ORIGINAL ARTICLE

HORIZONTAL SUPRAGLOTTIC PARTIAL LARYNGECTOMY FOR SELECTED SQUAMOUS CARCINOMA OF THE VALLECULA

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Abstract: *Background.* Our aim was to determine the incidence of local control in patients with selected squamous carcinoma of the vallecula treated with horizontal supraglottic laryngectomy; to analyze the consequences of local recurrence in terms of nodal recurrence, distant metastasis, survival, causes of death, overall local control, and laryngeal preservation; and to identify any clinical factors predictive of these outcomes.

Methods. This was a retrospective nonrandomized case series in a university teaching hospital. An inception cohort of 95 previously untreated patients were followed until death or for a minimum of 5 years. According to the 2002 Union Internationale Contre le Cancer (UICC) staging classification system, the tumor was classified as T1, T2, and T3 in 13, 60, and 22 patients, respectively, while disease in 67 patients was considered to be in stages III to IV. All patients underwent a horizontal partial supraglottic partial laryngectomy. Ninety-four patients had an associated neck dissection. An induction chemotherapy regimen was used in 91 patients; postoperative radiation therapy was given for 49 patients. The main outcome measures were local recurrence, nodal recurrence, distant metastasis, and survival.

Results. The 1-, 3-, and the 5-year actuarial survival estimates were 86.3%, 64.2%, and 47.4%, respectively. Overall, the main causes of death were as follows: metachronous second primary tumor (47.2% of patients), intercurrent disease (16.7%), distant metastasis (15.3%), local recurrence (6.3%), and nodal recurrence, (4.2%). The 1-, 3-, and 5-year actuarial local recurrence rates were 4.5%, 11%, and 11%, respectively. Nine patients developed a local recurrence; 3 were successfully salvaged. Using multivariate analysis, no single variable was found to increase the risk for local recurrence. The overall laryngeal preservation rate and local control rate were 89.5% (85/95) and 93.4% (89/95), respectively. Local recurrence was associated with a significant increase in nodal recurrence ($p < .04$) and distant metastasis ($p = .03$).

Conclusions. Based on this experience, horizontal partial supraglottic laryngectomy appears to be a valid approach for functional organ-preservation in patients with selected T1–T3 SCC of the vallecula. ©2008 Wiley Periodicals, Inc. *Head Neck* **30:** 756–764, 2008

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Since its introduction to the Northern American medical literature in the early 1960s,[1,2] the horizontal supraglottic partial laryngectomy (HSPL) has become a time-honored technique in the head and neck surgical repertoire. As of December 2006, an online PubMed search for "supraglottic

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Table 1. Demographics of 95 patients with vallecular carcinoma.

Characteristic	
Sex, no.	
Male	91
Female	4
Age	
Mean, y	53
Range, y	34–78
Age >70 y, no.	4
Tobacco intake	
Mean, pack/year	39
Range, pack/year	0–120
No tobacco intake	3
Alcohol intake, no.	
Less than 1 glass of wine per meal	6
Less than 1 L of wine per day	26
1–2 L of wine per day	45
More than 2 L of wine per day	17
Charlson comorbidity scale[13]	
0	47
1	37
2	5
3	2
4	1

Abbreviation: no., number of patients.

laryngectomy" resulted in more than 668 articles devoted to technical modifications, complications, as well as oncologic and functional results after HSPL. Yet fewer than 15 articles[3–12] examine the role of HSPL in patients with squamous cell carcinoma (SCC) of the vallecula. Of these, only 1 is published in English.[12] This lack of data was the initial impetus for the current series.

We review functional and oncologic results for patients with selected SCC of the vallecula treated with HSPL. Long-term functional outcomes, local control, and overall survival are examined, as well as the impact of preoperative induction chemotherapy and postoperative radiation therapies on these outcomes in this review of a 30-year, single-institutional experience.

PATIENTS AND METHODS

During the years 1971 to 2000, 167 patients with a previously untreated, moderately to well-differentiated invasive SCC originating from the vallecula were consecutively managed at our department. Within this group, 95 patients (56.8%) had an HSPL. The present retrospective studies were based on the analysis of the medical files, operative charts, and pathologic reports of this subset population.

Table 1 documents the sex, age repartition, tobacco intake, alcohol intake, and comorbidity according to the Charlson et al[13] comorbidity index-weighted score.

Table 2. TNM staging according to 2002 UICC staging system.[14]

	No. of patients by T classification		
N classification	T1	T2	T3
N0	3	25	6
N1	8	17	7
N2	0	16	7
N3	2	2	2

Tumors were classified according to the 2002 Union Internationale Contre le Cancer (UICC) staging classification system[14] (Table 2). Therefore, in our series, 38 patients were considered to be in stage III and 29 patients were considered to be in stage IV (Table 2). None of the tumors in our series was considered to originate from the epilarynx or tongue base. From the vallecula, the tumor extended to the tongue base, 3-fold region, glossopharyngeal sulcus, infratonsillar region, laryngeal surface of the epiglottis, and preepiglottic space in 14, 45, 16, 38, 22, and 14 patients, respectively. In this series, the tumor never reached the floor of the mouth, never involved more than 2 cm of the tongue base, and never impaired tongue base mobility. No tumors invaded the thyroid cartilage, resulted in fixation of the larynx, or extended to the ventricle or glottis—as all of these clinical findings are considered, at our department, as strict contraindications to the completion of an HSPL for vallecular carcinoma.

Preoperatively, 91 patients had an induction chemotherapy regimen. Over this 30-year review, the drugs delivered varied, but the most frequently regimen used was based on cisplatinum (25 mg/m^2/day) and 5-fluorouracil (1 g/m^2/day) delivered as daily continuous intravenous dosages. Platinum and fluorouracil were delivered using a portable chemotherapy delivery system that provided a continuous infusion of the drugs over a period of 24 hours. Antiemetics and oral hyperhydration (2 L/day) were used routinely during the treatment course. The course duration was 4 days. Induction chemotherapy was administered with 15 to 21 days hiatus between courses, with the ultimate interval being determined by toxicity. The dosages were adjusted to tolerance. A workup with a complete head and neck examination, direct laryngoscopy, and laryngeal CT (since the late 1980s) performed by the last course

allowed analysis of the clinical response to neoadjuvant chemotherapy. The clinical response at the T site following the induction chemotherapy regimen was measured as a complete response, a partial response >90%, a partial response >50% but <90%, a no change, and an aggravation in 18, 17, 22, 32, and 2 patients, respectively.

The following technical points were followed at the time of surgery: (1) in patients with preepiglottic space invasion, transection of the thyroid cartilage was made in the ventricle immediately above the level of the true vocal cord; (2) in all cases both arytenoid cartilages were spared; (3) care was taken not to transect the superior laryngeal, hypoglossal, and lingual nerves as well as the lingual arteries; (4) the hyoid bone was always resected; (5) resection of the tongue base never involved more than 2 cm of the tongue base; (6) impaction between the remaining thyroid cartilage and tongue base at time of closure was performed using 3 sutures (1 Vicryl); these stitches are set 1 cm apart from the midline as in the supracricoid partial laryngectomy technique, taking care not to ligate the lingual artery or trunk of the hypoglossal nerve; and (7) the postoperative management was systematized with early and initial removal of the tracheotomy tube (postoperative day 5 on average; extreme 2–20) followed by removal of the nasogastric feeding tube (postoperative day 17 on average; extreme 6–30) and completion of a percutaneous endoscopic gastrostomy in patients not swallowing by postoperative day 30.

All patients but 1 (T2N0 who achieved a CCR after induction chemo) had neck dissection at the time of surgery. A bilateral selective neck dissection of levels II through IV nodes (sparing the internal jugular vein, the spinal accessory nerve, and the sternocleidomastoid muscle)[15] was performed in 58 patients. Five patients had an associated unilateral selective neck dissection of levels II through IV nodes (sparing the internal jugular vein, the spinal accessory nerve, and the sternocleidomastoid muscle),[15] and 27 patients had an ipsilateral radical neck dissection together with a contralateral selective neck dissection. Four patients had an ipsilateral radical neck dissection, and 3 patients had a bilateral radical neck dissection 3 weeks apart.[8]

The margins of resection were positive in 2 patients and negative in 93 patients. Pathologic analysis of the specimen revealed no residual tumor (complete histological regression) in 11 patients (11.6%), dysplasia in 4 patients (4.2%), and carcinoma in situ in 3 patients (3.1%). The thyroid cartilage resected was never invaded. Pathologic analysis of the resected lymph nodes revealed only 1 positive jugulocarotid lymph node in 21 patients, multiple positive nodes in 41 patients, extracapsular spread in 31 patients, fibrosis within the node in 3 patients, and no disease in 27 patients. Among the 34 patients with disease classified as N0 who had a selective neck dissection, 12 (35.2%) had a positive jugulocarotid lymph node.

Postoperative radiation therapy used in 49 patients (51.5%) in our series was performed at various centers outside our institution. Both patients with positive margins on the T site had postoperative radiation therapy. In the remaining 93 patients, indications for postoperative radiation therapy varied over time and was mainly based on the surgeon's point of view: 26% of patients (7/27) with no disease in the neck and negative margins had postoperative radiation therapy, 35% of patients (6/17) with a single positive node had postoperative radiation therapy, 69% of patients (25/36) with multiple positive nodes had postoperative radiation therapy, and 81% of patients (25/31) with extracapsular spread of disease had postoperative radiation therapy. The mean dosage delivered to the remaining larynx was 53 Gy (range, 44–70 Gy). The mean dosage delivered to the neck was 55 Gy (range, 40–70 Gray).

Follow-up data were collected at periodic visits to our department. All patients were followed for a minimum of 5 years or until death. An IBM computer with Statview (USA) software was used for storing and calculating statistical data. Our report was specifically designed (1) to precise the incidence of local control; (2) to search for a potential statistical relation with the following variables—sex, tobacco intake, alcohol intake, tumor extent (base of tongue, infratonsillar region, preepiglottic space invasion, posterior tonsillar pillar, 3-fold region), T classification, clinical response to induction chemotherapy, margins of resection, and postoperative radiation therapy to the remaining larynx (yes vs no and if yes dosage delivered); and (3) to determine the consequences of local control in terms of salvage total laryngectomy, nodal control, distant metastasis, survival, causes of death, overall local control rate, and overall laryngeal preservation rate. Perineural invasion and lymphovascular spread were not tested for potential statistical relation with local control, as these variables were not systematically recorded for by our pathologists over the 30-year

Table 3. Postoperative course.

Postoperative course (95 patients)	No. of patients (%)
Causes of death	
Metachronous second primary tumor	36 (37.9)
Intercurrent disease	12 (12.6)
Distant metastasis	11 (11.5)
Local failure	6 (6.3)
Nodal failure	3 (3.1)
Unknown without disease	3 (3.1)
Postoperative	3 (3.1)
Significant postoperative complications	
Medical	
Cardiac ischemia	1 (1.1)
Delirium tremens	1 (1.1)
Bleeding ulcer	1 (1.1)
Pneumoniae	1 (1.1)
Pneumothorax	1 (1.1)
Digestive occlusion following gatsrostomy	1 (1.1)
Peritonitis following gastrostomy	1 (1.1)
Surgical	
Oropharyngeal	
Aspiration	7 (7.3)
Bleeding	3 (3.1)
Unilateral XIIth palsy	1 (1.1)
Neck	
Seroma	3
Hematoma	2
Abscess	1

review. To avoid bias linked to potential confounding variables, we also used a stepwise regression model. All significant or nearly significant variables ($p < .1$) related to local recurrence in univariate analysis were included in the stepwise regression model. Survival, local control, nodal control, and distant metastasis estimate were calculated using the Kaplan–Meier[16] actuarial life table method, with the log-rank test method for statistical comparison. The nonparametric Mann–Whitney U test, the chi-square test, and the Fisher exact t test were used for quantitative and qualitative variables analysis, respectively. Statistical significance was set at the $p = .05$ level.

RESULTS

Morbidity, Mortality, and Survival. Significant postoperative complications are listed in Table 3. In the current series, no patients required permanent tracheotomy and carotid blow did not occur. Significant aspiration was the most frequent postoperative complication noted in 7.3% (7/95) of patients. Management of aspiration required temporary gastrostomy (1–6 month duration) in 5 patients and completion total laryngectomy in 1 patient, and led to death in 1 patient. Death directly related to surgery was noted in 3 patients, postoperative death was not encountered: 1 patient died on postoperative day 13 from a oropharyngeal hemorrhage (from the lingual artery); a second patient died on postoperative day 30 from medical complications following a bleeding ulcer; the last patient died on postoperative day 32 following sepsis related to aspiration and pneumonia because of postoperative swallowing impairment. All of these 3 deaths occurred during the period of 1971 to 1984.

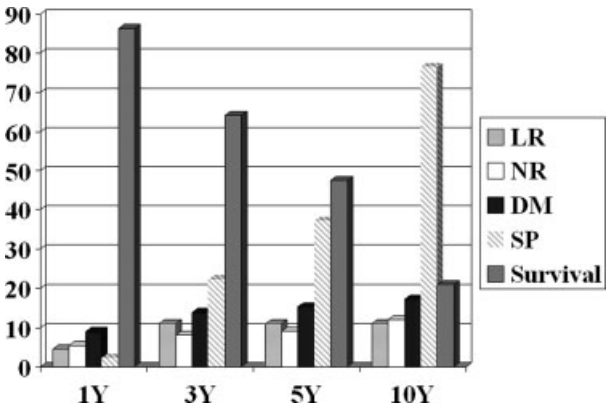

FIGURE 1. General overview of actuarial estimate for survival, local failure, nodal failure, distant metastasis, and upper aerodigestive tract second primary tumor (95 patients).

The 1-, 3-, 5-, and 10-year actuarial survival estimate was 86.3%, 64.2%, 47.4%, and 21.1%, respectively (Figure 1). Overall, 72 patients died in our series. The causes of death are listed in Table 3. In the study population, the percentage of patients who died from metachronous second primary tumor and intercurrent disease (35.8% and 12.6%, respectively) was much higher than the percentage of patients who died from distant metastasis, nodal recurrence, complication related to treatments, or local recurrence (11.6%, 3.2%, 3.2%, and 6.3%, respectively).

Table 5 documents the location of the first metachronous second primary tumor. When excluding patients with a first metachronous tumor originating from the lung ($n = 14$), rectum ($n = 1$), and prostate ($n = 1$), we found by Kaplan–Meier method the following rates of upper aerodigestive tract second primary tumor development: 2.3%, 22.2%, 37.1%, and 76.4% at 1-, 3-, 5-, and 10-years, respectively (Figure 1).

Incidence and Variables Influencing Local Recurrence. Local recurrence developed in 9 patients and was not encountered after the 29th

Table 4. Metachronous tumor location in percentage among 43 patients.

Second primary tumor	No. of patients (%)
Lung/pulmonary	15 (15.8)
Esophagus	3 (3.2)
Rectum	1 (1)
Prostate	1 (1)
Head neck	22 (23.1)

postoperative month. The 1-, 3- 5-, and 10-year actuarial local recurrence estimate was 4.5%, 11%, 11%, and 11% respectively (Figure 1). In univariate analysis (Table 4), the only variables that statistically increased the incidence of local recurrence were an increased T classification ($p = .04$), clinical suspicion for preepiglottic space invasion ($p = .02$), extension to the glossopharyngeal sulcus ($p = .04$), and the completion of postoperative RT ($p = .03$). In a stepwise regression model, no single variable was found to influence local recurrence.

Consequences of Local Recurrence. Local recurrence did not statistically reduce survival, but there was a trend ($p = .07$) for an increase survival in patients who achieved initial local control as the 1-, 3-, and 5-year actuarial survival estimate was 88%, 77.7%, and 57.2%, respectively, in patients without local recurrence when compared with 78%, 33%, and 0%, respectively, in patients with local recurrence. In our series, salvage treatment for patients with local recurrence was always a total laryngectomy. Such an approach was successful in 3 patients, but 6 patients died from their disease (local recurrence: 4 patients; distant metastasis: 2 patients). Since 1 patient in our series had also a completion total laryngectomy due to severe aspiration, the overall laryngeal preservation rate and local control rate were 89.5% (85/95) and 93.4% (89/95), respectively.

The 1-, 3-, 5-, and 10-year actuarial nodal failure estimate was 5.5%, 8.1%, 9.9%, and 12.0%, respectively while the 1-, 3-, 5-, and 10-year actuarial distant metastasis estimate was 9.0%, 13.9%, 15.3%, and 17.3% respectively (Figure 1). In patients with local recurrence, nodal recurrence was statistically more likely to occur in patients with local recurrence than in patients who achieved local control ($p < .04$). Also, in patients with local recurrence, distant metastasis was statistically more likely to occur in patients with local recurrence than in patients who achieved local control ($p < .03$).

DISCUSSION

The vallecula is located in the oropharynx and represents a potential space immediately anterior to oropharyngeal surface of epiglottis, posterior to the tongue base and medial to the pharyngoepiglottic fold and base of the pyriform sinuses.[9,17,18] Located above the hyoepiglottic ligament that limits the upper borer of the preepiglottic space, the vallecula has the shape of a fossa being medially subdivided in 2 symmetrical pars by the median glossoepiglottic fold.[9,17,18]

From an oncologic standpoint, the vallecula is also considered as a part of the oropharynx with the code C10-0 of the International Classification of Diseases for Oncology.[12] André et al[3] in the 1970s as well as Simon et al[9] in the 1980s, in 2 consecutive series with more than 60 patients, reported that the most frequent site of extension of invasive untreated SCC originating from the vallecula were the base of the tongue and the epiglottis, while the lateral oropharynx, epilarynx, preepiglottic space, and supraglottic endolarynx were involved in less than 10% of patients. They also noted that, in the English-language medical literature, tumors originating from the vallecula appeared to be lumped together with either tumors of the tongue base or tumors of the anterior epilarynx.[3,9]

In this report, 95 patients with selected previously untreated T1-T3 invasive SCC of the vallecula were reviewed. All patients were followed for a minimum of 5 years or until death. From a functional perspective, the results achieved were rewarding, as neither permanent tracheotomy nor permanent gastrostomy were required while (1) as depicted in Table 3, severe morbidity was minimal; and (2) overall, a 89.5% laryngeal preservation together with a 93.4% local control rate was achieved. However, the completion of HSPL technique is not without risks for the patients; 3 postoperative deaths were noted in our series. The risk of death in the immediate postoperative period following HSPL in patients with a previously and untreated invasive SCC of the vallecula is a well-known notion yet documented in the 1970s and 1980s by Cachin et al,[7] Pinel et al,[8] and Marandas et al,[10] who noted postoperative death after HSPL in 2 patients in their series. Advanced age and severe comorbidity are considered in most reports[7,8,10] as major contraindications to the

completion of an HSPL and one must note that, in our series, as depicted in Table 1, four patients only were older than 70 years of age while 3 only had a Charlson[13] comorbidity index above 2. In the medical literature,[3–10] temporary aspiration is considered as the major immediate and delayed postoperative complication in patients with invasive SCC of the vallecula managed with HSPL and, in our series, aspiration was noted in 7.3% of patients (Table 3), 5 patients had a temporary percutaneous endoscopic gastrostomy for 1 to 6 months duration, while 1 patient developed chronic aspiration that ultimately required total laryngectomy. We concur with what is well established in the literature[8] that preservation of the hypoglossal nerve, the main trunk of the trunk of superior laryngeal nerve, as well as enough tongue base to allow for proper location and propulsion of the bolus at are keys in the achievement of normal recovery of swallowing. Furthermore, early and expeditious removal of the tracheotomy tube eases recovery of swallowing. Decannulation permits proper elevation of the larynx as well as recovery of coughing.

This experience suggests that the HSPL technique is an oncologically sound approach for patients with untreated and properly selected vallecular carcinoma. In our series, the margins of resection were negative in 93 of the 95 patients. Furthermore, the 1-, 3-, and 5-year actuarial local recurrence rates were 4.5%, 11%, and 11%, respectively (Figure 1), and no local recurrence was noted after the 29th month following surgery. Such results are better than the 17.6% to 19% overall local recurrence rate reported in the medical literature during the 1970s and 1980s.[8,10,11] This improvement, in our opinion, is related to careful and meticulous preoperative selection of the patients. In our series, disease in the majority of patients was classified as T1-T2 (Table 2) with normal motion of the larynx, no major preepiglottic space invasion, and minimal extent of tumor at the level of the tongue base. The degree of tumor extent allowing for completion of an HSPL in patients with invasive untreated SCC of the vallecula is still under debate. Guerrier et al[6] considered that the tumor must be away from the lingual V at least from 1 cm. Cachin et al[7] considered that the tumor must not involve more than a third of the tongue base.

For optimal local control, the tumor should have less than 2 cm of the tongue base. Thus, careful radiographic evaluation of the volume of tongue-base involvement must be performed prior to decision. Although in our series, when using multivariate analysis, no single variable was found to increase the risk for local recurrence, in univariate analysis (Table 5), there were several clinical factors that were associated with increase in the rate of local recurrence: the fact that T classification ($p = .04$), clinical suspicion for preepiglottic space invasion ($p = .02$), and extension to the glossopharyngeal sulcus ($p = .04$) were associated with local recurrence confirm, and in our opinion, the HSPL is best indicated for patients with tumors classified as T1-T2. On the other hand, the fact that patients who required postoperative RT ($p = .03$) had a higher rate of local recurrence may suggest a treatment selection bias.

Of extreme interest in our series is the fact that all patients but 1 had an induction chemotherapy regimen. At first glance, it might be tempting to conclude that induction chemotherapy in the current series was an overtreatment since all patients were initially considered as amenable to conservative laryngeal surgery (namely an HSPL). However, 18 patients (18/94; 19.1%) had a complete clinical response, and 17 patients (17/94; 18.1%) had more than a 90% reduction of the tumor volume following the induction chemotherapy regimen. More striking, pathologic analysis of the specimen revealed no residual tumor (complete histological regression) in 11 patients (11.6%). From a conceptual point of view, one might also consider that the use of induction chemotherapy could allow in the future to select the good and very good responders in an attempt to offer them a less surgically aggressive option from a functional point of view (namely, an endoscopic transoral laser resection with or without robotics,[19] a chemoradiation protocol such as the one advocated in the Veterans Affairs Laryngeal Group study,[20] or a concurrent chemotherapy—radiotherapy protocol such as the 1 recently reported in the New England Journal of Medicine[21]) as the ultimate treatment modality.

Conceptually, such an approach can save radiation for the very good responders and use conservation surgery in nonresponders. This management policy allows the multidisciplinary team (surgeon, radiation therapist, medical oncologist) to consider carefully the risks and benefits of each treatment option available. Treatment selection based on response to induction chemotherapy may also diminish the bias for treatment modality based on the specific training of the primary man-

Table 5. Univariate analysis of local recurrence (95 patients).

	Local recurrence			
	Yes	No	Test used	*p* value
Sex			Fisher's exact	.33
Male	8	83		
Female	1	3		
Tobacco intake			Fisher's exact	.64
Yes	9	84		
No	1	2		
Tobacco intake in pack/year (mean rank, <32; >49)	9	86	Mann Whitney	.07
Alcohol intake			Fisher's exact	.41
Yes	9	79		
No	0	6		
Alcohol intake (quantity)			Fisher's exact	.56
Less than 1 glass of wine per meal	0	6		
Less than 1 L of wine per day	2	25		
One to 2 L of wine per day	4	40		
More than 2 L of wine per day	3	14		
T classification			Chi-square	.04
T1	0	13		
T2	4	56		
T3	5	17		
Tumor extent				
Base of tongue			Fisher's exact	.64
Yes	4	49		
No	5	37		
Infratonsillar region			Fisher's exact	.67
Yes	0	35		
No	6	51		
Preepiglottic space invasion			Fisher's exact	.02
Yes	4	10		
No	5	76		
Glossopharyngeal sulcus			Fisher's exact	.04
Yes	4	10		
No	5	74		
Threefold region			Fisher's exact	.85
Yes	4	41		
No	5	45		
Clinical response of primary site to chemotherapy			Chi-square	.28
Progression	1	1		
No response (less than 50% decrease in tumor volume)	5	28		
More than 50% decrease in tumor volume, but <90%	1	21		
More than 90% decrease in tumor volume	2	15		
Complete clinical response	0	18		
Pathological preepiglottic space invasion			Fisher's	.86
No	8	78		
Yes	1	8		
Margin of resection			Fisher's	.18
Negative	8	85		
Positive	1	1		
PRT to the larynx			Fisher's	.03
No	1	44		
Yes	8	42		
Total dose delivered (44–70 Gy; mean, 53 Gy)	9	86	Mann–Whitney	.3

aging physician ("the radiotherapist wishes to radiate, the surgeon wishes to operate"). Last, but not least, using induction chemotherapy gives time to the patient to understand all the aspects of the treatments available as well as their consequences. In doing so, this approach may reduce the stress felt by patients seen simultaneously with both the diagnosis of cancer and the need to

select treatment. In our departments, we feel this approach does not rush the patient into choosing 1 modality of treatment over another.

The last point in our series that deserves further attention is the relatively rare use of postoperative radiation therapy together with the low dosage delivered. Postoperative radiation therapy was used only in 49 patients (51.5%) in our series with a mean dosage of 55 Gy delivered to the remaining larynx. Combined with the extremely high rate for local control as well as laryngeal preservation (93.4% and 89.5%, respectively), our single-institution's experience suggests that this routine use of postoperative radiation therapy might also be overtreatment when the margins of resection are free of tumor. A prospective study is required across several centers with standardized surgical technique, but we feel that systematic use of postoperative radiation therapy following HSPL is not always necessary. Rather, we reserve postoperative radiation therapy for patients with specific indications at the primary site (positive margins, perineural, and/or lymphovascular spread) and the neck (multiple lymphatic metastases and extracapsular spread).

Since only 50% of patients were irradiated in our series and we still have a high rate of local control and high laryngeal preservation rate, should we even radiate? On the one hand, patients with head and neck cancer get 1 good-chance treatment intensification with chemotherapy, surgery, and postoperative radiation therapy may improve survival, since there is a trend toward diminished survival for patients with local failure—a development that should be avoided as it leads to a lethal cascade of nodal recurrence and distant metastasis (as depicted in Figure 1). The consequences of local recurrence are striking; in our series, 7 of the 9 patients who recurred locally ultimately died from the disease while local recurrence significantly statistically increased the risk in nodal recurrence ($p < .04$) and distant metastasis ($p = .03$). Such data are in agreement with the data by Pinel et al,[8] who noted that 5 of the 6 patients with recurrences in their series, ultimately died from the disease. In our opinion, judicious use of postoperative radiation therapy must be a constant goal for the head and neck surgeon since our experience, and many others[12] demonstrate a high incidence for head and neck metachronous tumors. When an equally effective surgical option such as HSPL can be used, radiation might be spared for the next metachronous head and neck tumor.

CONCLUSIONS

We present here evidence from a lengthy clinical series of T1-T3 SCC of the vallecula treated with HSPL. First, we show that while vallecular tumors are a subset of oropharynx, these should not always be included as part of the tongue-base. HSPL is a valid treatment for selected advanced tumors and should be integrated in organ preservation strategies. Induction chemotherapy may identify patients for less aggressive treatment, whether HSPL or RT for optimal functional laryngeal preservation. Postoperative radiation is not always required to achieve a high rate of control at the primary site and may be used for metachronous head and neck tumors. But specific indications do include margins, as well as perineural or lymphovascular spread. Multiple lymphatic metastases and extracapsular spread are of course steadfast indications for postoperative treatment of the neck.

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