

Glossopharyngeal neuralgia following foreign body impaction in the neck

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Abstract

Glossopharyngeal neuralgia is rare, typically idiopathic and treated with carbamazepine. Surgery to decompress or transect the glossopharyngeal nerve root may be performed if conservative management fails. We present a case following trauma to the neck with foreign body impaction. To our knowledge this is the first case of glossopharyngeal neuralgia due to neck trauma.

Key words: Glossopharyngeal nerve; Neuralgia; Trauma

Introduction

Glossopharyngeal neuralgia has an incidence of approximately 1.5 per 1 000 000 of the population, roughly one hundredth the incidence of trigeminal neuralgia. The vast majority of cases are idiopathic but it has been associated with carcinoma of the tongue,¹ laryngeal carcinoid,² and carcinoma of the cerebello-pontine angle.³ The main differential diagnosis is carcinoma of the posterior third of the tongue, and this must be excluded before idiopathic glossopharyngeal neuralgia can be diagnosed. As with trigeminal neuralgia the first line of treatment is usually carbamazepine, but Eide *et al.*⁴ also had success by blocking the N-methyl-D-aspartate (NMDA) receptors with ketamine.

Failure of medical treatment is followed by surgical management. This consists of transecting the glossopharyngeal nerve in the infratemporal fossa⁵ or its nerve root.⁶

Case report

A 40-year-old man presented to the Accident and Emergency department of the Royal Liverpool University Hospital with a penetrating neck wound sustained when the air powered hammer he had been using fell, shattering a metal collar and sending a metallic foreign body into his neck.

On examination there was an entry wound at the angle of his mandible on the left side, there was no exit wound. He had a haematoma on the left side of his neck and some mild asymmetry of the oropharynx on the left and some weakness of the left side of his lip. There was no airway compromise and the trachea was central.

X-rays showed a 13 by 8 mm metallic foreign body lying anterior to the C2/3 disc space on the left side (Figures 1 and 2).

He was taken to theatre for exploration of the wound under general anaesthetic, evacuation of the haematoma and removal of the foreign body. At the operation the haematoma was located in the left sternocleidomastoid muscle. The left submandibular gland was normal. Using

an image intensifier the foreign body was noted to be deep-seated in the retropharyngeal area, and a decision was made to leave it in situ. The wound was cleaned and drained. Post-operatively it was noticed that he had weakness of the left hypoglossal nerve and marginal mandibular nerve. He was discharged home three days after the operation.

At clinic two weeks later he complained of pain on the left side of his throat and a diagnosis of glossopharyngeal neuralgia was made. The weaknesses of marginal mandibular and hypoglossal nerves persisted but were improving. He was commenced on carbamazepine and reviewed again in five weeks. The pain had not settled and was causing electric shock-like pains when he swallowed anything, so much so that he had stopped eating and had lost two stones in weight. It was decided to re-explore the neck under general anaesthetic once again.

An image intensifier was used again and this time the rivet was located lying above the bifurcation of the left common carotid artery and was in contact with the left glossopharyngeal nerve. It was removed successfully and the next day the pain had gone completely and the patient was able to eat normally. Otherwise the post-operative recovery was uncomplicated.

Further clinic review six weeks later revealed he had remained pain free for four weeks but over the last two weeks his pain had returned with no other signs. One month following this he was no better and was referred to the pain clinic.

Discussion

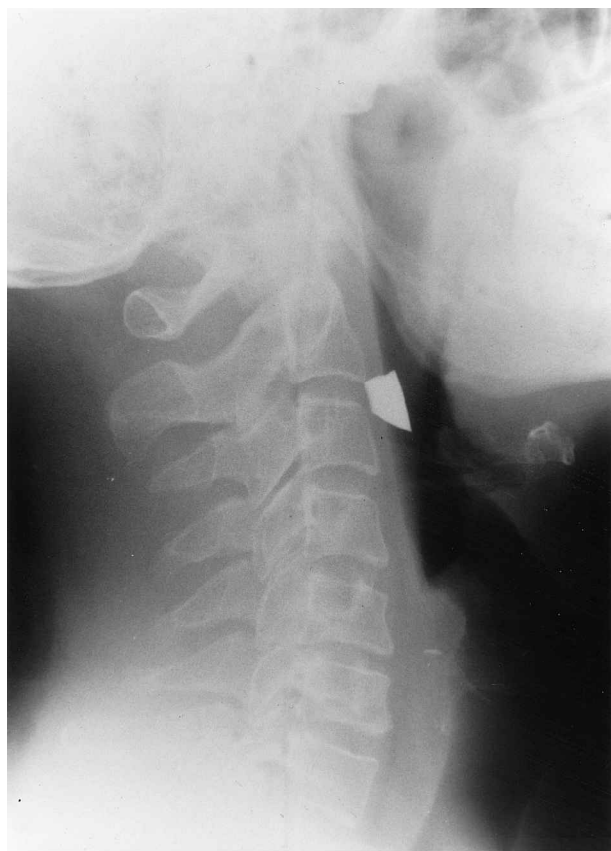
A Medline search revealed no other case reports of glossopharyngeal neuralgia following foreign body impaction in the neck. Indeed there are few papers dealing with this rare condition. The most comprehensive study was by Chawla *et al.* who reported 10 cases.⁷

The first reported case of glossopharyngeal neuralgia was by Weisenburg in 1910³ whose patient had a tumour of the cerebello-pontine angle. Since then sporadic cases have

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Presented at the first annual Merseyside Otorhinolaryngology and Head and Neck Surgery presentations 18 December 1998.

Accepted for publication: 7 September 1999.



Figs. 1 and 2

A.P. and lateral radiographs of the neck, showing the site of impaction of the foreign body.

been reported either being idiopathic or secondary to such conditions as carcinoma of the tongue¹ or laryngeal carcinoid.²

The idiopathic form of the condition comes on at any age but becomes more common with increasing age.⁷ There does not seem to be a difference in incidence between the sexes,⁸ although Chawla's study contained nine males and one female. Some patients also experience neuralgia in the upper vagal territory. There may be trigger points for the pain such as the tragus. Often the pain, which is described as lightening or stabbing in nature, comes in spasms lasting from a few seconds to a few minutes typically many times a day for a few days but then undergoes a period of remission for up to four years.⁷ Typically there is no impairment of sensation in the area of pain. Additionally glossopharyngeal neuralgia can be associated with bradycardia, hypotension, syncope and even asystole due to stimulation of the parasympathetic fibres within the glossopharyngeal nerve akin to performing carotid sinus massage.

Eide *et al.*⁴ successfully used ketamine to block NMDA receptors and relieve the neuralgia, this led to the theory that excitatory NMDA receptors are responsible for the hyperactivity of central nociceptors in producing the pain.

Initial treatment is with carbamazepine, although phenytoin has also been used in addition to carbamazepine in resistant cases.⁶ Carbamazepine acts by slowing the rate of repolarization of the voltage gated sodium channels of the neurone, this limits the rate of firing of action potentials thereby reducing the pain. The long half-life of carbamazepine means that it can take up to one week for symptom control. Side effects may limit use, these may be anything from nausea and vomiting to aplastic anaemia. It

is teratogenic and therefore contraindicated in the first trimester of pregnancy as well as in lactating mothers since it is also excreted in breast milk.

The approach to the infratemporal fossa can be either via an external incision in the neck as in our case, or via the tonsil fossa.

The surgical treatment of choice for idiopathic glossopharyngeal neuralgia is via the intracranial approach. This has changed little since it was first used in 1920 by Sicard.⁹ Here a suboccipital craniotomy approach is used and the lateral sinus and sigmoid sinus are exposed. The dura is then opened and the cerebellopontine angle also opened. The ninth nerve root is the most superior single filament arising from the brainstem, this is sectioned along with the upper two rootlets of the vagus nerve. Normally the pain is relieved immediately following the operation. Relapses have been reported especially with section of the glossopharyngeal roots alone. Sensation is affected in the distribution of the glossopharyngeal and upper vagal territories following section. This may impair swallowing. There have also been reports of cardiovascular effects following section, most commonly transient atrial flutter, ventricular extrasystoles, and hyper- or hypo-tension.

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