

Case Report

Q-tip ear injury with stapes luxation into the vestibule-a case report

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ABSTRACT

Stapediovestibular luxation by Q-tip ear injury is a rare occurrence. The traumatic context associated with cochleovestibular symptoms should lead to a high index of suspicion. Temporal bone CT scan confirms the diagnosis. The authors report a case of stapediovestibular luxation and discuss the management of this condition. An 8-year-old boy presented to our department for otalgia, hearing loss, and dizziness. The history revealed a penetrating right ear injury by Q-tip, which had occurred 5 days previously. ENT examination found a right peripheral vestibular syndrome with ipsilateral tympanic perforation. Tonal audiometry noted right cophosis. Temporal bone CT scan showed right side internal stapediovestibular dislocation. Middle ear inspection with oval window fistula repair and tympanic closure were performed. Postoperative outcomes showed complete resolution of vestibular symptoms without improvement of sensorineural hearing loss thresholds. Traumatic stapediovestibular dislocation by Q-tip ear injury is unusual. Early diagnosis, with precise lesion assessment and appropriate management resolve vestibular symptoms, prevent infectious complications. But, hearing outcomes are variable.

Keywords: Stapes luxation, Perilymphatic fistula, Ear trauma, Q-tip

INTRODUCTION

Penetrating ear trauma is not uncommon in otorhinolaryngology practice.¹ However, traumatic internal stapediovestibular dislocation is exceptional.^{2,3} This condition is most often associated with poor functional prognosis despite adequate surgical treatment.^{1,4} We report a case of traumatic stapes luxation into the vestibule by Q-tip injury.

CASE REPORT

An 8-year-old boy, without otological history, was referred to our department 5 days after a penetrating ear trauma by Q-tip. He was initially taken care of in a non-specialist setting.

On admission, he complained of dizziness, headache, vomiting, right otalgia and hypoacusia. On examination, there was torticollis with head tilted to the right, intense incapacitating dizziness, and left horizontal-rotatory beating nystagmus.

Otoscopy found a right posteroinferior tympanic perforation with congestive tympanic remains (Figure 1).

Temporal bone CT scan showed dislocation and depression of the right stapes into the vestibule, without associated fractures (Figure 2).

Preoperative audiogram revealed right cophosis with normal left hearing.

Exploratory tympanotomy was performed under general anesthesia. Intraoperative assessment confirmed stapes

luxation. Stapes footplate was left in place after failed attempt of extraction. Temporalis fascia and fat tissue were used to seal the oval window. The tympanic membrane perforation was repaired.

Postoperatively, the patient had rapid improvement of his vertigo. A three months audiogram showed a very slight improvement with severe right neurosensory hearing loss.

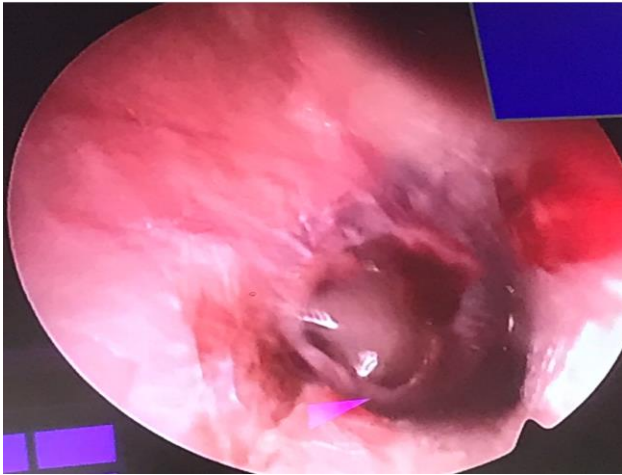


Figure 1: Otoscopy of right postero-inferior tympanic perforation with congestive tympanic remains.

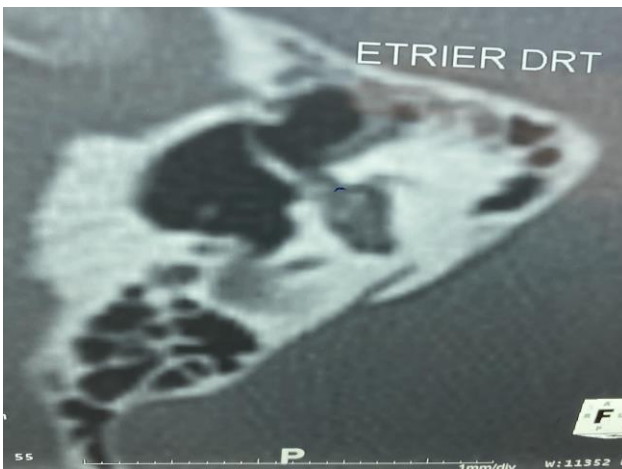


Figure 2: Temporal bone CT scan (axial view) of stapes luxation into the vestibule.

DISCUSSION

Q-tip penetrating ear injury and ossicular trauma is common.^{5,6} Intravestibular stapes luxation is unusual in such case.¹⁻³ The traumatic context associated with cochleovestibular symptoms should suggest the diagnosis.^{2,4,5} High-resolution CT with thin slides shows the dislocation, the depth of stapes footplate depression, and eventual associated fractures.^{4,7}

Conservative management, with close monitoring of hearing, is usually recommended when cochleovestibular symptoms are mild to moderate.⁸ In patients with severe, persistent, or gradually worsening symptoms, middle ear exploration will be performed for diagnostic and therapeutic purposes.⁸ Preoperative patient informed consent should be obtained, insisting on the risks of worsening hearing, and possible complications in the event of non-intervention.^{2,5} The surgical procedure is guided by preoperative audiogram and temporal bone CT findings.^{2,3,5,6} Middle ear inspection with careful repositioning of the stapes, followed by oval window sealing and reconstruction of the ossicular chain will be performed.²

However, in stapedovestibular dislocation, many factors had to be considered before footplate extraction (hearing thresholds, intravestibular depth of the luxated stapes, footplate fracture). Mobilizing the footplate can worsen inner ear lesions. Likewise, non-extraction can lead to late inner ear damage by vestibular spaces obstruction.^{2,9}

Vestibular symptoms are usually improved with surgery.^{3,6,8} On the other side, auditory functional prognosis is more reserved, depending on the interval surgery to treatment, hearing thresholds, and anatomical lesions.^{1,3,4,6}

CONCLUSION

Direct ear trauma is usual in ENT practice. Inner ear involvement is less common. Practicians should suspect stapediovestibular luxation in case of cochleovestibular symptoms in this traumatic context. Audiometry and temporal bone CT confirm the diagnosis and guide management. However, hearing loss prognosis is reserved even if adequate surgical procedure is performed.

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