

## Anterior cervical osteophytes: a rare culprit of unilateral vocal cord palsy

Anterior cervical osteophytes (ACOs) are a common incidental radiological finding, occurring in 20%–30% of the general population at an increasing prevalence in older ages.<sup>1</sup> Whilst typically asymptomatic, ACOs may produce symptoms in a small proportion of patients due to compression of aerodigestive tract structures.<sup>2</sup> ACOs resulting in unilateral vocal cord palsy (UVCP), with the consequent symptoms of dysphonia, dyspnoea and dysphagia, are rarely encountered.<sup>3</sup>

A 59-year old male was referred for otolaryngological review in October 2022 with a one-year history of progressive dysphonia, dyspnoea, dysphagia and dry cough. The patient endorsed a voice handicap index (VHI)-10 score of 8,<sup>4</sup> dyspnoea index of 17,<sup>5</sup> and cough severity index of 22.<sup>6</sup> On examination, audible mild inspiratory stridor was noted at rest with no increased work of breathing. Flexible laryngoscopy demonstrated an immobile left true vocal cord, in a paramedian position (Fig. 1), with associated marked supraglottic and post-cricoid oedema.

The patient was referred for CT of the cervical spine, which revealed a large bridging ACO at the C5/6 level at a left paramedian location, associated with extensive cervical osteophytosis and severe degenerative changes (Fig. 2). On CT and MRI cervical spine (Fig. 3), there was evidence of osteophyte protrusion into the left tracheoesophageal groove, likely resulting in compressive injury of the left recurrent laryngeal nerve (RLN).

Preoperative laryngeal electromyography (LEMG) was obtained, which indicated acute denervation and re-innervation in the distribution of the left RLN, with fibrillation potentials, positive waves, giant waves, polyphasic reinnervation potentials and a decreased but reasonable recruitment pattern.

The patient underwent anterior cervical osteophylectomy at the C5/C6 level by a neurosurgeon. An open left cervical spine approach was utilized and the osteophyte was excised down to the level of the vertebra with decompression of the laryngeal structures. Postoperatively, the patient was referred to an experienced speech therapist for a course of vocal training.

At 6-month followup, the patient reported near-total resolution of his dysphonia (VHI-10 = 1) and dyspnoea (dyspnoea index = 1), as well as complete resolution of his cough (cough severity index = 0) and dysphagia. Repeat flexible laryngoscopy demonstrated significant partial improvement in left true vocal cord abduction with mild residual asymmetry relative to the right side (Fig. 1).

UVCP as a complication of ACOs is rare, with only 14 cases of ACO-related UVCP published since the year 2000. Outcomes post-osteophylectomy are favourable in the published cases, with voice, breathing and pharyngeal symptom benefit and variable recovery in vocal cord mobility reported following surgery.<sup>7</sup> This case

highlights ACOs as a rarely-encountered cause of vocal cord palsy with the potential for recovery post-osteophylectomy, reminding clinicians to adopt a broad differential diagnosis in the workup of UVCP.

The use of LEMG in this patient to confirm the diagnosis of UVCP prior to osteophylectomy and assess for likelihood of recovery represents the first published use of preoperative LEMG for ACO-related UVCP in the literature. When performed in the preoperative setting, LEMG is of value for cases of ACO-related UVCP as a diagnostic adjunct to flexible laryngoscopy and to allow for prognostication prior to surgery.

### Author contributions

**Matthew Fadhil:** Data curation; writing – original draft; writing – review and editing. **Andrew Chun Lok Wong:** Data curation; writing – review and editing. **Matthias Jaeger:** Data curation; supervision; writing – review and editing. **Daniel Novakovic:** Data curation; supervision; writing – review and editing. **Margaret Le Lacheur:** Data curation; writing – review and editing. **Stuart MacKay:** Conceptualization; data curation; project administration; supervision; writing – review and editing.

### Data availability statement

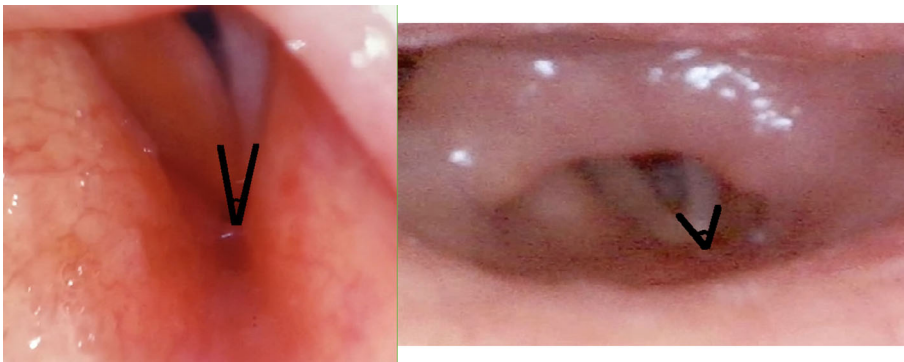
All data generated or analysed during this study are included in this article. Further enquiries can be directed to the corresponding author.

### Ethical approval

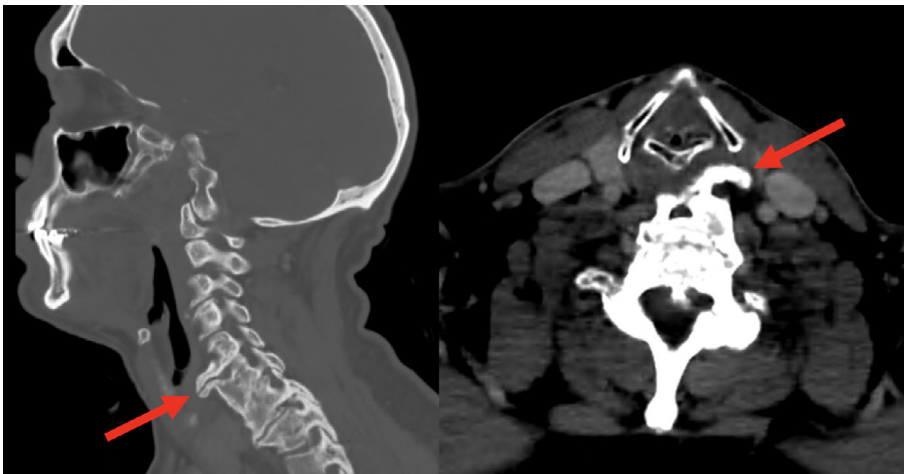
The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013).

### Informed consent

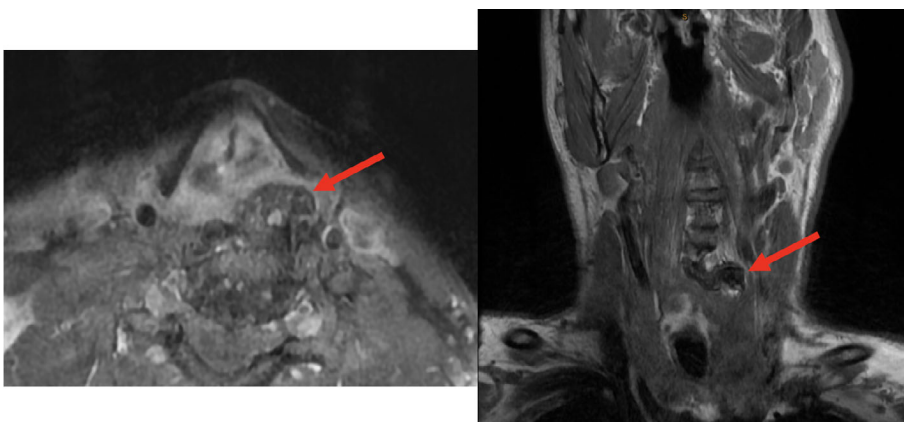
Written informed consent was obtained from the patient for publication of this case report and the accompanying images. A copy of the written consent is available for review by the editorial office of this journal. This retrospective review of patient data did not require ethical review board approval in accordance with local/national guidelines.



**Fig. 1.** Flexible laryngoscopic appearance (left) preoperatively, with left true vocal cord fixed in a paramedian position on inspiration – 26° angle from midline to outer edge of cord annotated; and (right) at 6-month followup post-osteophyctomy, with significant partial improvement in left true vocal cord abduction – 51° angle from midline to outer edge of cord annotated.



**Fig. 2.** CT cervical spine, sagittal (left) and axial (right) views: large anterior cervical osteophyte at C5/6 level in left paramedian location.



**Fig. 3.** MRI cervical spine, T1 axial (left) and T1 coronal (right) views: C5/6 anterior cervical osteophyte impinging on left tracheoesophageal groove.

## Statement of overlap

This submission represents an original manuscript. In the introductory and discussion paragraphs, data is drawn from existing papers to introduce the case topic and make reference to previous evidence. The phrasing of sentences is original, and we have referenced the relevant papers throughout to ensure the data sources are clear and available to the reader. The case discussion paragraphs are centred on the laryngoscopic and radiographic images attached, with description of the case of a patient. This content is entirely new and is specific to this patient's case.

## References

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## Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

**Data S1.** Supporting Information.

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