Letter to the editor

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Anesthetic management of severe airway stenosis in laryngeal papillomatosis

Manejo anestésico de la estenosis grave de la vía aérea en la papilomatosis laríngea

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Mr. Editor

Anesthetic management in patients with suspected or confirmed difficult airway is a common situation in our clinical practice. One of the possible causes of difficult airway are airway obstructions, which may be caused by laryngeal papillomatosis, a disease that may be life-threatening in some patients[1].

Laryngeal papillomatosis is a rare disease that causes benign tumors (papillomas) at the upper aerodigestive tract. It is caused by the human papillomavirus (HPV), mainly by subtypes 6 and 11. Its approximate incidence is 4 cases per 100,000 children and 2 per 100,000 adults, and the most frequent symptoms derive from airway obstruction. There are aggressive, recurrent forms of the disease, with lung involvement, for which surgery continues to be the mainstay of treatment, requiring some patients numerous interventions[2,3]. The purpose of this report is to expose the complex anesthetic management in these patients, as we must achieve the complex balance between patient ventilation and access to the surgical field[4].

A 46-year-old male with laryngeal papillomatosis was transferred to our hospital with a diagnosis of critical laryngeal and tracheal stenosis. The patient was diagnosed with recurrent papillomatosis in his childhood and developed laryngeal, pharyngeal, tracheal and pulmonary papillomas. He had undergone more than 60 surgeries, five of which were performed in the last 15 years. In these most recent procedures, the patient was already diagnosed with severe airway stenosis caused by papillomas and synechiae, so the medical team decided then to perform tracheal intubation under fiberoptic bronchoscope guidance. However, great difficulty in advancing the tube was described.

One year later, the patient came up to the emergency room with respiratory stridor and progressive dyspnea. Bronchoscopy and computed tomography images evidenced critical airway stenosis at the subglottic level and proximal third of the trachea *(Figure 1)*. Considering the airway management difficulty described in the last surgeries, the medical team decided then to perform a tracheostomy with local anesthesia. Afterward, when the patient was stable, the surgery was carried out under general anesthesia: treatment of laryngeal lesions by CO_2 vaporization and excision of tracheal papillomas with fiberoptic laser and cryotherapy. After six months, the patient developed new laryngeal lesions with partial obstruction of the tracheostomy. In fact, it is not rare to grow new papillomas around the tracheostoma, as they are usually originated at junctional zones between two different epithelia[4]. Informed consent was obtained.

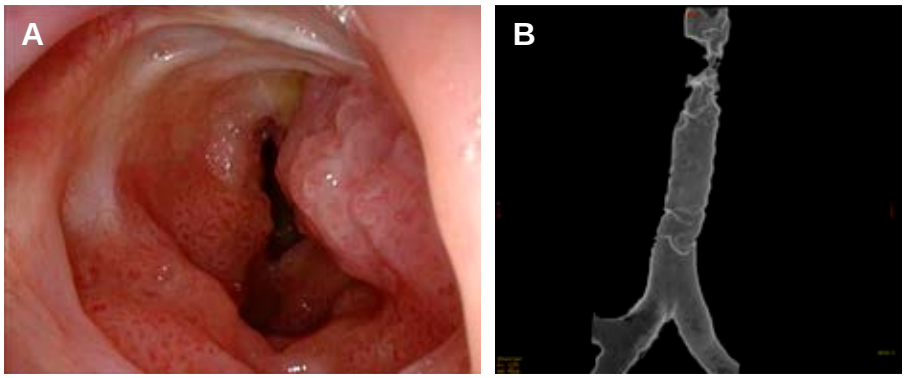

Figure 1:

Critical airway stenosis at the subglottic level and proximal third of the trachea, obtained before surgery, from bronchoscopy **(A)** and 3D computed tomography **(B)**.

To perform a safe surgical intervention and determine the obstruction degree, preoperative bronchoscopy and CT image are mandatory[2,3,5]. There are several possible strategies of airway management in laryngeal surgery. Deep sedation –maintaining spontaneous ventilation– has the advantage of allowing access to the surgical field, although episodes of apnoea or laryngospasm are frequent. Tracheal intubation facilitates ventilation control, but access to the airway is more difficult due to the presence of the endotracheal tube, as in these procedures the surgical field must be shared between anaesthesiologists and surgeons[3,5].

The «intermittent apnoea» technique, with brief tracheal tube removal cycles, presents a risk of injury from repeated intubation[3,4]. Besides, in patients with severe laryngeal obstruction, anesthetic induction can precipitate total obstruction[4]. Intubation by fiberoptic bronchoscope could cause airway injury or distal dissemination of papilloma particles, as the tracheal tube progresses without direct vision. However, using a vide olaryngoscope in an awake patient may eliminate this risk[6]. High-frequency jets allow less field occupancy than the endotracheal tube, but it can induce barotrauma or pneumothorax[4].

Taking into account the aforementioned, the most appropriate airway management technique in patients with severe laryngeal stenosis seems to be a tracheotomy[2]. However, airway instrumentalization increases the possibility of distal spread of the virus and, to avoid the appearance of papillomas in the tracheostoma, decannulation must be carried out as soon as possible[2,4].

REFERENCES

1. Sahay N, Kumar R, Bharti B, Jha R. Emergency management of near-complete paediatric airway obstruction by vocal cord papillomas. Indian J Anaesth. 2021;65:420-421.
2. Fortes HR, von Ranke FM, Escuissato DL, Araujo Neto CA, Zanetti G, Hochhegger B, et al. Recurrent respiratory papillomatosis: a state-of-the-art review. Respir Med. 2017;126:116-121.
3. Lei W, Wen W, Su Z, Chai L, Feng X, Liu K, et al. Comparison of intravenous general anaesthesia vs endotracheal intubation in the surgical management of juvenile onset recurrent respiratory papillomatosis. Acta Otolaryngol. 2010;130:281-285.
4. Li SQ, Chen JL, Fu HB, Xu J, Chen LH. Airway management in pediatric patients undergoing suspension laryngoscopic surgery for severe laryngeal obstruction caused by papillomatosis. Paediatr Anaesth. 2010;20:1084-1091.
5. Pérez-Carbonell A, Cordero-Escobar I, Company-Teuler R, Rey-Martínez B. Conducta anestésica en la estenosis traqueal idiopática subglótica. A propósito de un caso. Rev Mex Anest. 2011;34(4):292-295.
6. Min Lee S, Lim H. McGrath® videolaryngoscopy in an awake patient with a huge dangling vocal papilloma: a case report. J Int Med Res. 2019;47:3416-3420.