GLOTTIC LARYNGEAL NEOPLASM WITH ANTERIOR COMMISSURE INVOLVEMENT MANAGEMENT – DISTANT ONCOLOGIC ASSESSMENT

Summary:
INTRODUCTION: There are controversies regarding the management of glottic laryngeal neoplasm which involves both vocal cords and anterior commissure.

MATERIAL AND METHODS: During 01.01.1996 – 31.12.2005 were analysed 781 files from patients with laryngeal neoplasm. 127 patients presented the tumour which involved both vocal cords and anterior commissure, stages T1b, T2 and T3. Therapeutic options included: CO2 LASER microsurgical excision, 55 patients (43.30%), frontolateral hemilaryngectomy - 16 patients (12.59%), total laryngectomy – 42 patients (33.07%), radiotherapy – 10 patients (7.87%), 4 patients (3.14%), initially, refused any treatment modality.

RESULTS: Suspended microlaryngoscopy with CO2 LASER surgery has been performed in 43 patients staged T1bN0Mx (33.85%) and 12 patients staged T2N0Mx (9.44%). In 5 patients (9.09%) we encountered local recurrences.

Frontolateral hemilaryngectomy has been performed in 16 patients (12.59%) – 5 patients staged T1bN0Mx (3.93%), 1 patient – T2N0Mx (0.78%), 5 patients – T2N1Mx (3.93%), and 5 patients – T3N0Mx (3.93%). One patient (6.25%) staged T3N0Mx presented recurrence at 6 months.

Total laryngectomy has been performed in 42 patients (33.07%), 34 patients (26.77%) – T3N0Mx, 3 patients (2.36%) – T3N1Mx and 5 patients (3.93%) – T3N2Mx. We have not encountered any local or regional recurrence.

Radiotherapy was indicated in 10 patients (7.87%), 4 patients (3.14%) – T2N0Mx and 6 patients (4.72%) – T3N0Mx. In one case, a suspended microlaryngoscopy with CO2 LASER surgery recurrence, the patient opted for radiotherapy. In 4 cases (3.14%), which initially refused any treatment modality, staged T2N0Mx (1.57%) and T3N0Mx (1.57%), has been performed at 9, 12, 8 and 12 months, respectively tracheotomy followed by palliative radiotherapy. In 4 cases (3.14%) we encountered recurrences. Postoperative follow-up ranged from 36 to 120 months, average 60 months.

CONCLUSIONS: Due to its vital role in phonation, respiration and deglutition, laryngeal functions preservation should be the first treatment option. All patients T1b-T2 staged should initially treated by suspended microlaryngoscopy with CO2 LASER surgery with the intention of organ preservation, or by radiotherapy or frontolateral hemilaryngectomy. Because functional results may be compromised we avoid combined therapy surgery – radiotherapy.

Keywords:
glottic laryngeal neoplasm, anterior commissure, CO2 LASER, frontolateral hemilaryngectomy, total laryngectomy, radiotherapy

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INTRODUCTION

Head and neck squamous cell carcinoma represents the sixth place from all cancers. With all the diagnostic and therapeutic advantages in the last 30 years no improvement in mortality rate was recorded (1).

Glottic cancer represents the most frequent larynx cancer, approximately 60%, with the tendency of anterior 1/3 true vocal cord involvement. The diagnosis is assessed early due to symptoms – hoarseness. The lack of the glottic lymphatic vessels has an important role in adjacent structures and regional lymph node submucous extension (2).

Bicordal-commissure glottic cancer raises numerous controversies regarding therapeutic options. Initial stages (I and II) may benefit of singularly modality of treatment – radiotherapy or surgery (endoscopic CO2 laser suspended microlaryngoscopy or frontolateral hemilaryngectomy). Potentially benefits related to radiotherapy over surgery are: better voice, especially in stage T2 (3). For stage III and IV there are 3 therapeutic plans which offer superior local control rates: frontolateral laryngectomy, total laryngectomy with neck dissection and radiotherapy followed by salvage surgery (4).

MATERIAL AND METHOD

During 01.01.1996 – 31.12.2005 were analysed 781 files from patients with laryngeal neoplasm. 423 patients (54.16%) had glottic tumors, the rest had the tumor localized at supraglottic level - 311 patients (39.82%) and subglottic level - 47 patients (6.02%).

Patients selection was performed using clinic, videoneuroendoscopic and imagistic methods. 127 patients presented the tumour which involved both vocal cords and anterior commissure, stages T1b, T2 and T3, 48 patients were in stage I, T1bN0Mx (37.79%), 19 patients in stage II, T2N0Mx (14.96%), 5 patients in stage III, T2N1Mx (3.93%), 47 patients in stage III, T3N0Mx (37%), 3 patients in stage III, T3N1Mx (2.36%) and 5 patients in stage IV, T3N2Mx (3.93%).
The majority of cases were squamous cell carcinomas with a variability of grading: G1 24.4%, 31 cases, G2 56.69%, 72 cases, G3 18.11%, 23 cases, and in 1 case we encountered adenoid cystic carcinoma 0.78%.

Gender distribution showed 124 males (97.63%) and 3 females (2.37%). Age distribution revealed a high incidence in the fifth and sixth decade of life 51-60 years, 48 cases (37.79%) and 61-70 years, 45 patients (35.43%). Mean age was 56 years old.

Therapeutic options included: CO2 LASER microsurgical excision, 55 patients (43.30%), frontolateral hemilaryngectomy - 16 patients (12.59%), total laryngectomy – 42 patients (33.07%), radiotherapy – 10 patients (7.87%), 4 patients (3.14%), initially, refused any treatment modality. In figure 1 and 2 there are showed intraoperative aspects by suspended microlaryngoscopy - vegetative tumor, stage T1b and the final intraoperative imagine of left vocal cord, anterior commissure and anterior 1/3 of the right vocal excision.

RESULTS

Suspended microlaryngoscopy with CO2 LASER surgery has been performed in 43 patients staged T1bN0Mx (33.85%) and 12 patients staged T2N0Mx (9.44%). Interventions were performed under general anesthesia with orotracheal intubation. Tracheotomy was not necessary in any case. Severe aspiration syndrome did not appeared. Local edema was mild in 4 patients (7.27%). We did not encountered and thyroid cartilage necrosis or perichondrits.

In 5 patients (9.09%) we encountered local recurrences, 2 patients (3.63%) were in stage T1bN0Mx, with a local recurrence at 6 and 12 months, respectively, and 3 patients (5.45%) were in stage II, T2N0Mx, with local recurrence at 2, 3 and 5 months respectively. Salvage treatment consisted in endoscopic partial vertical CO2 laser surgery in 1 patient (0.78%) stage I, T1bN0Mx (recurrence at 6 months) and in 2 patients (1.57%) stage T2N0Mx (recurrence at 2 and 5 months postoperative respectively). In the 2nd patient (0.78%) stage I, T1bN0Mx, with local recurrence at 12 months postoperative we indicated subcrioid total laryngectomy with neck dissection. In the last case (0.78%), stage III, T3N0Mx, recurrence at 3 months postoperative, the patient opted for postoperative radiotherapy.

Fonatory results were good in 25 patients (45.45%) due to pseudocord formation, and satisfactory in 12 patients (21.81%), staged T1b and week in the rest of the 18 cases (32.72%), 8 patients staged T1b and 10 patients staged T2 (the patients underwent cordectomy with anterior 1/3 contralateral vocal cord cordectomy and anterior commissure resection. 36 and 60 months survival rate was 98.18%.

Frontolateral hemilaryngectomy has been performed in 16 patients (12.59%) – 5 patients staged T1bN0Mx (3.93%), 1 patient – T2N0Mx (0.78%), 5 patients – T2N1Mx (3.93%), and 5 patients – T3N0Mx (3.93%). One patient (6.25%) staged T3N0Mx presented recurrence at 6 months. In cases of patients staged T2N1Mx (5 patients, 3.93%, stage III) we performed frontolateral hemilaryngectomy with neck dissection followed by radiotherapy in cases of pN+. One patient (6.25%) staged T3N0Mx presented local recurrence at 6 month postoperative, the salvage treatment consisted in subcrioidian total laryngectomy with neck dissection.

Total laryngectomy has been performed in 42 patients (33.07%), 34 patients (26.77%) – T3N0Mx, 3 patients (2.36%) – T3N1Mx and 5 patients (3.93%) – T3N2Mx. In cases of patients staged T3N1Mx (3 patients, 2.36%, stage III) and T3N2Mx (5 patients, 3.93%, stage IV) we performed subcrioid total laryngectomy and neck dissection followed by radiotherapy.

Figure 1. Suspended microlaryngoscopy - vegetative tumor, stage T1b

Figure 2. Suspended microlaryngoscopy – Final intraoperative imagine. Left vocal cord, anterior commissure and anterior 1/3 of the right vocal excision.
In 6 cases (4.72%) of local recurrences total laryngectomy was indicated as salvage therapy, 1 patient was initially staged I, T1bN0Mx, (local recurrence at 12 months postoperative – stage III T3N0Mx), 1 patient staged initially T2N0Mx, stage II, which followed radiotherapy (local recurrence at 6 months – stage IV, T4aN0Mx), 3 patients staged T3N0Mx, stage III, followed radiotherapy (local recurrence at 3, 4 and 6 months respectively – stage IV T4aN0Mx), and in 1 case stage III, T3N0Mx, initially treated by frontolateral hemilaryngectomy (local recurrences at 6 months postoperative). We have not encountered any local or regional recurrence. 36 and 60 months survival rate was 95.83%, (46 patients).

Radiotherapy was indicated in 10 patients (7.87%), 4 patients (3.14%) – T2N0Mx and 6 patients (4.72%) – T3N0Mx. In one case the patient underwent suspended microlyngoscopy with CO2 LASER surgery and presented a recurrence at 3 months postoperative and the patient opted for radiotherapy. In 4 cases (3.14%), which initially refused any treatment modality, staged T2N0Mx (1.57%) and T3N0Mx (1.57%), it has been performed at 9, 12, 8 and 12 months, respectively tracheotomy followed by palliative radiotherapy. At the time of radiotherapy the patients were in stage III, T3N0Mx, IV T4aN0Mx, and stage IV T4aN0Mx and T4aN1Mx respectively. In 4 cases (3.14%) we encountered recurrences. Salvage treatment in all 4 cases consisted in subcricoid total laryngectomy with neck dissection. 36 and 60 months survival rate was 73.33%, 4 patients died due to locoregional and metastatic recurrences. All patients refused initially any treatment modality.

Postoperative follow-up ranged from 36 to 120 months, average 60 months.

**DISCUSSIONS**

Larynx cancer represents an easily preventable pathology, being related to alcohol and tobacco consumption. Larynx cancer incidence is variable to globe geographic area and different human races. (5)(6)(7).

Anterior commissure larynx cancer raises a lot of controversies regarding surgery or radiotherapy as initial primary treatment (8).

Maximum oncologic efficiency by endoscopic CO2 laser suspended microlyngoscopy is difficult to obtain due to tyroidian internal perichondrium absence at the level of anterior commissure. Most of the authors sustain that anterior commissure represents the glottic area with the highest recurrence rate, 70%, despite of treatment modality: radiotherapy or endoscopic CO2 laser suspended microlyngoscopy surgery. Endoscopic CO2 laser suspended microlyngoscopy surgery represents an alternative in case of T1a, T1b and T2 glottic tumors (9)(10)(11).

Treatment aim was curative and voice preservation. Endoscopic CO2 laser suspended microlyngoscopy surgery for glottic cancer presents contraindications and oncologic limits: T3 tumors with immobile vocal cord due to profound muscle involvement and T4 tumors with cartilaginous structures, controlateral vocal cord more than 30% involvement, supraglottic extension (Morgagni ventricule or vocal fold) and subglottic extension more than 10 mm below the free margin of the vocal cord (12)(13).

In careful selected cases endoscopic CO2 laser suspended microlyngoscopy surgery with radical intent indications were extended by Davis (14), Eckel H.E. and Thumfart W.F. (10), Motta G. (15), Rudert H. (16) and Steiner W. (17) to the stages T1b and T2 with anterior commissure involvement. More, Steiner (18) extended the indications to stage T3, with hemilarynx fixation, without the cartilage involvement – computer topographically assessed.

**CONCLUSION**

Due to larynx vital role in phonation, respiration and deglutition, its functions must be preserved according with the treatment method.

All patients in stage T1b-T2 should be initially treated with larynx preservation intent, by endoscopic CO2 laser suspended microlyngoscopy, radiotherapy or frontolateral hemilaryngectomy. Singular modality of treatment is more efficient in initial stages of larynx cancer.

In case of endoscopic CO2 laser suspended microlyngoscopy operative trauma is minor with minimal postoperative pain, adjacent structures are minimally affected, the scars and healing process being of high quality. Social reintegration and social life occurred more rapidly.

Following the indications for frontolateral hemilaryngectomy ensures a high local and regional curative rate, only 1 patient (6.25%) having local recurrence.

Total laryngectomy offers good healing perspectives, without local recurrences.

In advanced stages therapeutic results are unsatisfactory in case of radiotherapy. Radiotherapy with
curative intent was applied in 10 patients (7.87%), salvage radiotherapy in 1 patient (0.78%), and with palliative intent in 4 patients (3.14%). In case of postoperative recurrences (4 patients (3.14%)) we practiced total laryngectomy.

Anterior commissure resection represents a greater difficulty due to internal perichondrium lack and cartilage vicinity. Most of the surgeons stress the fact that anterior commissure cancer has a high rate of recurrences, up to 70%, despite of the treatment method used.

REFERENCES: