ORIGINAL ARTICLE

Supracricoid Laryngectomy: Siriraj's Experience

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Objective: To evaluate the initial functional outcomes of laryngeal cancer patients who underwent supracricoid laryngectomy (SCL) in Siriraj Hospital.

Materials and Methods: A retrospective review of patients who underwent SCL with cricohyoidoepiglottopexy or cricohyoidopexy for glottic and supraglottic squamous cell carcinoma in the Department of Otorhinolaryngology, Faculty of Medicine Siriraj Hospital between 2000 and 2020.

Results: Twenty-two patients underwent SCL. Twenty patients who met the criteria were recruited for the present study. The initial functional results from the T1 and T2 glottic or transglottic cancers in terms of time to decannulation, at 11 days, and time to nasogastric tube removal, at 16 days were achieved.

Conclusion: SCL is one of surgical options to treat early laryngeal cancer in cases that were not suitable for conventional conservation laryngeal surgery, translaryngeal laser microsurgery, and cases that failed radiotherapy. This surgical technique could also be an alternative choice for certain advanced laryngeal cancers to avoid total laryngectomy.

Keywords: Supracricoid laryngectomy; Functional and oncologic outcomes; Supraglottic and glottic cancer

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Supracricoid laryngectomy (SCL) is an organ sparing surgical technique used for early and selected advanced laryngeal cancers[1-5]. This laryngeal preservation surgery is traditionally applied to early laryngeal cancers with good oncological control and fair functional outcomes[1,2,6-9]. However, recent advancements in radiotherapy (RT) and translaryngeal CO_2 laser microsurgery (TLM) make this open surgery less in favor for most early laryngeal cancers because RT and TLM result in phonatory function and good tumor control[1,5,6,10,11]. However, when tumors extended beyond the vocal cord or from supraglottis to the anterior commissure or subglottic region, both RT or TLM had a poor predicted tumor control due to difficult tumor exposure and early thyroid cartilage invasion[12]. In this situation, conventional partial laryngectomy (PL) such as vertical partial laryngectomy (VPL) or supraglottic laryngectomy (SGL) were proposed as enbloc resection for better oncologic outcomes. Nevertheless, recent studies indicated that VPL was suitable only for small tumors involving anterior commissure without invasion into cricothyroid membrane, thyroid cartilage, or posterior part of the paraglottic space and SGL was suitable for small supraglottic cancers without invasion into paraglottic and pre-epiglottic spaces, ventricle, and vallecula[9-13]. In general, the local control for most PL was 82.2% in these specific sites[14]. Therefore, when massive anterior commissure lesions, extensive subglottic involvement or limited vocal folds movement lesions were encountered, SCL was an alternative option to yield even a higher local control rate, and long-term laryngeal preservation with an adequate surgical margin[15,16]. SCL involved complete removal of the whole thyroid cartilage, both vocal cords with bilateral paraglottic spaces or pre-epiglottic space without permanent tracheostomy. Consequently, SCL was adopted for those who were not suitable for RT, TLM, or PL in both supraglottic and glottic cancers. In addition, this surgical technique could also be applied as salvage surgery in patients with early laryngeal cancers who initially failed to respond to RT or TLM and some selected advanced endolaryngeal cancers to reduce the imperative for total laryngectomy (TLG)[1,6,8-11,13,14,17,18].

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The purpose of the present study is to demonstrate the feasibility of this surgical technique to treat early laryngeal cancers as both primary and salvage surgery, and to evaluate functional outcomes in term of decannulation, deglutition, and phonation. The result and experience learned from the present study could hopefully be used as a basis to expand to those more complicated cancer cases with confidence.

Materials and Methods

The present study was a retrospective study approved by Siriraj Institutional Review Board (COA no. Si 735/2020). Medical records and case record forms of patients with laryngeal squamous cell carcinoma who had undergone SCL with cricohyoidoepiglottopexy (SCL-CHEP) or cricohyoidopexy (SCL-CHP) in the Department of Otorhinolaryngology, Faculty of Medicine Siriraj Hospital, Mahidol University between 2000 and 2020 were reviewed to evaluate the postoperative course and laryngeal functional outcomes. All patients were diagnosed with glottic or supraglottic-glottic squamous cell carcinoma by tissue biopsy and had tumor assessment with direct laryngomicroscopy under general anesthesia. SCL-CHEP was indicated in those who had tumor involving both vocal cords in T1b or glottic-subglottic with normal or limited vocal fold movement in T2 glottic cancer. SCL-CHP was indicated in patients who had T2 transglottic tumors or glottic cancer with anterior commissure and epiglottic involvement.

All SCL patients passed sufficient pulmonary function test prior to surgery. To perform SCL, the larynx was fully exposed by transecting sternohyoid and thyrohyoid muscles along the upper border of the thyroid cartilage and sternothyroid muscles along the lower border of the thyroid cartilage and inferior constrictor muscles in front of the posterior border of the thyroid cartilage. The inner thyroid perichondriums were then elevated by Freer elevator from the posterior thyroid laminar bilaterally to release pyriform mucosa. Care should be taken during disarticulation of the cricothyroid joints subperichondrially to prevent recurrent laryngeal nerve injury as this nerve runs in the superoposterior direction to the joint. The trachea was then exposed and mobilized by performing thyroid isthmusectomy and blunt figure dissection along the anterior cervicomediastinal tracheal wall.

To enter the endolarynx, two horizontal cutting were planned. At the level of the upper border of cricoid cartilage, inferior horizontal cutting or median cricothyroidotomy was performed and the incision was extended posteriorly to reach the previous disarticulated cricothyroid joints bilaterally. The superior horizontal cutting was usually performed either at the level of superior border of thyroid lamina through the thyroid membrane and epiglottis to preserve the epiglottis in SCL-CHEP or at the infrahyoid level through the vallecula mucosa to include epiglottis with the specimen in SCL-CHP and this superior horizontal incision was extended laterally to allow full visualization of the endolarynx.

To gain more endolaryngeal resection space, a new tracheal incision was made, and the endotracheal tube was relocated to the new tracheostoma. Endolaryngeal resection should start first on the non-tumor or less tumor bearing side by retracting the thyroid cartilage forward. With a pre-arytenoid vertical incision carrying down to the level of the upper border of the cricoid ring, the aryepiglottic fold, false vocal cord, and true vocal cord were all transected and this incision was then connected to the prior cricothyroidotomy incision inferiorly on the same side. The thyroid cartilage could be fractured vertically in the midline like a book opening if the exposure on the tumor side was not fully visualized and the second pre-arytenoid incision was then performed as the first non-tumor vertical incision. The whole thyroid cartilage together with bilateral false and true vocal cords were finally removed. In the situation that arytenoid cartilage had to be sacrificed for oncologic safety, a horizontal arytenoid mucosal incision was made anteriorly and extended along the posterior aspect of arytenoid. A posteriorly based mucosal flap including corniculate cartilage was created to expose the bare arytenoid and it was then removed after cricoarytenoid disarticulation.

All resected specimens should be sent for margin evaluation by frozen section before laryngeal reconstruction and closure. Reconstruction should include reposition of both arytenoids by pulling them anterolaterally over the cricoid ring to prevent posterior rotation and maintain the shape of the pyriform by placing two stitches on the anterolateral rim of pyriform mucosa and reapproximating them later after cricohyoid impaction. In the step of laryngeal closure, three 0-0 vicryl stitches were placed submucosally between the cricoid cartilage and the hyoid bone in a symmetrical and balancing alignment and tightened meticulously to prevent displacement of the hyoid bone over the cricoid cartilage[19,20].

In postoperative period, antibiotics should be administered until decannulation. Early tracheostomy cuff deflation should be encouraged to preserve cough reflex, avoid accumulation of blood and saliva above the inflated cuff, and minimize subglottic irritation[7,14,17]. The cuffless tracheostomy tube should be replaced on the third or fourth postoperative day to allow patients to make phonation. Tracheostomy tube occlusion should be tried as soon as patients were stable and decannulation was considered if patients could comfortably tolerate the occlusion. It was usually within the first postoperative week. Early decannulation after SCL would assist in laryngeal elevation and arytenoid mobility and this could restore neoglottic closure.

After decannulation, patients were advised to swallow their own secretion as dry swallow and NG tube was removed as soon as tracheostomy wound was well closed, and no severe aspiration was encountered. Oral feeding was then started initially with a thick soft diet as tolerated, then thick liquid or carbonated beverage, and liquid diet in the final step. Patients who could not resume their swallowing function after 30 days postoperatively should be considered for either temporally gastrostomy to prevent further pulmonary complication or continued extensive swallowing rehabilitation depending on the severity of aspiration. To assist swallowing after surgery, patients were usually instructed to follow the supraglottic swallow technique and postural maneuver such as chin-tug position during swallowing. Good oral hygiene is also essential to prevent lung complication[19-21].

A descriptive analysis of the evaluated parameter was performed. Patient demographics and clinical characteristics data were summarized as mean or median for continuous data and percentage for discrete data.

Results

Twenty-two patients underwent SCL in the authors' Department of Otorhinolaryngology between the year 2000 and 2020. Only 20 patients who met the criteria were recruited for the present study. One excluded case was a patient who had stage IVa cancer with massive paraglottic invasion and the other had tumor invading the cricoid cartilage. Eighteen were male and two were female. The mean age was 63.85 years with a range between 50 and 82 years. Eleven cases (55%) were classified as T1bN0M0 and six (40%) as T2N0M0 glottic cancers. Meanwhile, three cases were classified as T2N0M0 supraglottic cancers with tumor discovered at epiglottic petiole and anterior commissure. Therefore, 17 patients underwent SCL-CHEP and three cases underwent SCL-CHP. Resected specimens considered to have pathological positive or close margin were reported in three cases. One who had positive margin received additional postoperative RT for salvage treatment. However, for those who had closed margins, one had postoperative RT and the other was only observed, as shown in Table 1 and 2.

Functional outcome

The 20 patients who underwent SCL had successful tracheostomy tube decannulation after surgery. The time until tracheostomy tube removal ranged between seven and 287 days with the median time of eleven days. Eighty percent (n=16) had tracheostomy tube decannulated successfully within the first two weeks with an average duration of 10.19 days (SD 2.59). For those who had prolonged decannulation (n=4), all had extubation with a median duration of 47 days. Among the delayed group, two patients had postoperative local wound infection that caused decannulation to be postponed to postoperative days 28 and 29. One patient who had previous RT treatment developed postoperative laryngeal mucosal edema and airway obstruction. His decannulation was achieved in 65 postoperative days, but the final deglutition could not be resumed. Therefore, he had gastrostomy performed before being discharged from the hospital. The other delayed decannulation patient who underwent SCL-CHP presented with stage III transglottic cancer. Additional postoperative RT due to positive surgical margin was offered to this patient and tracheostomy tube was retained for nine months after surgery.

Deglutition function could be resumed in 19 patients. One patient had previous history of RT with prolonged decannulation and persistent aspiration. The median time until nasogastric tube removal among resumed oral deglutition group was 16 days with a range of 10 to 224 days. Sixty percent (n=12) had successful thick soft swallowing within the first three postoperative weeks during hospitalization with an average duration of 18.58 days (SD 2.94) and those who had delayed deglutition (n=7) were asked to follow up at outpatient clinic after one month. Two patients among this delayed group could resume oral feeding within their first visit and the other four patients had successful nasogastric tube removal and oral feeding after two to seven and a half months. Delayed oral feeding until six months after operation

Table 1. Demographic data for SCL patients (n=20)

No.	Patients (age/sex)	Primary site	Stage (TNM)	Previous RT	Surgery	Surgical complication	Margin	Decanulation (day)	NG tube removal (day)	LOS (day)
1	67/M	Glottis	T2N0M0	N	CHEP	N	Free	14	27	18
2	64/M	Glottis	T1bN0M0	N	CHEP	N	Free	9	10	14
3	82/M	Glottis	T2bN0M0	N	CHEP	N	Free	7	39	14
4	66/M	Glottis	rT1bN0M0	Y	CHEP	Wound infection	Free	65	Gastrostomy	28
5	68/M	Glottis	T1bN0M0	N	CHEP	N	Free	8	11	16
6	56/M	Supraglottis	T2N0M0	N	CHP	N	Not free	287	224	20
7	66/F	Glottis	T2N0M0	N	CHEP	N	Free	11	15	20
8	62/M	Glottis	T1bN0M0	N	CHEP	Wound infection	Free	28	16	31
9	50/F	Glottis	T1bN0M0	N	CHEP	N	Free	29	20	8
10	74/M	Glottis	T1bN0M0	N	CHEP	N	Free	14	24	17
11	59/M	Glottis	T2N0M0	N	CHEP	N	Free	10	11	16
12	54/M	Glottis	T1bN0M0	N	CHEP	N	Close	11	12	17
13	65/M	Glottis	T2N0M0	N	CHEP	N	Free	14	43	25
14	63/M	Glottis	rT1bN0M0	Y	CHEP	Radiochondronecrosis	Free	7	68	13
15	65/M	Glottis	T2bN0M0	N	CHEP	N	Free	13	14	17
16	54/M	Glottis	T1bN0M0	N	CHEP	N	Free	9	16	18
17	70/M	Glottis	T1bN0M0	N	CHEP	Wound infection	Close	12	35	15
18	60/M	Supraglottis	T2N0M0	N	CHP	N	Free	7	15	18
19	60/M	Glottis	T1bN0M0	N	CHEP	N	Free	9	11	12
20	68/M	Supraglottis	T2N0M0	N	CHP	N	Free	8	12	14

SCL=supracricoid laryngectomy; RT=radiation; NG=nasogastric; LOS=length of stay; M=male; F=female; Y=yes; N=no; CHEP=cricohyoepiglottopexy; CHP=cricohyopexy

Table 2. Summary data for SCL patients (n=20)

Patient characteristics	n (%)
Sex	
Male	18 (90)
Female	2 (10)
Age (years)	
Range	50 to 82
Mean	63.85
Tumor	
Glottic cancer	
• T1bN0M0	11 (55)
• T2N0N0	6 (30)
Supraglottic cancer	
• T2N0M0	3 (15)
Type of laryngectomy	
SCL-CHEP	17 (85)
SCL-CHP	3 (15)
Postoperative complication	
Wound infection	3 (15)
Radio chondronecrosis (cricoid)	1 (5)

SCL=supracricoid laryngectomy; CHEP=cricohyoepiglottopexy; CHP=cricohyopexy

was the indication for percutaneous gastrostomy and for extensive deglutition training.

Table 3. SCL and laryngeal functional outcomes

Outcome characteristics	n (%)
1. Respiration	
Decannulation within 14 days	16 (80)
Prolong decannulation (>14 days)	4 (20)
2. Deglutition	
Oral feeding within 21 days	12 (60)
Delayed oral feeding (>21 days)	7 (35)
Permanent gastrostomy	1 (5)
3. Speech acquisition	20 (100)

SCL=supracricoid laryngectomy

Voice restoration after decannulation could be elicited in all the present study patients. Twenty percent had immediate surgical complication after this surgical technique (n=4) in the present study. Among patients who experienced complications, three had local wound infection and one with a previous RT failure history developed cricoid chondroradionecrosis. This patient was considered preoperatively high risk for the late complication as shown in Table 3.

The mean hospitalized period for SCL patients was 17.35 days with a range of 8 to 31 days.

Table 4. SCL and tumor control

Case No.	Follow up (month)	Result
1	146	NR
2	21	NR
3	9	NR
4	3	NR
5	56	NR
6	58	NR
7	35	R 30 months PO (Rx: TLG † with lung cancer)
8	62	NR
9	88	NR
10	120	NR
11	122	R 122 months PO (Rx: Nil & †)
12	175	R 164 months PO (Rx: CCRT)
13	56	NR
14	20	R 10 months PO (Rx: TLG)
15	6	NR
16	165	2nd primary tumor, BOT 155 months PO (Rx: palliation)
17	198	NR
18	18	NR
19	63	NR
20	2	NR

NR=non recurrence; R=recurrence; TLG=total laryngectomy; CCRT=concurrent chemoradiation; BOT=base of tongue; PO=post operation

† Died with cancer

Median 57 months (4years 9 months), Mean 72.05 months (6 years)

Oncologic outcome

Three patients in the present study had follow-up for less than 18 months. For those who had regular or longer visits, local recurrence during the first five years was found in two patients and both were treated with TLG as a salvage control. Three patients who developed either local recurrence or second primary tumor beyond five years were rather old with general poor health, CCRT, or palliative RT was preferred to radical surgery as shown in Table 4.

Discussion

SCL was first described in 1959 by Mayer and Reider in Vienna[1,2,4,8,14,17,19]. The technique was then modified in France by Labayle, Bisthmus in 1971[8,19], and Piquet in 1974[4,6,8,12,19]. Initially, the procedure in Europe was mostly applied to early laryngeal cancers in which conventional laryngeal surgery was not performed[2,17,22]. In mid 1990s, Laccourreye et al. had published large series of patients to confirm the feasibility of this technique in English literatures[1,8,13,17,19]. Eventually, this surgical technique was extended to include tumors that invade the paraglottic space or focal thyroid cartilage invasion in selected T3 and T4 cancers with excellent results. Since the whole thyroid cartilage and both paraglottic space were included in the resected specimens, it was considered oncologic safe for some patients who previously required TLG to conserve their larynx[22]. In SCL for T3 cancers, ipsilateral arytenoid cartilage was usually recommended to be included for a better oncologic control[1,17]. Arytenoidectomy in conjunction with SCL should be performed carefully to prevent deglutition complication[2,17]. Combined resection of the epiglottis and one arytenoid in SCL-CHP usually leads to poor functional outcomes in terms of increasing aspiration and decannulation delay[2,20]. Techniques had been modified especially in elderly patients to obtain a good voice restoration by using sternohyoid tubed flap to reconstruct the glottic plane[22,23]. For patients who had prior extensive RT treatment, defects after salvage SCL, should it occur, could also be covered with thyroid gland flap to maximize postoperative wound healing, and prevent complications[24]. In selected patients, the central portion of cricoid cartilage, if tumor extended inferiorly, could also be resected and the hyoid bone was impacted to the upper tracheal rings as tracheohyopexy (THP) or tracheohyoepiglottopexy (THEP) during reconstruction[9,13].

Surgeons should start resecting tumors in patients who had normal arytenoids movement to gain experience of this surgical technique. Phonation and swallowing are achieved by arytenoids being able to tilt forward and making active opposition with the base of tongue or epiglottis after cricohyoid impaction and by arytenoids tilting backward to open the airway for breathing[2,20]. The integration or extending the resection beyond that in classical SCL should be practiced after surgeons gained encouraging functional results support and mastered both resection and reconstruction steps.

The patients selected in the present study were all classified as T1 or T2 supraglottic or glottic cancers without arytenoid involvement. The mean age was 63.85 years, and all had sufficient pulmonary preserve by spirometric study prior to surgery. Although 20% (n=4) of the patients developed early postoperative complications, most were localized wound infection leading only to delay decannulation and one patient who had previous RT developed chondroradionecrosis and ruptured pexy after SCL. Early and severe postoperative dyspnea in SCL could be from both anatomical defect such as rupture

pexy or epiglottic pexy disruption and anatomical obstruction such as mucosal edema or granuloma. The present study data were in concordance with the other reported series that ranged between 5.6% and 38%[7,8,10,12,13,17,25].

Decannulation in the previous reports could be achieved between one and six weeks varying among types of SCL and previous RT therapy history[1-3,7,10,12,14,17,22,23]. The mean duration for tracheostomy tube decannulation for most patients in the present study was 10.19 day (SD 2.59). Susceptible risks such as wound infection, prior RT history, and additional RT treatment were identified as factors involving with delayed decannulation.

The average duration for early decannulation in VPL in most studies ranged from seven to 14 days[3,8], and in the authors' former study in which patients undergoing frontolateral hemilaryngectomy was examined, the average duration for early decannulation, within 14 days, group, was 8.49 days (SD 2.28) with the early successful decannulation rate of 87.8%[26]. To compare the speed of recovery in postsurgical respiratory function between these two techniques, the authors found no statistical significance in terms of early successful decannulation rate between them at 80% versus 87.8% (p=0.46). Although there was a statistically significant difference in mean duration of time until successful decannulation between in SCL and frontolateral hemilaryngectomy groups at 10.19±2.59 versus 8.49±2.28 days (p=0.02), this difference had no clinical importance.

The possible loss of deglutition function after SCL is of the concern because almost three-quarter of the larynx above cricoid ring was removed. Aspiration of varying degrees could be expected after SCL. The time to recover to normal deglutition after surgery could be delayed and longer than after conventional conservation surgery of the larynx[11]. In fact, post SCL swallowing function depends on numbers of factors ranging from patient selection, proper surgical skills, and postoperative intensive swallowing rehabilitation[2,4,6].

Medical literatures indicated that patients' status before SCL is more important than age[2,13,22,27], but the limited brain plasticity to learn new swallowing technique in aged patients is also a main obstacle to resume swallowing function. Recent studies indicated that patients' age of more than 70 years is considered the cut-off for performing SCL to minimize complications[2]. Pulmonary reserve either by clinical or pulmonary function test should also be evaluated to facilitate effective postoperative coughing and aspiration prevention[1,7,19]. In most post-RT patients, time to return to safe oral feeding was found to be longer than normal and it usually lasted for 45 to 60 postoperative days[20]. The prolonged problem with deglutition in this situation should be anticipated and percutaneous gastrostomy should be discussed preoperatively with patients undergoing SCL[19].

Meticulous adhesion to the proper surgical techniques during SCL is essential. Firstly, the internal branch of superior laryngeal nerve that sensates the epiglottis and ipsilateral hypopharyngeal mucosa and recurrent laryngeal nerves should be preserved as much as possible for it might interfere with the patients' ability to swallow and prevent aspiration. Secondly, in the process of reconstruction, repositioning of arytenoids, pyriform mucosa, and inferior constrictor muscles, and well balancing cricohyoid impaction are key issues for swallowing success. Overtightening of the hyoid to cricoid cartilage will result in subluxation of hyoid bone below the cricoid ring leading to improper alignment of these structures and affecting the size of neoglottis[13]. In SCL-CHEP, the sectioned epiglottis has to be sutured in place to prevent inversion of the epiglottis, which could compromise functions.

Twelve patients or 60% were able to swallow thick soft diet within three weeks after surgery in the present study series, with the mean duration of 13.58 days (SD 2.94). Resuming postoperative intake after SCL in various studies was two to four weeks with an average of 22 days and the rate of successful oral deglutition within one month was 45% to 68.1%[1,2,6,8,11,15].

The authors' results from the previous study in those underwent frontolateral hemilaryngectomy indicated that 96% of the patients had successful nasogastric tube removal within the 3-week period of hospitalization and resumed oral feeding before discharging from the hospital[26]. In the present study of SCL, 40% of patients were discharged home with nasogastric tube feeding and all of them needed extra swallow training time before they could resume their oral deglutition. The success rate for early resumed oral feeding was higher in patients who have undergone frontolateral hemilarngectomy than in those undergoing SCL with a statistical significance (p=0.0005). Moreover, SCL, by the authors observation, resulted in an average duration for nasogastric tube removal that was significantly longer than frontolateral hemilaryngectomy technique (p-value of 0.04). In

T1b and T2 glottic cancers, the choice between SCL or VPL was overlapped. Although voice after surgery from these two surgical techniques were acceptable either in breathy or rough voice, SCL-CHEP resulted in a higher and longer episode of aspiration than VPL. Therefore, SCL should be reserved for T1b tumors that extended beyond one-third of the contralateral vocal cord, tumors with massive anterior commissure involvement, or T2b glottic cancers that tumors had minimally extended to the paraglottic space for a good oncologic control.

Local recurrence after SCL in most studies ranged from 0% to 25% with an average of 2.6%[2,6,11-14]. SCL-CHP was found to have a higher local recurrent rate when compared to SCL-CHEP at 5.2% to 11.8% versus 3.4%, respectively[1,2,17]. The 5-years actuarial local control rate for SCL in early laryngeal cancers in most studies was 80% to 90%[1,4,5,8,11,28], whereas in T3 glottic cancers, the rate dropped to 70%, which was also comparable to that of TLG[5,6,8,9,29], However, the present study could not demonstrate a reliable 5-year tumor control rate due to a small number of patients and follow up inadequacy, but the initial impressive functional outcomes from this technique encouraged us to continue to improve the surgery and it should be applied to the more advanced laryngeal cancer. Additionally, this surgical technique could be modified to include more removable structures in the future. Long term functional and oncologic outcomes, therefore, would be evaluated systematically[5,15,18,21,28,30-33].

Conclusion

SCL is one of the surgical options to treat early laryngeal cancers that are not amenable to conventional conservation opened laryngeal surgery or those that previously failed RT or TLS treatment. This surgical technique could be advocated in selected T3 or T4 laryngeal cancers to avoid TLG as well.

Its initial functional results after surgery are acceptable, but time to reestablished adequate swallowing was significantly delayed when compared to patients that underwent conventional laryngeal surgery. However, good functional outcomes after SCL could be expected if this surgical technique was approached with certain considerations, especially careful patient selection, meticulous surgical handling, good postoperative care, and extensive swallow rehabilitation. The oncologic control of SCL is far better than functional outcomes. The oncologic results by resecting three-quarter of the larynx in SCL are confirmed to be safe and far better than those conservation surgeries in early laryngeal cancers and equivalent to TLG in T3 tumors.

What is already known on this topic?

Supracricoid laryngectomy is a surgical technique used to treat early and selected advanced laryngeal cancers unsuitable for conventional conservation surgery, translaryngeal laser surgery, or radiation, especially when tumors involve bilateral vocal folds or supraglottis extending to the anterior commissure or the subglottic region. This surgical technique has excellent oncological control in most literatures and fair functional outcomes.

What this study adds?

The present study confirmed that supracricoid laryngectomy results in a reliable postoperative laryngeal function, although the time it took to recover adequate swallowing is delayed when compared to the conventional laryngeal conservation surgery. However, it has no clinical relevance in terms of the duration of hospital stay. Therefore, the delayed recovery of swallowing is an acceptable trade-off for better oncologic control. This surgical technique would be a favorable choice for selected advanced laryngeal cancers to avoid total laryngectomy.

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Conflicts of interest

The authors declare no conflict of interest.

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