A rare presentation of Eagle syndrome
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Eagle syndrome was first described by Otolaryngologist Watt W Eagle in 1937 as a set of symptoms associated with an elongated styloid process.1 It is divided into two main presentations, the first being classic Eagle syndrome with symptoms including odynophagia, otalgia and a foreign body sensation when swallowing, and the stylocarotid form, presenting with neurological symptoms such as visual loss, motor weakness and transient ischaemic attack (TIA), or stroke owing to compression, with possible ensuing dissection, of the internal carotid artery (ICA).2

A 39-year-old male was admitted to our stroke unit with blurred vision, right-sided weakness and dysarthria. He was otherwise fit and well, and on no regular medications. He had a CT brain on arrival, which was normal, followed by a carotid ultrasound, which revealed a distally occluded left ICA. An MRI brain showed numerous small ischaemic strokes in the left frontal and parietal lobes, confined to the left anterior and middle cerebral artery territories (Figure 1). A CT angiography of the neck vessels revealed bilateral ICA dissections as well as bilaterally elongated styloid processes of 48mm (Figure 2). Given his age, lack of risk factors and absence of any alternative stroke etiology despite an exhaustive workup, the diagnosis of bilateral carotid artery dissections secondary to Eagle syndrome was made.

Following discussion at a multidisciplinary meeting with neurologists and ENT surgeons present, the patient had an external approach resection of his right styloid process. A total of 30mm of the styloid process, as well as the calcified stylohyoid ligament, was removed (Figure 3). The left styloid process was resected six months following initial surgery, and at the subsequent six-month stroke clinic follow-up, a repeat CT angiography revealed complete recanalisation of the occluded left ICA.

Figure 1: Diffusion weighted MRI scan demonstrating areas of cortical infarct following carotid artery compression.
Figure 2: CT reconstruction scan representing bilateral elongated styloid process.

Figure 3: 30mm stylohyoid bone removed in fragments with associated calcified stylohyoid ligament.
Eagle described an elongated styloid process as greater than 30mm. The diagnosis of Eagle syndrome is based on history and examination. The gold standard for diagnosis is a CT scan, which provides better bone definition and valuable information regarding surrounding structures, particularly regarding the length and angulation of the styloid processes.

Eagle syndrome may be managed conservatively or surgically. Conservative management is reserved for patients with mild symptoms or strong contraindications to surgery, and consists of simple analgesics such as non-steroidal anti-inflammatory drugs, corticosteroid injections, anticonvulsants and antidepressants.

The definitive treatment for Eagle syndrome is surgery, which may be performed via the intraoral approach or the cervical approach. The intraoral approach involves a tonsillectomy followed by careful blunt dissection and fracturing of the styloid process. Advantages include no external scar and the short procedure time. Disadvantages include incomplete exposure of the styloid process, poor exposure to control bleeding given the proximity to the carotid artery and pharyngeal venous plexus, infection and airway oedema. Therefore, bilaterally elongated styloid processes are a relative contraindication to this approach.

In contrast, the external cervical approach involves an oblique incision from below the angle of the mandible. Dissection is carried out until the styloid process is palpated and removed. Advantages include better exposure of the surrounding vessels and nerves. Disadvantages include an external scar, longer operating time, and risk of damage to the marginal mandibular branch of the facial nerve.

Clinicians must be aware of the potential association between an elongated styloid process and carotid artery dissection in patients presenting with a TIA or stroke. Given that Eagle syndrome is often treatable, its prompt recognition may confer a significant benefit to the patient by preventing further ischaemic neurological events.

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