Hoarseness Following Anterior Cervical Discectomy and Fusion in a Patient with Sarcoidosis

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Introduction: Laryngeal adductor reflex (LAR) neuromonitoring, a method for assessing the integrity of laryngeal and vagus nerves intraoperatively, is infrequently used during anterior cervical spine surgeries. However, LAR neuromonitoring has proven beneficial during operations where these nerves may be compromised, and in the perioperative anesthetic management of patients with significant risk factors for nerve injury. Here we discuss a patient with sarcoidosis who presented for an anterior cervical discectomy and fusion (ACDF) complicated by abnormal LAR response and postoperative hoarseness.

Case Report: 50yr old female with history of sarcoidosis (diagnosis confirmed on lung biopsy, and treated with chronic oral steroids), hyperlipidemia, mild intermittent asthma, gastroesophageal reflux, and anxiety with progressively worsening neck pain after a motor vehicle accident, and traumatic mechanical fall years prior. Patient was symptomatic with bilateral upper extremity weakness and paresthesia. She weighed 73.9kg (BMI 29.8) and her vitals were as follows: BP 124/79mmHg, HR 89bpm. On airway exam, she was graded as Mallampati II, and had diffuse coarse breath sounds bilaterally. Heart sounds were normal. ECG revealed a normal sinus rhythm. A preoperative chest xray and CT scan were not available. Pulmonary function tests, however, were consistent with a restrictive lung pattern. She endorsed good exercise tolerance and a history of difficult airway management; she was informed by the anesthesiologist during a previous VATS procedure.

Albuterol nebulization was given in holding, as well as 150mg pregabalin and 975mg acetaminophen orally, after gaining intravenous access. In the operating room, standard ASA monitors were applied, and 20mg famotidine was given for anti-emesis prophylaxis. 2mg midazolam and 50mg fentanyl were given thereafter.

On induction, she received 200mg propofol, and 100mg succinylcholine. Mask ventilation with oral adjunct proved uncomplicated. Endotracheal intubation was performed via video laryngoscopy with visualization of dense oral and laryngeal inflammation, presumably due to sarcoidosis. A 6.0 NIM cuffed endotracheal tube was inserted and position was corroborated by ENT. Patient was maintained on total intravenous anesthesia, including infusions of remifentanil and propofol. Neuromonitoring was provided by neurophysiologists present via SSEP and MEP. During her case, she received 10mg methadone, 10mg dexamethasone. ENT surgeon assisted neurosurgery with cervical spine exposure. Vitals were stable throughout the procedure.

Of note, the position of the NIM tube was adjusted as requested by neurophysiology, to confirm false signals; the possibility of reduced motor signals from the left laryngeal adductors was
acknowledged. Patient was successfully extubated after demonstrating the ability to follow commands, in the context of adequate pulmonary and cardiovascular functioning. She was finally given 2.5mg haloperidol as she complained of nausea. Postoperative recovery was complicated by hoarseness without stridor or respiratory insufficiency. Patient was eventually discharged home with follow up with ENT for outpatient flexible bronchoscopy.