

Anaesthetic management of a patient for cervical sympathetic chain schwannoma excision

Sir,

We present a case of a 57-year-old asymptomatic Chinese lady with a two-month history of a solitary, pulsatile and painless swelling at the angle of the left mandible with unremarkable neurological and diagnostic nasal endoscopy examination findings. Magnetic resonance imaging of the neck revealed a 3 × 2 × 4 cm left carotid space mass splaying the internal and external carotid arteries with a working diagnosis of cervical schwannoma.

On the day of surgery, adequate blood products were arranged. Bilateral large bore intravenous cannulae and a 20-gauge radial intra-arterial line were inserted. She was intubated with a size-7 electromyogram endotracheal tube to facilitate recurrent laryngeal nerve monitoring. Bilateral cerebral oximeters were also used, anticipating potential carotid clamping, and the baseline regional cerebral tissue oxygen saturation (rSO₂) values were recorded. A target controlled infusion of remifentanyl was used for maintaining haemodynamic stability.

A trans-cervical approach was performed. A left-sided smooth lesion was found arising between the two ends of the sympathetic trunk, located between the internal carotid artery (ICA) and external carotid artery (ECA) anteromedially and the internal jugular vein (IJV) postero-laterally, and found arising from a nerve branch of the cervical sympathetic chain. The mass was carefully excised with preservation of the surrounding structures [Figure 1].

The intraoperative haemodynamics of the patient were maintained by keeping baseline mean arterial pressure and correcting the rSO₂ values if they dropped more than 20% from the baseline. The patient was subsequently extubated and transferred to the high-dependency unit for closer monitoring. Post-operatively, she developed left-sided anhidrosis and miosis but remained otherwise well. Histological results confirmed schwannoma with the presence of ganglion cells and nerve fibres.

Up to 45% of schwannomas occur in extra-cranial sites in the head and neck regions, with the lateral

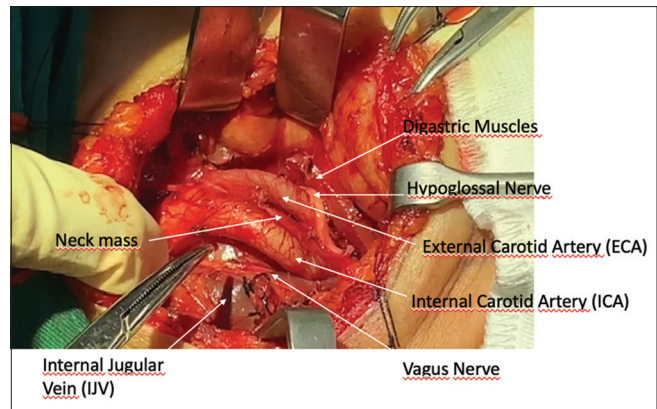


Figure 1: Intraoperative photograph of the schwannoma with careful preservation of surrounding vital structures as labelled

neck being most frequently involved. They present typically in adults of either gender between 20 and 50 years of age.^[1] Most schwannomas are asymptomatic and progress slowly, frequently arising from the glossopharyngeal, accessory or hypoglossal nerves and rarely, the vagus nerve.

Cervical sympathetic chain schwannomas (CSCS) confer a diagnostic conundrum due to their nonspecific clinical signs. The main features that distinguish a sympathetic chain tumour are its usual location and compression of adjacent vessels. CSCS commonly arise from the superior or middle ganglia of the cervical sympathetic chain C1-6, displacing the surrounding structures (ICA, ECA, IJV and vagus nerve) anterolaterally. Separation of the IJV and ICA, and cough produced on palpation of the mass suggest a vagal schwannoma. Radiological modalities^[2] are useful to delineate lesions from retro-styloid compartments of the para-pharyngeal space such as carotid body tumours^[3] or paragangliomas of the vagus nerve or carotid body. Unfortunately, the conclusive diagnosis is usually made after surgery with histological evaluation.

The anaesthetic management should include pre-operative multidisciplinary discussion to determine the most likely diagnosis. Intraoperative considerations include potential haemodynamic volatility from baroreceptor damage, carotid sinus manipulation or direct vagal stimulation, with literature describing severe bradycardia or cardiac arrest during manipulation of large vagal schwannomas.^[4] Carotid sinus manipulation can result in reflex bradycardia and hypotension whilst manipulation of carotid body masses and baroreceptor failure may lead to significant hypertension. There is also a risk of torrential bleeding

due to vascular injury, potentially necessitating carotid artery clamping and the consequent risk of cerebral ischaemia.

A superficial cervical plexus block can be considered pre-induction as it provides reliable perioperative analgesia and reduced sympathetic stimulation without a significantly increased risk.^[5] Intraoperative monitoring of the vagus nerve requires avoidance of neuromuscular blocking agents and the use of a specialised tube. If the carotid artery is clamped intraoperatively, blood pressure should be raised transiently to improve the collateral contralateral circulation along with the institution of appropriate measures for cerebral protection.

Cranial nerve palsies and Horner's syndrome can occur post-resection due to nerve damage or post-operative oedema. Other complications include Pourfour du Petit syndrome^[6] due to hyperstimulation of the cervical sympathetic chain and first-bite syndrome^[6] from the loss of parotid gland sympathetic innervation which manifests as jaw pain on mastication requiring specialised pain management.

In conclusion, managing a patient with a lateral neck mass can be challenging, and excision of the CSCS will require deliberate multidisciplinary perioperative planning to ensure the safe conduct of the surgery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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