

# Surgical Treatment For Bell's Paralysis

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## Abstract

Bell's palsy or idiopathic facial paralysis due to malfunction of the facial nerve (VII cranial nerve), but until recently, it has now been related to both Lyme disease and Herpes simplex. Simplex can follow multiple nerve branches, while zoster tends to follow a single nerve branch, such as the first division of the fifth cranial nerve. This paper are reviewed some consideration on HZO with Bell's paralysis lagophthalmia cases and noted results of surgical treatment for lagophthalmia after medical treatment failure.

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*Key words:* Bell's palsy, lagophthalmia, surgical treatment.

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## Introduction:

Bell's palsy or idiopathic facial paralysis due to malfunction of the facial nerve (VII cranial nerve) affects yearly about 40,000 people in the United States and it affects approximately 1 person in 65 during a lifetime. Its cause was unknown in most cases, but until recently, it has now been related to both Lyme disease and Herpes simplex. Simplex can follow multiple nerve branches, while zoster tends to follow a single nerve

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branch, such as the first division of the fifth cranial nerve.

Herpes Zoster Ophthalmicus (HZO) is caused by the varicella-zoster virus. HZO is an ocular disease which usually manifests as a unilateral painful skin rash in a dermatomal distribution of the trigeminal nerve shared by the eye and ocular adnexa. HZO occurs typically in older adults but can present at any age. It occurs after reactivation of latent varicella-zoster virus (VZV) present within the sensory spinal or cerebral ganglia [1]. It may travel along neurons to the sensory axons of the skin to form vesicular lesions. The herpes simplex virus, which causes cold sores and genital herpes, is commonly found in people afflicted with Bell's palsy. This paper were reviewed some consideration on HZO with Bell's paralysis. All of these cases were surgical treatment after medical treatment failure.

### **Cases Report:**

Bell's paralysis: Lagophthalmia post Bells palsy with surgical treatment.

Case 1: Lagophthalmia post Bells palsy with tarsography treatment A 96-year-old man suffered from corneal ulcere on left eye with a long time of lagophthalmia after facial paralysis. He had a previous 25 years for Bell's palsy. He did not take any treatment. His Bell's palsy did not recover. He is a vetagian when he grown up.

On eye examination: RE=VA =6/12.No abnormal detected. LE= an irregular round corneal ulcere with 5mm in diameter cover subtotal cornea and fluorescein was positive. VA= Light Perception (+/-). IOP=15mmHg. Anterior chamber did not observed. PCR herpes (+)

Treatment: Natural tear and pommade antibiotique for 1 week.

Corneal ulcere did not developed and corneal ulcere becomes corneal scar. VA was the same on clinic admission. Surgical treatment: Tarsography 1/3 lateral of LE.

One year follow-up: Corneal ulcer had no occurrences and corneal scar developed. VA= Light Perception (+)

Case 2: Lagophthalmia post Bells palsy with autograft skin: A 45 yo female suffered from facial drooping on the affected half, eye watering tear for many months and no receiving any drugs for treatment.

Eye examination revealed: RE=VA6/6 Normal. LE=VA 6/12. Conea exposed 2mm when closed eye.

Fluoresceine (+) with scattered points. Laboratory finding included: RBC=3,900,000/mm<sup>3</sup>

WBC=7,600/mm<sup>3</sup>. HIV=Negative. PCR Herpes (+)

Normal chest X-ray and ECG

Diagnosis: Recurrent Bell's palsy 1st time.

Treatment: Steroid: prednisolone dose for 3 weeks. One month later: repeated treatment but lagophthalmia was not ameliorated and poor vision 6/12. Three months after Bell's palsy a surgical technique for correction lagophthalmia was done as follow:

1. A parallel incision was made above the upper eyelid with 2mm from this margin: The 2 edges of this incision were dissected to create a flap that could be grafted from lower eyelid to correct the lagophthalmia.
2. A crescent-shaped skin flap of 70 x20 mm was created from the lower eye lid (a parallel marginal 2mm incision was made at the lower eyelid with another lower incision).The head of flap was at medial canthus and the pedicle at the lateral canthus. This pedicle was too big to nourish the flap.
3. The donor area of lower eyelid was then closed with simple sutures to avoid ectropion of lower eyelid. (Figure attach at bottom)
4. Lastly the crescent-shaped flap from the lower eyelid was rotated clockwise to the upper eyelid. The head of this flap was sutured to medial canthus, the upper flap to upper incision of upper lid, and the lower flap to lower incision. The pedicle of flap was the lateral canthus and was directly sutured.
5. One week following the graft, the pedicle was severed and the sutures were cut off..

Pos-operative course: One month later cornea is clear and visual acuity 6/9. Six months later cornea exposed is 0mm when closed eye. VA 6/6.

Discussion Bell's palsy (facial paralysis) is characterized by facial drooping on the affected half, due to malfunction of the facial nerve (VII cranial nerve), which controls the muscles of the face. Named after Scottish anatomist Charles Bell, who first described it, Bell's palsy is the most common acute mononeuropathy (disease involving only one nerve), and is the most common cause of acute facial nerve paralysis. The paralysis is of the infranuclear/lower motor neuron type.

Most people with Bell's palsy will recover fully in time, even without treatment, but current treatments reflect the belief that viral inflammation of the seventh cranial nerve causes the compression and resulting paralysis. For the inflammation and swelling of the nerve, corticosteroid like prednisone was used, along with an antiviral medication such as acyclovir or valacyclovir if a viral infection was suspected. According to the Mayo Clinic, evidence from clinical trials shows that treatment with steroids tends to be more successful than treatment with antivirals.

#### 1. Herpes Zoster Ophthalmicus (HZO) and HIV

##### Ophthalmic Zona and HIV

In Kenya a study of Haroon Awan, Henry Alada showed 98% of AIDS patients having ocular manifestations and 23 % of ophthalmic zona with HIV (+) in the age range 8 to 47 years old. Our case 1 and 2 is out of this age group. Ophthalmic zona may be a marker for AIDS [2, 3]. Diagnosis of typical zona is usually easy with the eruption of vesicles distributed along trigeminal nerve but in the atypical case is difficult and now with polymerase chain reaction (PCR) is a gold standard in diagnosis DNA of zona virus. The general practitioners, eye doctors should be cautious in atypical cases of zona, as well as particularly in the phrase of

pre-eruption of vesicles because of transmission both zona and HIV. In the author 'unit, the 2 patient were HIV negative.

2. Lagophthalmia:

Lagophthalmia caused by with paralysis of peripheral VII nerve for constricted muscles of upper lid and without paralysis of elevator muscle. In case 1 with lagophthalmia a long time, this resulted in severe corneal ulceration. After treatment, corneal ulceration became big scar that should be done a perforated corneal grafting. [4, 5]. Partial tarsography should be done first in order to decrease the evaporating of eye watering contributed the regulation of pressure of eye liquefilm in case 2. Antiviral drugs were prohibitively expensive.and did not use in this case. In case 2: Antiviral drugs were taken and associated with steroids may be helpful in relief all symptom in swallowing as well as eye lid closing.Lagophthalmia caused around of all cases of 40% keratitis, 40% of uveitis cases, as well as necrosis retinitis, secondary glaucoma, ocular motor nerve palsies, cataract, and scleritis [5] So, an upper lid reconstruction [6] was done in this case after the failure of medical treatment for 3 months.

For classification and treatment of herpetic neuralgia: [7,8]

Table 1. A Classification and treatment of herpetic neuralgia:

<i>Acute herpetic neuralgia (AHN)</i>	<i>Post herpetic zoster neuralgia (PHN)</i>
* AHN < 3 months * prodrome → vesicles * phrase of recovery	* PHN: > 3 months * during: > 3 months to years * Intermittent → stop
<b>Treatment: AHN</b>	<b>PHN</b>
1. Antiviral drugs: Acyclovir...7days 2. Prednisolone 40mg/daily/2 weeks 3. Analgesics: narcotic & non- narcotic 4. Block sympathetic drugs	1. Antidepressive drug: Imipramine 2. Aspirin, Casein 3. Physiotherapy 4. Anticonvulsive drugs: arbamazepine

3. Others problems with ophthalmic zona

- \* Strabismus: may be caused by the paralysis of ocular muscles need to be surgical correction [9].
- \* Cornea: The decreasing of corneal sensibility post herpetic zoster may reversible or irreversible because of corneal epithelial damages. [6]. Surgeries in these patients as glaucoma, cataract has to be warning.
- \* Iris: The paralysis of constricted sphincter of iris may lead to dilation of pupil so-called atypical Argyl Robertson syndrome [4]. This case: pupil did not constrict one year later.

4. Bell's Palsy with genetic problem: should be detected. In 2 cases mentioned above did not show relationship [10]

5. Prevention: Adults 60- year-old and over should have a single dose of zoster vaccine whether they have had herpes zoster or not. This vaccine has been shown to decrease the incidence of zoster [11]

Conclusion: In case 1: a corneal ulcer due to complicated Bell's palsy, a tarsorrhaphy should be performed first as temporary treatment for preventing corneal perforation before corneal graft. In our experience, steroids associated with antiviral drugs were not effective in case 2 with lagophthalmia and poor vision. Then surgical treatment by an autoskin-graft for correction lagophthalmia was done with good result as well as good vision after one year follow-up. Some considerations on lagophthalmia were discussed in this paper for General Practitioners and Eye Doctors.

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Up Figure: Tarsogamy 1/3 external lid- Down Figure: auto graft from lower lid to upper lid