

Case Study

To stitch or not to stitch: A case review Auricular lacerations involving cartilage management in the emergency department

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ABSTRACT

Patients with Parkinsonism are at risk of frequent falls by virtue of their unstable gait. Auricular lacerations involving the cartilage are usually managed by Plastics Surgeons. Patient Mr Jones (an alias for this case review) had sustained a significant full thickness auricular laceration that was complicated by a past medical history with Parkinson's disease. This case review summarises a nurse practitioner's (NP) clinical decision-making processes and the experience in the management and treatment of auricular cartilage lacerations in the emergency department.

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Background

Emergency departments (ED) see a myriad of patient presentations daily, experiencing from minor injuries and illness, complexities associated with patient comorbidities, acute life-threatening conditions and chronic health diseases. One chronic condition known as Parkinson's disease is the second most common neurodegenerative disease in Australia [1]. It is characterised by the progressive degeneration in the mid brain, causing dopamine deficiency, which affects controlled and smooth muscle movement. The cardinal motor features of Parkinson's comprise resting tremor, bradykinesia, rigidity, and postural instability. As a result of these symptoms, frequent falls are common in patients with Parkinson's disease. A study in 2006 found that out of 645 patients admitted with Parkinson's disease as the secondary diagnosis, 39% of the patients were admitted because of falls [2]. Open wounds sustained from falls are also common presentations to the ED. The combination of an open wound requiring exploration and repair coupled with Parkinson's disease can be a challenging clinical presentation for all ED care professionals. Prompt treatment and discharge planning are important as traditionally, EDs do not stock the required chronic medications for Parkinson's disease, subsequently causing medication delay during their ED stay. Often patient's with Parkinson's disease may experience an exacerbation of their fine motor

symptom control. An increased deficit in fine motor controls may enhance the domino effects of increased falls, impacting of hospital costs, length of stay and adverse event rates [3].

Review of ear (auricular) anatomy

The ear is an exposed structure that is at high risk for injury during head trauma, due to its anatomic location [4]. The ear consists of the external, middle and internal ear [5]. The tympanic membrane separates the external ear from the middle ear [6]. For the purpose of this case, the author will focus on the anatomy of the external ear, Fig. 1. The auricle is composed of an irregularly shaped plate of elastic cartilage that is covered by a thin skin. The elevated margin of the auricle is the helix. The non-cartilaginous lobule consists of fibrous tissue, fat and blood vessels [6].

When an ear is struck, shearing forces may disrupt the adherence of the perichondrium to the cartilage [7]. The cartilage is dependent on the perichondrium for its vascular supply; therefore expedient coverage of the exposed cartilage prevents potential complications such as necrosis, erosive chondritis and infection [8]. Chondritis can result in drastic deformity of the ear [9]. Haematoma can also form as a result of blunt trauma, and this can potentially result in perichondrial haematoma [10].

An epidemiological survey by Sethi et al. showed that complex laceration repair of the eyelid/eyebrow/lip, nose and external ear was performed in 205,188 out of 131 million presentations to ED in 2011 [11]. Complex lacerations of the ear typically involve auricular avulsions, laceration extending into the external canal, lacerations

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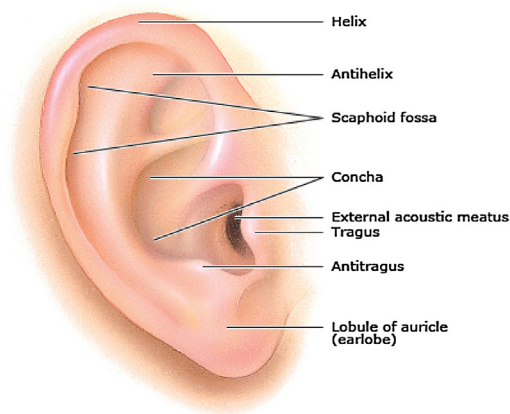


Fig. 1. Anatomy of the external ear (up to date, accessed on 18/2/18 via Clinicians Health Channel).

associated with middle or inner ear injuries, lacerations associated with base of skull fracture, and chronic lobe lacerations. Through and through lacerations of the auricle may also be an indication for subspecialty consultation [12]. At the author's institution, complex lacerations are managed by a plastic surgeon, however, depending on the location or specific institution practice, such lacerations can be referred to a surgical subspecialty such as general surgery, ENT (ear, nose and throat), maxillofacial or plastics surgery. It is also not uncommon for the NP to refer complex lacerations to be managed by senior or more experienced clinicians (NP or emergency physician).

In this case study, Mr Jones was referred to the Plastics Registrar as per local protocol. Upon the registrar's assessment, it was decided that the NP would repair the complex laceration. At the time of the procedure, the NP was under the assumption that:

1. Complex lacerations were usually managed by surgical subspecialties
2. Auricular cartilage are not sutured

This case study therefore explores the experience managing a complex laceration, specifically the repair of auricular cartilage by a NP.

History of presenting complaint

Mr Jones, a 60 year old presents with a left ear laceration. He was referred to a tertiary referral ED hospital having been seen in a metropolitan ED earlier that day. He fell (50 cm) out of bed that morning after hitting his head on the ground where he sustained an extensive left ear laceration. He had no loss of consciousness, no neck pain and no focal neurological deficits. He was taken by his wife to the local ED for evaluation. According to Mrs Jones, Mr Jones has frequent falls out of bed. Mrs Jones claims that it is not like his seizures. Mr Jones has a background history of Parkinsons, Aortic Valve Regurgitation, absence seizures and laminectomy. The reason for his fall has been investigated at the metropolitan ED and thought it to be due to a mechanical fall. Mr Jones was therefore referred to the ED of a tertiary referral hospital for management of his complex ear laceration by the Plastics team.

The NP commenced the assessment of Mr Jones by observing his gait as he walked into the cubicle, his body language, his demeanour and the presence of a relative or person responsible. These visual clues often reveal important aspects of his assessment to guide the NP assessment and further examination. The assessment for all patients who has presented to the ED with injury, requires a

Table 1
Past medical histories and medications.

Past medical histories	Medications
Right lobe craniotomy post MBA in 1970	Amantadine 100 mg twice daily
Recurrent absence seizures	Entacapone 200 mg 6 hourly
Parkinson's Disease since 1973	Levodopa/benserazide 125 mg 2 tablets once daily
Laminectomy C-spine 2002	Metoprolol 50 mg ¼ twice daily
Deep Brain Stimulator	Quetiapine 300 mg nightly
Aortic Valve Regurgitation	Sodium Valproate 500 mg twice daily

detailed and proven guide to the assessment and history taking. Mechanism, injuries, sign and symptoms and treatment are the mnemonic known as MIST [13]. MIST is a standardised history tool that helps to target the ongoing secondary focussed assessment and treatment of your patients. This mnemonic was utilised for obtaining Mr Jones initial history.

Mechanism – Fell out of bed at home approximately 50 cm to the floor

Injuries – Single isolated Open wound to the left ear involving cartilage on view – haemorrhage controlled with simple dressing

Sign and symptoms – Glasgow Coma Score [14] (GCS) 15/15, Airway, Breathing, Circulation and Disability all intact

Treatment – First aid to ear with pressure bandage

Primary survey

Airway – Airway patent and patient talking

Breathing – Spontaneous breathing with no respiratory distress (RR 16, SaO₂ 97% on room air)

Circulation – Skin was warm and well perfused (BP 138/66, HR 48)

Disability – GCS 15/15 with his pupils equal and reactive

Exposure – Left ear laceration on inspection

Pain score – 4/10 on palpation and Mr Jones had declined and analgesia. Other non-pharmacological measures to reduce pain were discussed with Mr Jones and his wife. The NP provided reassurance, positioned him comfortably, tried to reduce the noise in his area and dimmed the lights (Table 1).

Allergies

Sulphur based antibiotics – rash

Social history

Mr Jones is a retired flight engineer who lives at home with his wife who is his full time carer. He maintains moderate levels of independence and is able to self-mobilise without any gait aids at the present time. The Jones' have a community carer visit three times a week to assist with house work and respite for Mrs Jones, who is unable to leave Mr Jones alone at home. Mr Jones has been a non-smoker and non-alcohol drinker his entire life.

The initial assessment identified his isolated injury to his auricular and his chronic degenerative disease of Parkinsons. No immediate interventions to Mr Jones were required which allowed for the secondary focussed assessment to be undertaken.

Secondary assessment

Systems review

Central nervous system – No headache, dizziness, nausea, cranial nerves intact.

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