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Scientific letters

Results of the implementation of a specialized cervical tracheal surgery program☆

Resultados de la implementación de un programa especializado de cirugía traqueal cervical

Laryngotracheal or subglottic stenosis (SGS) is a rare condition characterized by a narrowing of the internal diameter of the cricoid and/or upper part of the trachea. The most common cause is inflammation, often due to prolonged intubation or previous tracheostomy, although other causes include Wegener's granulomatosis, sarcoidosis, infections, esophageal reflux, or external laryngeal trauma. Nevertheless, a significant number of SGS cases remain idiopathic.[1]

To address airway obstruction pathology, endoscopic treatment options are considered, including balloon dilatation, laser therapy, stent placement, or mechanical dilation with rigid bronchoscopy.[2] However, despite short-term success, recurrences are frequent. Surgical intervention remains the treatment of choice for operable patients with tracheal or laryngotracheal stenosis.[3] Cricotracheal resection and reconstruction represent highly complex procedures with significant morbidity and mortality rates.[3–5]

Due to the rarity of this condition, reported cases are scare and from various hospitals.[6] Nonetheless, expertise is consolidated at referral centers with established programs and through coordination among various units involved in treatment. Collaboration among thoracic surgery, otolaryngology, pulmonology, and anesthesia departments is essential to optimize pre- and postoperative care. A specialized group is required for detailed case study and decision-making to establish the most suitable therapeutic plan for each patient.[4] Furthermore, postoperative nursing care and experience in managing potential complications are essential.

At our medical center, the arrival of a team member with extensive experience in laryngotracheal pathology led to the creation of new units, collaboration with other departments (such as Pulmonology and Otolaryngology), and the initiation of nursing training. Additionally, pre- and post-operative collaboration with physiotherapy and speech therapy units was established.

The objective of this study is to describe our experience with SGS and surgery of the proximal third of the trachea performed at our hospital from June 2017 to December 2023, after having established the specialized programs, units, and collaborations mentioned above. Simple stenoses (defined by a membrane of less than 1 cm in length) and cases with inoperable criteria were excluded.

We reviewed patient medical records, CT images, surgical reports, techniques performed, outcomes, and complications. Follow-up bronchoscopies were performed one, 3, and 6 months after surgery for clinically satisfactory cases, followed by annual spirometry.

During the study period, 18 patients (7 males and 11 females) with a median age of 59 years (range 34–80 years) underwent surgery. Idiopathic etiology was identified in half of the cases. Surgical techniques included tracheal resection and end-to-end anastomosis (Fig. 1) in 7 cases (38.9%), whereas partial anterior cricoid section with pathological mucosa, flap coverage of the membranous part, and thyroid cartilage-trachea anastomosis were performed in 10 cases (55.6%). Laryngofissure was necessary in one case, with temporary placement of a Montgomery T-tube.

Immediate improvement in dyspnea was observed in all patients. Four cases (22.2%) experienced postoperative complications: granulomas at the suture line, hypocalcemia secondary to total thyroidectomy performed concurrently, hematoma requiring reoperation, and exacerbation with subsequent desaturation requiring temporary orotracheal intubation and distal tracheostomy in a patient with congenital heart disease.[3,7,8] Decannulation was successful within a few days. In 3 instances, a diagnostic endoscopic

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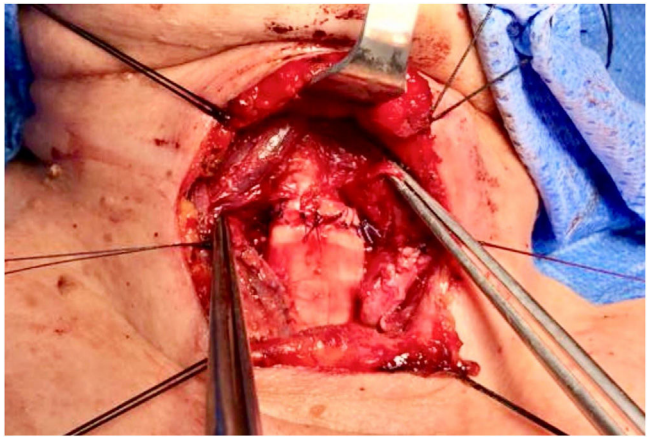

Fig. 1 – Cervicotomy. End-to-end tracheal anastomosis following resection of the stenosis.

procedure was conducted due to suspected complications, and one case requiring dilation of the suture area. In all patients, follow-up was satisfactory, with no additional complications (Table 1).

Our series results align with literature reports regarding complications. Overall morbidity and mortality rates after tracheal resection have been reported to range from 17% to 45% and from 0% to 2.4%, respectively.[9] The most important risk factors[9] include diabetes, resection length, reoperation, laryngotracheal surgery, and previous tracheostomy.[5,10]

Given the surgical complexity of cricotracheal resections, high postoperative complication rates and limited incidence, centralized treatment would benefit both patients and surgeons. Collaboration on a national scale and centralization of cases are imperative. Klug et al. reported significant variations in laryngotracheal surgery and postoperative care among 15 medical centers in 5 Nordic countries, highlighting the need for standardized protocols.[6]

In conclusion, surgical intervention is the treatment of choice for SGS. We present our initial experience with a specialized tracheal surgery program. Through dedicated programs, multidisciplinary work and specialization, satisfactory results were achieved, with immediate improvement in patient symptoms and an acceptable morbidity rate.

Table 1 – Characteristics of the operated patients.

	Age	Sex	Etiology	Stenosis diameter (mm)	DVCE (mm)	Length (mm)	Surgery	Intraoperative stent	Hospital stay (days)	Postoperative events	Reoperation	90-day status	Procedure after surgery
Case 1	42	M	Inflammatory	4	20	20	E-E	No	8		No	Alive	Yes
Case 2	72	F	Idiopathic	5	20	10	E-E	No	11		No	Alive	No
Case 3	61	F	Idiopathic	8	20	20	E-E	No	10		No	Alive	No
Case 4	50	F	Inflammatory	7	15	15	CT	No	9		No	Alive	No
Case 5	45	F	Idiopathic	6	15	15	CT	No	10		No	Alive	No
Case 6	80	F	Inflammatory	8	20	15	CT	No	29		No	Alive	No
Case 7	74	F	Idiopathic	6	15	30	CT	No	10		No	Alive	Yes
Case 8	54	F	Neoplastic/Tca	7	15	47	CT/ Thyroidectomy	No	9	Hypocalcemia	No	Alive	No
Case 9	78	F	Idiopathic	4	10	15	Maddaus	T tube	30	Granuloma	No	Alive	Yes
Case 10	59	M	Inflammatory	5	20	15	TT	No	30	Hematoma	Yes/ hematoma	Alive	No
Case 11	50	F	Idiopathic	7	15	10	CT	No	8		No	Alive	No
Case 12	34	M	Inflammatory	6	20	25	TT	No	17	Resp. Insuf	Yes/ Tracheostomy	Alive	No
Case 13	58	M	Idiopathic	7	15	15	CT	No	6		No	Alive	No
Case 14	70	F	Idiopathic	6	15	10	CT	No	8		No	Alive	No
Case 15	43	M	Neoplastic/ ThyCa	8	20	35	TT/Tre	No	9		No	Alive	No
Case 16	55	M	Recurrence after surgery	5	18	15	TT	No	10		No	Alive	No
Case 17	73	F	Idiopathic	7	15	15	CT	No	9		No	Alive	No
Case 18	61	M	Inflammatory	0	10	40	CT/Tre	No	11		No	Alive	No

F: Female; M: Male; TCa: Tracheal carcinoma; ThyCa: Thyroid carcinoma; E-E: end-to-end resection; CT: Cricotracheal resection: TRe: Tracheal release; Resp Insuf: Respiratory insufficiency.

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Conflict of interest

The authors declare no conflict of interest.

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Postoperative complications after liver-first Approach RENACI project

Complicaciones postoperatorias tras cirugía inversa hepática. Proyecto RENACI

Colorectal cancer (CRC) is the second most common neoplasm worldwide. 15%–20% of cases present synchronous liver metastases (SLM).[1] Resection of CRC and SLM offers a real possibility for a cure but is only feasible in a minority of patients.[2] In the past, 2 strategies were used for with SLM of CRC: 1) the traditional approach of CRC surgery followed by SLM surgery; and 2) simultaneous CRC and SLM surgery.[2]

In 2006, Mentha et al. proposed a new therapeutic algorithm for patients with asymptomatic CRC and SLM that were initially either unresectable or difficult to resect.[3] This strategy, called primary liver surgery, reverse strategy, or liver-first Approach (LFA), consists of initial administration of chemotherapy, followed by resection of SLM, chemo/radiotherapy, and then removal of the primary tumor.[3–5] The