain, headache.

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Introduction

Neuralgia is a painful acute paroxysmal access, with sudden onset and rapid resolution, of very short duration (a few seconds to minutes). The level of pain is the essential quality of the dramatic neuralgic disease, which can affect the quality of life of patients and their autonomy. The etiology of neuralgia is very difficult to diagnose⁽¹⁾ and at times requires the involvement of non-neurological specialties.

The most common locations are usually the trigeminal, glossopharyngeal and occipital nerves.

Trigeminal neuralgia

It is the most frequent neuralgia whose typical form mainly affects the elderly. The most common location is the second branch of the maxillary nerve and over time it occasionally extends to neighboring branches. It is characterized by typical ipsilateral attacks of extreme intensity and brevity, frequently elicited by trivial stimuli such as talking, drinking, shaving, applying make-up, touching, and at

times even the touch of the wind. The incidence is estimated at about 5/100,000 per year, with an average age of onset between 50 and 60 years for the essential form, and between 25 and 40 years for the form secondary to trauma, demyelination, tumors or vascular abnormalities. Recent neuroradiology imaging has documented, in some cases, the presence of a neurovascular conflict between an arterial branch of vertebrobasilar circulation and the trigeminal nerve roots.

It is often possible to identify the locations where the pain attacks are triggered (trigger zones). These are sensitive to stimuli that may not even be painful and their stimulation even by touching can trigger pain and cause the typical face twitch reaction (tic douloureux as it used to be called) as if patients tried to protect themselves from the neuralgic spasm: hence the tendency to restrict all movements and regular actions of everyday life, such as speaking, drinking, or chewing.

The secondary forms should be diagnosed first due to the possibility of and need for surgical treatments (tumors, basilar artery aneurysms, neurovascular conflicts, tumors of the cerebellopontine

angle). More often there are no identifiable causal factors are identified and the diagnosis relies on the typical symptoms reported by patients. The essential feature of neuralgia is that all neurological and neuroradiology assessments are negative and that there are no sensory deficits (including corneal reflex), contrary to what is observed in secondary forms due to multiple sclerosis⁽²⁾.

Every pain attack is followed by a brief refractory period of a few minutes, as is the case for other types of neuropathic pain⁽³⁾.

Glossopharyngeal neuralgia

Less frequent than the former, it is characterized by the location of the pain, i.e., the throat, and is triggered primarily by speaking, swallowing, and coughing. One characteristic of this neuralgia is that the afferent stimuli responsible for the pain attacks may also cause a vagal hyperstimulation resulting in a cardioinhibitory effect and the possible onset of syncopal episodes (not common).

Here too there is no evidence of sensory or motor deficits in the areas affected by neuralgia: however, pharyngeal tumors, peritonsillar abscesses, and Arnold Chiari I malformations should always be ruled out⁽⁴⁾.

Herpetic and postherpetic neuralgia

Herpes zoster infection can also lead to painful neuralgic events, both in the cranial nerves (especially in the case of herpes zoster oticus localized in the areas of Ramsay Hunt syndrome and herpes zoster ophthalmicus with the risk of corneal damage and visual impairment) and in spinal nerves. Neuralgic pain may accompany both the acute phase of the infection and the following period (postherpetic neuralgia).

There is a prevalence of the disease in old age when it is more likely that the infection is matched by neuralgic complications: pain is described as a burning with sudden paroxysmal outbreaks of particular intensity⁽⁵⁾.

Occipital neuralgia

In this form of neuralgia the pain is localized in the occipital region due to the involvement of the occipital nerves. Often confused with other forms of non-neuralgic pain in the region, occipital neuralgia hardly allows for the identification of the

cause of the pain, as it is not possible to document any neuroradiological or other change⁽⁶⁾.

It is important to note the significant difference in quality between neuralgic pain and any other type of pain, which require accurate differential diagnoses. For this purpose, special attention is put into taking the clinical history to reconstruct all parameters needed for diagnostic purposes, such as the frequency, intensity and duration of the pain attacks, which in most cases, make it possible to distinguish the varieties of headaches into typical or atypical.

The table below may be a useful guide for diagnostic guidance, given the frequent absence of pathognomonic instrumental parameters for differentiation⁽⁷⁾.

Distinctive features of stabbing headache from other types of paroxysmal headache.

Therapy

The drugs of choice for the treatment of neuralgia are anticonvulsants, such as phenytoin, valproate, carbamazepine, clonazepam, either alone or in combination, at very slowly increasing doses, due to the frequent side effects that not all patients easily tolerate. Efficacy is not absolute, as a gradual remission of symptoms is achieved in three quarters of patients. In some of them, unfortunately tachyphylaxis develops. In the case of trigeminal or postherpetic neuralgia, some patients have benefited from the topical application of capsaicin creams: but patients must be informed of the need to limit both the doses and duration of application due to the possible appearance of lesions in sensory nerve endings as a result of long-term use.

In cases of poor or non-responders to medical treatment, depending on the intensity of symptoms and the patient's suffering, the possibility of surgery should be explored with a neurosurgeon aimed either at the resolution of possible neurovascular conflicts or, in the absence of identified causes of neuralgia, at the superselective diathermocoagulation of the nerve roots affected, in particular in the case of trigeminal neuralgia, in an effort to limit the consequences of harmful interventions, which may cause sensory deficits or postoperative paresthesia. The abandonment of medical treatment is not always possible or permanent though due to a tendency to relapse after surgery.

In the case of postherpetic neuralgia, a significant improvement has been described in the litera-

Distinctive features of stabbing headache from other types of paroxysmal headache								
Type of headache	Frequency	Duration	Intensity	Chronobiology	Location	Trigge	Pain	Dysautonomi
Migraine	variable	h/d	high	possible	unilateral	none	pulsating	none
Cluster headache	1-8/d	20-180 m	max.	frequent	periorbital	none	stabbing	yes
paroxysmal hemicrania	multiple/d	2-30/m	high	possible	unilateral	none	stabbing	none
Trigeminal neuralgia	multiple/d	few s.	max.	none	trigeminal	yes	shock-like	none
SUNCT	multiple/d	5-240 s	high	none	periorbital	none	stabb./pulsat	yes
Stabbing headache	multiple/d	1-3/s.	max.	none	trigem./occ	none	stabbing	none

s = seconds; m = minutes; h = hours, d = day; max. = maximum; dysautonomia = cranial autonomic symptoms (lacrimation and/or conjunctival injection and/or nasal congestion and/or rhinorrhoea); SUNCT = Short-Lasting Unilateral Neuralgiform headache attacks with Conjunctival injection and Tearing; stabb./pulsat. = stabbing/pulsating, trigem./occ. = trigeminal/occipital territory.

Table 1

ture but also observed by the authors through direct experience, with the use of therapeutic doses of tricyclics, in particular amitriptyline or other antidepressants with a dopaminergic mechanism, which in chronic treatment have enhanced the analgesic effect of common antineuralgic drugs, probably with a mechanism similar to that observed in migraineurs^(8,9). Clinical and experimental observations support the hypothesis of an anti-neuralgic of L-acetyl-carnitine⁽¹⁰⁻¹²⁾, as in the case of the therapy of lesions of the second motor neuron⁽¹³⁾.

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