LARYNGO-TRACHEO-ESOPHAGEAL CLEFT IN A NEWBORN

ANESTHETIC MANAGEMENT

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Background

A laryngo-tracheo-esophageal cleft (LC) is an uncommon congenital malformation (1/10.000 - 1/20.000 live births), accounting for 0,5-1,5% of all congenital laryngeal abnormalities. Is characterized by an abnormal, posterior, sagittal communication between the larynx and the pharynx, possibly extending downward between trachea and esophagus. Five types have been described based on the downward extension of the cleft, which typically correlates with the severity of the symptoms.

Case report

We present the case of a 24-day old male proposed for surgical correction of a type IIIb LC, diagnosed by bronchoscopy in the context of a respiratory distress syndrome, submitted to noninvasive ventilation at birth and invasive ventilation since day 7.

General anesthesia was induced with sevoflurane, sufentanyl and cisatracurium. Surgery begun with a percutaneous endoscopic gastrostomy, followed by tracheostomy and closure of the laryngeal, tracheal and esophageal walls through an anterior approach (Fig. 2).

The surgery lasted for almost 5 hours and was uneventful. Vital signs were stable during all the procedure and there was minimal blood loss.

After the procedure the patient was transferred sedated and ventilated by tracheostomy to the neonatal intensive care unit.

Fig 1. Diagnostic endoscopy

Fig 3. Type IIIb LC schema

Fig 2. Surgical approach

Discussion

The mainstay of diagnosis is endoscopy and the treatment is highly dependent on the extent of the cleft and associated anomalies. It involves airway support and protection, control of gastro-esophageal reflux, endoscopic repair for type I, II and III clefts and open surgery for certain type III and IV clefts. A multidisciplinary approach during the perioperative period is essential in order to manage adequately the needs of these patients and to exclude other malformations usually associated.

Type IIIb cleft (Fig. 3) extends through the cricoid cartilage into the cervical trachea posing difficulties in the management of these patients given the risk of unsecured airway, difficult ventilation and the lack of experience given the rarity of the disease.

The pollution of the surgical field with halogenated anesthetics is a concern and a total intravenous anesthesia is an option. Regarding our lack of experience with TIVA in newborns, we opted for a balanced general anesthesia with sevoflurane and sufentanyl that became an effective, reliable and safe option.

Learning points

Few case reports exist concerning the anesthetic approach to LC surgery.

The main concerns for anesthesiologists are the unsecured airway, the difficult ventilation and the high prevalence of associated anomalies.