



## DELAYED FACIAL NERVE PALSY: POST TYMPANOMASTOID SURGERY DILEMMA

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### ABSTRACT

Facial nerve palsy is a bothersome and disfiguring complication of ear surgery. Even though most of the palsies occur in the immediate post-operative period, in exceptional instances patients may develop facial nerve palsy several hours to several days after surgery. Delayed facial nerve palsy (DFP) is an exceptional complication of ear surgery. Reactivation of virus is thought to be the probable reason. We hereby present a case of delayed facial nerve palsy, of 38 year female who developed peripheral facial nerve palsy on 8<sup>th</sup> post operative day following tympanomastoid surgery. We would like to highlight that delayed facial nerve dysfunction after ear surgery is owing to secondary effects of the operation (surgical stress) that can cause viral reactivation resulting in DFP.

**Key words:** Complication, Ear Surgery, Operation, Dysfunction.

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### INTRODUCTION

Delayed facial nerve palsy is an unusual complication of ear surgery. It occurs few days (72 hours) after ear surgery, despite no direct contact with the facial nerve during operative procedure [1, 2]. In these cases, the cause is not clear. However, in some papers, surgical stress is suspected to reactivate latent Herpes Simplex Virus Type-1 (HSV-1) in the geniculate ganglion [3]. It is commonly seen after acoustic neuroma surgeries (2.2-29%). It has also been described after vestibular neurectomy (0-18%), stapes surgery (0.5-1%), endolymphatic sac surgery (1%), cochlear implant surgery (0.4-0.7%) and tympanomastoid surgeries (0.38-1.4%) [4].

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### CASE REPORT

A 38 year old female patient presented to ENT outpatient department with profuse, mucopurulent, non blood stained, odourless and painless left ear discharge for last 4 years. Single central perforation was present with regular margins. No signs of any facial nerve weakness were present. Conservative medical treatment with antibiotics was given for 1 week to make the ear dry. Swab of ear discharge was taken and sent for culture and sensitivity. On follow up after 1 week, the ear was still wet. Antibiotics were changed as per culture and sensitivity report and again antibiotic treatment was prescribed for 1 week. After 1 week, discharge was still present. We planned tympanomastoid surgery. Patient underwent left tympanomastoid surgery, aditus was made patent and type-I tympanoplasty was done by underlay technique. In the operation, the facial canal and chorda tympani were intact. Protubarium was invaded with polypoid mucosa. There

was no postoperative visible problem with facial nerve postoperatively. The patient had an uneventful recovery following the procedure. The patient presented with one-day history of weakness on the right side of her face, inability to close her right eye and asymmetrical appearance of the mouth while smiling, which was assessed as House-Brackmann Grade II Peripheral Facial palsy. Her past medical history was not significant for any systemic chronic disease or recent upper airway infection. But she had great emotional stress before and after the surgery. The immediate care included the removal of the pack from the left ear, Serological investigations revealed raised titers of immunoglobulin IgG and normal level for IgM to Varicella-zoster virus, confirming the presence of Varicella-zoster infection. Medications at the time of admission were ciprofloxacin 750 mg/dose BID. She had a good general condition. The patient was started on a high dose (250mg/day) of intravenous methylprednisolone for two days. She was then prescribed 1mg/kg methylprednisolone (60 mg) for 3 days, followed by a taper to 10 mg per three days, for a total of 20 days. Also, acyclovir therapy was recommended. Her facial nerve functions recovered completely after one week.

## DISCUSSION

Delayed facial nerve palsy is the one which occurs after otology and neurotological surgeries in delayed fashion. The incidence of delayed facial nerve palsy following tympano-mastoid surgery is 0.38-1.4% [4]. It can occur from 3<sup>rd</sup> day to two weeks after the surgery. The overall prognosis for delayed facial nerve palsy following tympano-mastoid surgery appears to be good. In our patient, the facial nerve function recovered completely in one week time. Delayed facial nerve palsy is seen only in patients who undergo otological and neurotological surgeries. Chorda tympani nerve is exposed in all ear surgeries except for endolymphatic sac surgeries and all surgeries which undergo drilling of mastoid bone. So, mastoidectomy and chorda tympani or facial nerve exposure are two main causes of delayed facial nerve palsy [5]. Delayed facial nerve palsy is always observed on the operated side. Therefore, there is a strong relationship between delayed facial nerve palsy and the ear surgeries [6]. Reversible delayed facial nerve palsy is usually due to compression of nerve fibres by oedema, damage to blood supply to facial nerve during surgery [7] drilling induced heat or inflammation in early post-operative period [8, 9].

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function immediately after surgery and during seven days Late post-operative facial nerve palsy could be due to viral reactivation. Exposure of facial nerve or chorda tympani nerve, thermal or mechanical manipulation around facial nerve and steroid or antibiotics soaked gel foam can cause herpes virus reactivation [5]. The commonest etiology is Varicella zoster virus. This complication is more in patients with a history of viral reactivation.

Vrabec JT et al. proposed that a history of herpeslabialis reactivation in the last years or immune depression status represent alone an indication to the prophylactic antiviral therapy. They recommended a schedule of (oral valacyclovir beginning 1 day before the procedure and continuing for 10 days postoperatively) in all otological and neurotological procedure. Serological tests can confirm viral reactivation in some patients. Gadolinium enhancement of labyrinthine portion of facial nerve is recorded in MRI in a few studies.

## CONCLUSION

A person who undergoes ear surgery is a potential candidate for facial nerve dysfunction. This untoward event requires the surgeon to make a decision whether a second operation is needed or giving medical treatment alone would suffice. DFP, as the name implies, is noticed more than 72 hours after surgery while facial nerve function is normal during this postoperative period i.e in initial 72 hours. Thus it indicates that the facial nerve is anatomically intact in DFP, but that secondary events cause nerve palsy. Consequently, medical treatment (as in Bell's palsy) will be adequate for DFP. This case could substantiate viral reactivation to be an imperative causal factor in the occurrence of delayed onset facial nerve palsy.

## STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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Nil

## CONFLICT OF INTEREST

No interest

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