

Surgical outcomes of transmastoid facial nerve decompression: Preliminary data from a Malaysian tertiary hospital from 2013-2018

Siang Poon Goh, MD¹, Ying Xin Tan, MBBS¹, Dayang Suhana Abang Madzhi, MS (ORLHNS)^{1,2}, Ing Ping Tang, FRCS^{1,2}

¹Department of Otolaryngology Head and Neck Surgery, Sarawak General Hospital, Ministry of Health, Malaysia, ²Faculty of Medicine & Health Sciences, University Malaysia Sarawak, Sarawak, Malaysia

ABSTRACT

Introductions: Facial nerve palsy (FNP) occurs in 7-10% of temporal bone fractures. The aim of this study was to review the surgical outcome of nine patients with severe to complete traumatic facial nerve (FN) injury.

Methods: The patients were evaluated clinically and FNP was graded using the House Brackmann (HB) scale. High resolution computerized tomography (HRCT) of the temporal bone was used to evaluate temporal bone fractures. Transmastoid facial nerve decompression was performed and the facial nerve function was re-evaluated in subsequent follow ups.

Results: There were five cases with immediate onset and four with delayed onset of FNP. Only three cases had pure temporal bone fractures, the others were associated with other life threatening injuries. The sensitivity and specificity of HRCT temporal bone to detect the obvious facial canal fracture line were 50% and 40% respectively. 75% of patients with immediate onset of HB grade VI FN palsy who were operated within a month recovered completely. Surgeries for the delayed onset FNP were performed at a mean of 70 days (range 51-94). All recovered to HB grade II-III from severe FNP.

Conclusions: Our study demonstrated that transmastoid FN decompression surgery was beneficial to traumatic nerve injury. Early intervention resulted in better outcomes. However, FN function could still be salvaged even in delayed FN decompression.

KEY WORDS:

Traumatic facial nerve palsy, facial nerve decompression

INTRODUCTION

The facial nerve (FN) possesses the longest intraosseous course with its narrow, complex and tortuous in the temporal bone. Temporal bone fractures will lead to FN injury in 7-10% of cases.¹ These fractures typically occur as a result of motor vehicle accidents, falls, assaults, and penetrating wounds such as gunshot wounds. Traditionally, temporal bone fractures are classified as longitudinal, transverse or mixed depending on their orientation relative to the petrous ridge.

New classification schemes designate temporal bone fractures as violating or sparing the otic capsule.² Intratemporal facial nerve injury may manifest as facial paralysis, dysgeusia, decreased lacrimation and hyperacusis depending on segment(s) involved. Onset of the symptoms was found to be immediate in 27% and delayed in 73% of those injured. However, a large number of patients also had brain injury and or multi-organ involvement, resulting in the inability to determine the onset of facial nerve injury. The House Brackman (HB) scale (grade I-VI) is commonly used for the grading of the facial nerve palsy (FNP).

The aim of this study is to present the surgical outcomes of nine patients with HB grade IV-VI FNP who underwent FN decompression.

MATERIALS AND METHODS

This study was registered with the National Medical Research Registry (NMRR-19-3927-50894) and it received ethical approval from the Ministry of Health Medical Research & Ethic Committee (MREC). [Ref: KKM/NIHSEC/P20-478(4)]

This retrospective review was done on patients who had traumatic temporal bone fractures, sustained FNP and underwent FN decompression at the Sarawak General Hospital from 2013 to 2018. Nine patients fit the following criteria: 1) severe or complete traumatic FNP grade: HB IV-VI, 2) consented for FN decompression, 3) transmastoid FN decompression was performed, 4) neither nerve transplanation nor anastomosis for transected FN was performed, and 5) follow up for at least six month or up to complete recovery.

All patients were assessed and managed fully at the Sarawak General Hospital by the department of nose, ear and throat (ENT). Their facial nerve palsy was graded with HB scale and hearing assessment was performed with pure tone audiogram (PTA). All patients had high resolution computerised tomography (HRCT) done as part of the temporal bone evaluation.

In immediate onset traumatic HB grade IV to VI FNP, the FN decompression was offered immediately. Whereas in delayed onset traumatic FNP regardless of the HB grading, a course of

This article was accepted: 16 March 2020

Corresponding Author: Siang Poon Goh

Email: siangpoon@gmail.com