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Triggering Factor for Herpes Zoster: Beware of Cataract Surgery

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Abstract

Introduction: Herpes zoster is the reactivation of the varicella zoster virus (VZV), which remained quiescent in the Gasser ganglion for a long time. This reactivation recognizes several multiple triggering factors; the most frequent are stress, tiredness, and fever. **Case Report:** In this observation, we report a case of herpes zoster of the maxillary branch of the trigeminal nerve in a 65-year-old patient triggered by extracapsular extraction cataract surgery. The viral reactivation crisis was controlled by systemic antiviral therapy. **Conclusion:** Cataract surgery as trigger for herpes zoster is rare and not often found in the literature. This observation should focus the surgeon's attention on the probable reactivation of VZV after well-conducted cataract surgery and its satisfactory evolution under antiviral treatment.

Keywords

Herpes Zoster, Maxillary Branch, Trigeminal, Cataract Surgery

1. Introduction

Shingles is the clinical manifestation of reactivation of the varicella-zoster virus (VZV), a virus of the Herpesviridae family, which remains dormant in the sensory ganglia after a previous episode of chickenpox. Cranial nerve involvement is the second most common site of reactivation, with the trigeminal nerve (V) being the most commonly affected [1]. Among the trigeminal branches, the ophthalmic nerve (V1) is the most commonly affected, while involvement of the other branches (maxillary nerve or V2 and mandibular nerve or V3) is rare [2]. Factors that decrease immune function, such as HIV infection, chemotherapy, chronic use of corticoster-

oids, and conditions such as fatigue and stress, can reactivate dormant VZV.

We report here a case of V2 shingles, a rare location triggered by an equally rare and little-described factor, namely cataract surgery.

2. Case Study

A 65-year-old female patient was seen for a consultation regarding a gradual decline in bilateral visual acuity that had been progressing for several months. Clinical examination revealed bilateral asymmetric cataracts, more severe in the left eye. The medical history of this immunocompetent patient was normal, and it did not reveal any previous varicella vaccination. Examination of the other systems was normal; in particular, there were no facial dermatological lesions.

Phacoexeresis by manual extracapsular extraction of the left eye was performed without incident under peribulbar lidocaine locoregional anaesthesia.

The ophthalmological examination on the first post-operative day was normal and the local treatment consisted of antibiotics and anti-inflammatories. The patient was seen in consultation two days later for skin eruptions and right hemifacial pain that had been evolving since the day before (*i.e.* Day one post-operative), with discharge associated with an influenza-like syndrome. Clinical examination revealed vesiculo-papular eruptions on an erythematous background in the zygomato-maxillary region, the nostril wing and the right upper lip. These lesions followed the midline and were located in the dermatome of the maxillary branch of the trigeminal nerve (**Figure 1**, **Figure 2**). Right lower blepharitis without eyeball lesions was noted; the left eye remained normal. There were no endobuccal lesions on stomatological examination and the examination of the other cranial nerves was unremarkable. The diagnosis of herpes zoster of the maxillary branch of the trigeminal nerve (V2) was made on the basis of clinical arguments. Virological confirmation by PCR, which is not common practice in our setting, was not performed. An oral antiviral treatment with valaciclovir at a dose of three grams per day, divided into three doses, was instituted for seven days. The outcome was favorable, with regression of hemifacial pain, drying of the vesicles and pustules, and the appearance of scaly lesions from the seventh day onwards. The follow-up examination at one month confirmed the disappearance of hemifacial pain and scaling, leaving a slight erythematous base (**Figure 3**). Ophthalmological and stomatological examinations at three months were normal, and no post-herpetic pain was noted. It was decided to have regular quarterly check-ups in order to prevent the onset of post-herpetic neuralgia.

The patient gave her written and informed consent to the publication of this clinical case.

3. Discussion

VZV is an exclusively human virus, responsible for chickenpox, whose reactivation in the spinothoracic, trigeminal and geniculate ganglia causes shingles. When triggered by intra-individual or exogenous factors, it replicates as far as the corresponding dermatome.

Figure 1. Skin eruptions following the V2 dermatome, respecting the midline.

(a) (b)

Figure 2. Association of vesicles and papules on aerythematous background following the dermatome of V2.

Figure 3. Disappearance of erythematous lesions, leaving behind an erythematous background.

This phenomenon causes acute radiculoneuritis and a typically vesicular rash with a metameric distribution, accompanied by intense burning or stabbing pain that is very painful for the patient. The incidence of this condition in the elderly is well established; in fact, more than half of cases affect people over the age of 60. This is referred to as immunosenescence, with an incidence of the disease multiplied by 8 to 10 [3]; this immunosenescence was present in this 65-year-old patient. Chronic conditions, such as diabetes or the use of immunosuppressive drugs after certain types of surgery, are thought to increase the risk of VZV reactivation.

Apart from the thorax, the face is the area most often affected via the facial nerve or the ophthalmic branch of the trigeminal nerve. However, involvement of the maxillary (V2) and mandibular (V3) branches of the trigeminal nerve is much rarer, affecting less than 2% of cases of shingles [2]. This rare localization of herpes zoster of the right V2 was found in this patient, triggered by cataract surgery on the contralateral eye. Surgery, described as a trigger for VZV reactivation due to the immune stress it induces, has been found in the literature in various circumstances: cryotherapy, liver biopsy, spinal cord surgery and even after massage sessions [4]-[6]. Two studies have reported unilateral trigeminal herpes zoster triggered by cataract surgery. This was ophthalmic herpes zoster contralateral to surgery performed under peribulbar anaesthesia [7] [8]. One of the mechanisms suggested was direct stimulation of the trigeminal nerve by anaesthetic agents. Trigeminal microtrauma during corneal incision during cataract surgery has also been suggested, as in the case of intermittent facial neuralgia observed after phakoexeresis [9].

However, in both these cases, zoster reactivation occurred on the side that was homolateral to the anaesthesia and surgery, as Walland points out [8]. The patient's case is similar to the two mentioned above, but involves the maxillary branch of the trigeminal nerve, which is exceptional. Regardless of the eye operated on, surgery could alter nerve circulation and the resulting post-operative immune stress could affect contralateral nerve fibers, thus facilitating reactivation of the virus in this ganglion [10]. Contralateral herpes zoster after cataract surgery, in the absence of direct trauma, could be justified by a combination of factors: immune factors, altered nerve circulation and certain individual risk factors such as age.

Antiviral treatment for herpes zoster involves aciclovir and its derivatives. It shortens the acute phase and reduces the risk of complications, particularly post-herpetic neuralgia [3]. It is most effective when started early, within 72 hours of the onset of the rash, and this timeframe was respected in this patient. The speed of treatment could explain the absence of endobuccal complications and post-herpetic neuralgia after a 3-month follow-up. Indeed, cases of pulpal necrosis, rhizalysis or bone sequestration have been reported in cases of late treatment of herpes zoster of the V2 [11]. Post-herpetic neuralgia occurs most frequently between the first and third months after eruption [12]. Nevertheless, regular monitoring is essential in this 60-year-old patient who is subject to immunosenescence.

4. Conclusion

Zoster of the maxillary branch of the trigeminal nerve is rare. Its onset following cataract surgery on the side opposite to the zoster lesion has not been reported in the literature. Careful attention must be paid during the first few days of monitoring a phacoemulsification procedure in order to make a quick diagnosis and initiate immediate antiviral treatment.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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