Transoral Lateral Oropharyngectomy for Squamous Cell Carcinoma of the Tonsillar Region

I. Technique, Complications, and Functional Results

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Objectives: To describe the surgical technique for transoral lateral oropharyngectomy (TLO) and its safety, postoperative management, complications, and functional outcomes.

Design: A 20-year retrospective case series review. Mean follow-up was 10 years. All but 10 patients were followed up until the fifth postoperative year or death.

Setting: Academic, tertiary referral center.

Patients: A total of 191 patients who underwent TLO for selected invasive squamous cell carcinoma of the tonsil and/or tonsillar fossa.

Interventions: Ten patients had received preoperative radiation therapy. Induction chemotherapy was used in 153 patients (80.3%). An associated neck dissection was performed in 148 patients (77.5%). Postoperative radiation therapy was administered to 52 patients (28.7%).

Main Outcome Measures: Overall survival rate, intraoperative mortality, and perioperative mortality were determined. The need for and length of nasogastric tube feeding and tracheotomy were calculated. The incidence of significant postoperative surgical and medical complications was recorded.

Results: No intraoperative mortality occurred, but 5 patients (2.6%) died in the immediate postoperative period, 3 from medical complications and 2 from unknown causes. In this series, the internal carotid artery was never injured, and no cutaneous-oropharyngeal fistulas were apparent. The incidence of significant surgical complications from the oropharynx was 6.3%. Nosopharyngeal reflux and severe rhinolalia were the most common complications, occurring in 9 patients. Increasing tobacco use was statistically correlated with an increase in postoperative pneumonia from aspiration (P = .05) but no surgical complications. Seven patients (3.7%) had a temporary tracheotomy for a mean of 5 days. One hundred twelve patients (58.6%) had a nasogastric tube inserted for a mean of 6 days. No patients had a permanent gastrostomy or tracheotomy tube. The mean duration of hospitalization was 9 days. The duration of hospitalization was statistically correlated with the need for nasogastric tube placement and its duration (P < .001) or tracheotomy (P < .001).

Conclusions: From a functional standpoint, the TLO is a safe surgical approach for treating selected carcinoma of the tonsillar fossa. It is a reliable technique that should be considered for treatment of appropriate squamous cell carcinoma of the tonsil.


The conservative treatment advocated worldwide in patients with moderately to well-differentiated invasive squamous cell carcinoma (SCC) of the tonsillar region is radiotherapy.1,2 The main adverse effects are xerostomia and dysphagia, although late complications, such as trismus and mandibular osteoradionecrosis, have been reported.3,4 Such an approach avoids the debilitating consequences associated with surgical treatment, such as the mandibular swing7 and the time-honored composite resection.8 However, since patients with head and neck cancer7,8 are at high risk for second primary tumors, the use of radiotherapy, although effective, eliminates the opportunity to use this modality for larger, more aggressive, or more morbid metachronous lesions.

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In 1951, Huet9 published a case report in French that documented a transoral technique for resection of selected invasive SCC of the tonsillar region (Figure 1). This conservative surgical approach was introduced in the late 1960s.
in our department (Université de Paris V “René Descartes”). Since then, to our knowledge, no long-term comprehensive study has been published in the French or English medical literature to evaluate this innovative surgical technique. This lack of data was the initial impetus for the current study.

Based on a series of 191 patients consecutively treated at a single institution with this innovative surgical approach, the objectives of the present retrospective study are to (1) provide the first description in English of this surgical technique that we have named transoral lateral oropharyngectomy (TLO), (2) document postoperative management and functional results, and (3) analyze the postoperative morbidity and mortality. A companion article in this issue of the ARCHIVES presents a detailed analysis of oncologic results, examining local control and survival.

METHODS

From 1978 to 1998, 191 patients with selected moderately to well-differentiated invasive SCC of the oropharynx were consecutively surgically treated with TLO. All surgery was performed by 21 attending surgeons at the Université de Paris V “René Descartes,” first at the Laennec Hospital and then at the recently relocated Hôpital Européen Georges-Pompidou.

The current study was specifically designed to describe this surgical technique and its functional results. A retrospective review of the operative and medical records was performed for...
bidity according to the scale designed by Charlson et al\textsuperscript{13} is in-
cluded in Table 1. The TNM stages\textsuperscript{14} are given in
TLO (in our companion article),\textsuperscript{12} the following clinical fea-
tures such as lymphovascular or perineural invasion in 14 pa-
tients and (2) the pathologic nodal status of the neck after the
completion of an associated ipsilateral neck dissection (mul-
tiple nodes, extracapsular spread of disease) in 38 patients. Given
the proximity between the tonsillar fossa and the draining cer-
vical lymphatics, no attempt was made to spare the primary area
when the neck was irradiated.

Transoral lateral oropharyngectomy is performed with the
patient under general endotracheal anesthesia. The procedure
can be performed before or after the neck dissection. Transoral lateral oropharyngectomy after neck dissection per-
mits the less experienced surgeon to locate and protect the in-
ternal carotid artery, which may be in close contact with the
resected specimen. An oropharyngeal retractor is inserted into the oral cavity,
opened, and secured to a flexible anesthesia screen,\textsuperscript{17} which is
fixed to the operating room table. Palpation of the tonsillar fossa is performed to confirm that the tonsillar region is mo-
bile, compared with the uninvolved contralateral oropharynx,
because fixation of the tonsil to the deep planes is a major con-
traindication.\textsuperscript{12}

The entire procedure must be performed with the monopolar
electrocautery tip and an angled bipolar electrocautery for-
ceps. First, by palpation, the mucosa and submucosal raphe be-
tween the superior constrictor and buccinator muscles is
the data presented herein. The rate of local control achieved
after TLO in patients with tumors that originated from the ton-
sillar fossa and the factors that influence and the conse-
quences of local recurrence are fully presented in our compan-
ier article.\textsuperscript{12}

The demographic data for these patients are given in Table 1.
The mean age at diagnosis of the primary tumor was 56 years
(age range, 30-83 years). Preoperative assessment of comor-
bidity according to the scale designed by Charlson et al\textsuperscript{13}
is included in Table 1. The TNM stages\textsuperscript{14} are given in
Table 2.

As discussed in the analysis of local recurrence following
TLO (in our companion article),\textsuperscript{12} the following clinical fea-
tures were considered major contraindications for this sur-
gery: (1) trismus and (2) tonsil fixation to the deep planes is a major con-
traindication.\textsuperscript{12}

Preoperative induction chemotherapy was used in 153 pa-
tients (80.1%). Preoperative radiation therapy was used in 10
(5.2%) patients. Ten patients had a mean dose of 6100 rad (61
Gy) to the oropharynx (range, 5300-7200 rad [53-72 Gy]) and
5700 rad (57 Gy) to the neck (range, 4500-7500 rad [45-75
Gy]). Preoperative radiation therapy was performed either for
the initial management of the tonsillar carcinoma (5 patients) or
previously for the management of another head and neck malignancy (5 patients).

Neck dissection was performed in 148 (77.5%) of the 191
patients. Of these 148 patients, 52 (35.8%) had a radical ipsi-
lateral neck dissection\textsuperscript{13,16} and 52 (35.1%) had a standard se-
lective unilateral dissection of levels II through IV,\textsuperscript{13,16} sparing
the internal jugular vein, the 11th cranial nerve, and the ster-
nocleidomastoid muscle. Seventeen patients (11.4%) under-
went a level I dissection, with preservation of the 12th cranial
nerve, lingual nerve, and cervicofacial branch of the seventh
nerve. Bilateral selective neck dissections, levels II through
IV,\textsuperscript{13,16} were performed in 4 patients (2.7%). Five patients (3.4%)
had radical ipsilateral with selective contralateral lymphad-
nectomy. Postoperatively, radiation therapy was used in 52
(28.7%) of 181 of the patients who had not undergone irra-
diation, with a mean dose of 6000 rad (60 Gy) to the orophary-
ynx (range, 4500-7500 rad [45-75 Gy]) and 5600 rad (56 Gy)
to the neck (range, 4000-7000 rad [40-70 Gy]).

Primary indications for postoperative radiation therapy are
discussed in detail in our companion article.\textsuperscript{12} These included
(1) positive margins of resection or adverse prognostic fea-
tures such as lymphovascular or perineural invasion in 14 pa-
tients and (2) the pathologic nodal status of the neck after the
classification and staging (N = 191)*

<table>
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*Data are numbers (percentages) of patients unless otherwise indicated.

Table 1. Demographic Profile of Patients

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<td>Recurrent</td>
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Table 2. TNM Classification and Staging

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identified. The mucosa is incised, the raphe is divided, and the incision is extended superiorly along the maxillary dentition and inferiorly at the level of the extreme posterior floor of the mouth (Figure 2; a schematic representation of this approach is shown in Figure 3). The ipsilateral tonsil is grasped with a tenaculum and pulled medially, allowing the superior constrictor muscle to be retracted medially (Figure 4). This maneuver opens the submucosal plane of dissection with the superior constrictor, anterior tonsillar pillar, and posterior tonsillar pillar as the deep oncologic margin of the specimen. The dissection is further developed to the prevertebral fascia with a wooden tongue blade (Figure 5). Inspection at this time allows the surgeon to locate the internal carotid artery, covered by a fascia and lobules of fat (Figure 6), which pulsate posterolaterally in close relationship to the deflected posterior tonsillar pillar.

We describe herein the procedure from cranial to caudal, but the different steps may be tailored to each patient to facilitate the resection, according to the location and extent of its spread. For instance, to approach an inferior tumor, the superior aspect of the resection is completed first and vice versa. According to the extent of tumor spread, the resection may be extended to encompass the anterior insertion of the tonsillar pillar into the mobile tongue, unilateral or complete soft palate, and posterior oropharyngeal wall. Also, if the tumor extends superically to these anatomical subsites, additional en bloc mucosal resection can be incorporated to encompass the hard palate and intermaxillary and buccal mucosa.

Throughout the entire procedure, it is essential to provide continuous and strong medial retraction with a tonsillar tenaculum. This important maneuver pulls the specimen away from the parapharyngeal space and ensures a degree of safety with regard to the internal carotid artery.

The anterior tonsillar pillar and the ipsilateral soft palate are transected superiorly based on the tumor extent and the desired margins of resection. The posterior tonsillar pillar is transected superiorly and separated from the posterior pharyngeal wall. At this point, the resection proceeds inferiorly. The anterior tonsillar pillar is transected at the junction with the tongue base (if needed, tongue base resection might be added to ensure safe margins) and then along the glossopharyngeal fold.

The tonsil and inferior tonsillar regions are strongly pulled, and the inferior medial pharyngeal margin is visualized. The stylopharyngeus and styloglossus muscles (Figure 6) are identified and transected. The resection ends by connecting the posterior pharyngeal incision and medial line of resection to this inferior margin, resulting in a surgical defect, which is left to heal by secondary intention (Figure 7).

Throughout the procedure, the incisions into both the mucosa and underlying pharyngeal musculature must be performed layer by layer with bipolar electrocautery to achieve initial, complete hemostasis of the numerous small venous and arterial vessels that will be encountered (thin white arrow; Figure 4). If the ipsilateral soft palate has been extensively resected (25 patients in our series), we recommend that posterior pharyngeal myomucosal flaps be created to avoid severe postoperative rhinolalia and nasopharyngeal reflux. Briefly, rotational and transpositional pharyngeal flaps are elevated from the prevertebral fascia to the level of the faucial arch. The elevated flap is rotated superiorly to join the uvula, which is also mobilized to close the defect. This flap completely closes the ipsilateral choana. The advancement flap is then secured in place with 3-0 sutures (Vicryl; Ethicon, Somerville, NJ). When nearly the entire soft palate was resected (9 cases),
no attempt at reconstruction was made and a palatal obturator was used instead.

The postoperative management of the tracheotomy tube and nasogastric feeding tubes (NGTs) (when needed) was standardized. In patients with a tracheotomy, the first attempt at removal of the tracheotomy tube was performed by postoperative day 3. Once the tracheotomy had healed, patients were taught to swallow their own saliva. Then, the NGT was removed. Oral alimentation was then initiated using pureed diet with daily speech and chest therapy. In patients without tracheotomy or NGT, oral alimentation was initiated by the first postoperative day. In the current series, patients were sent home once they could achieve normal oral alimentation. We also advocate the use of broad-spectrum antibiotics for 5 days, the systematic use of antireflux treatment (usually a proton-pump inhibitor) for 1 week, and proper intensive management for postoperative pain. Steroids are not used postoperatively.

Follow-up time was the time from first appointment in our department for index SCC of the tonsil until the date of last contact or death. All patients but 1 were followed up until the third postoperative year or death. The mean follow-up interval was 10 years. The incidences of temporary and permanent gastrostomy feeding, significant postoperative surgical and medical complications, aspiration, mortality, and postoperative death were determined. Postoperative mortality was defined as death that occurred during the first postoperative month in patients without complications or death that was the result of or related to a postoperative complication after the first month. The following variables were tested for potential correlation with duration of hospitalization, duration of NGT dependence, and time to resumption of oral alimentation: age, sex, tobacco and alcohol consumption, the Charlson Comorbidity Index,13 pre-

Figure 4. A submuscular plane of dissection is developed as the ipsilateral tonsil is gently grasped with tenaculum and pulled inside. Star indicates right medial pterygoid muscle; arrow, vessels that require meticulous coagulation.

Figure 5. Dissection with a wooden tongue blade or an empty scalpel holder is used to define precisely the safe plane of dissection down to the prevertebral fascia.

Figure 6. Styloglossus muscle (short, thick arrow) is shown before transaction. A branch of glossopharyngeal nerve is also seen (long, thin arrow). For orientation, the right medial pterygoid muscle is indicated by a star, and fat lobules that cover the internal carotid artery are indicated by an asterisk.

Figure 7. Surgical defect that outlines the margin of resection along the posterior pharyngeal wall (small arrows), right medial pterygoid muscle (star), fat lobules that cover the internal carotid artery (asterisk), and the prevertebral fascia and muscles (large arrow).
operative radiation therapy (yes vs no and total dosage if yes), preoperative induction chemotherapy, associated neck dissection, postoperative surgical and medical complications, and postoperative radiation therapy (yes vs no and total dosage if yes). Finally, any association between significant surgical complications and these variables was also investigated. Univariate analyses were performed with a computerized software package (StatView; SAS Institute Inc, Cary, NC). For comparisons, the \( \chi^2 \) test for independence, nonparametric Mann-Whitney test, Kruskal-Wallis test, and Kendall \( \tau \) rank correlation, in addition to linear regression with Pearson product moment correlation, were used for analysis of the variables under investigation. The Kaplan-Meier product-limit method was used for survival and time-to-event analysis. Statistical significance was set at \( P < .05 \).

## MORBIDITY AND MORTALITY

The 1-, 3-, and 5-year Kaplan-Meier survival estimates were 87.4\%, 66.2\%, and 56.2\%, respectively (Figure 8). There were no intraoperative mortalities. Five patients (2.6\%) died in the immediate postoperative period, 3 from medical complications (2 from stroke and from 1 pneumonia) and 2 from unknown causes. No statistically significant relationship occurred between the postoperative complications and the variables under analysis was also investigated. Univariate analyses were performed with a computerized software package (StatView; SAS Institute Inc, Cary, NC). For comparisons, the \( \chi^2 \) test for independence, nonparametric Mann-Whitney test, Kruskal-Wallis test, and Kendall \( \tau \) rank correlation, in addition to linear regression with Pearson product moment correlation, were used for analysis of the variables under investigation. The Kaplan-Meier product-limit method was used for survival and time-to-event analysis. Statistical significance was set at \( P < .05 \).

### NGT FEEDING AND TRACHEOTOMY

A total of 112 (58.6\%) of the 191 patients had an NGT inserted for a mean duration of 6 days (range, 1-77 days). The decision to insert an NGT was made by the surgeon at the time of the resection and determined on a case-by-case basis. A percutaneous endoscopic gastrostomy was performed in a single patient who failed to achieve proper swallowing by the end of the first postoperative month. For this one case, which had a complicated postoperative course, the NGT was removed on day 77 after surgery. None of the variables under analysis were significantly related to the placement of an NGT or the duration the NGT was in place.

Seven patients (3.7\%) underwent a tracheotomy. The decision to perform a tracheotomy was made by the surgeon at the time of the resection and determined on a case-by-case basis. The tracheotomy was needed for a mean duration of 5 days (range, 1-8 days).

## DURATION OF HOSPITALIZATION

The mean duration of hospitalization was 9 days (range, 2-77 days). The duration of hospitalization was statistically correlated with the need for NGT placement and the duration of NGT placement (\( P < .001 \) or trache-
otomy (P<.001) but not with the other variables under analysis.

**COMMENT**

Remarkably, the surgery and idea behind the TLO approach were developed more than 50 years ago. Described in principle by Huet in 1951, the original technique (Figure 1) was used as surgical salvage for a patient with local recurrence within the left tonsillar fossa after radiation therapy. The recurrence involved the anterior pillar and junction with the soft palate but did not cause fixation of the tonsil. In this novel transoral approach, Huet ligated the external carotid artery for hemostasis. In contrast, no patients in our series required external carotid artery ligation. However, in the current series, TLO was never performed for surgical salvage after radiation therapy.

To our knowledge, this approach has not yet been described in the English medical literature, although various authors have suggested that conservative surgery might be a valuable option for selected invasive SCC of the tonsil. Galati et al described a series of patients in whom surgical therapy of the tonsil depended on resection with the boundaries of “the superior constrictor as the deep margin (if it is not involved) and a 1- to 2-cm circumferential margin of normal-appearing mucosa.”20(p542) Ambrosch et al described similar approaches using an endoscopic laser resection. Unfortunately, none of these articles provides an anatomical foundation for the surgery, which enables an oncologic en bloc mucosal and muscular resection with wide margins.

The lateral oropharynx contains 3 distinct layers of fasciae.22,23 The first layer of fascia is formed along the posterolateral aspect of the capsule of the tonsil, extending from the palatopharyngeal to the palatoglossal muscles. Deep to this most superficial layer lies the pharyngobasilar fascia. After a precise capsular plane of dissection for a simple tonsillectomy, this layer is next seen covering the first layer of the superior pharyngeal constrictors. The buccopharyngeal fascia is the deepest layer and provides a deep layer of protection between the superior constrictors and the contents of the retrostyloid parapharyngeal space. It also demarcates the tissue layer in which the internal carotid artery and ascending palatine artery medially and the internal maxillary artery more laterally are found. During a standard tonsillectomy, the pharyngobasilar fascia investing the superficial aspect of the superior constrictor muscle is often preserved. After additional palatine tonsillitis or radiotherapy for cancer, this layer may frequently be fused to the underlying muscles, thus making dissection treacherous. In the cadaver and the primary (previously untreated) operative setting, the more deeply placed buccopharyngeal fascia, always covered by fat, can alert the surgeon of the proximity to the internal carotid artery. As depicted in **Figure 9**, once the fat lobules are removed, the internal carotid artery, covered by the fascia, is readily apparent.

We propose that an understanding of these precise anatomical principles, first described by Huet and then further refined in our department, makes this a safe procedure. In the current series, no intraoperative mortality and no known perioperative deaths from oropharyngeal complications or hemorrhagic sequelae occurred. Overall, 5 patients (2.6%) died in the immediate postoperative period, 3 from medical complications (2 from stroke and 1 from pneumonia) and 2 from unknown causes. There was little postoperative mortality, so no associated clinical variables could be identified. Only 4 cases of aspiration pneumonia were identified in this series. Since the only significant predictor of these pulmonary complications was increasing tobacco use history (P = .05), the patients with chronic obstructive pulmonary disease were likely at the highest risk of developing postoperative pneumonia, even with subclinical aspiration. Furthermore, the rate of postoperative surgical complications was also low. Overall, 6.3% of patients developed a complication within the oropharynx and nasopharynx. The most common complications were not bleeding or dysphagia but nasopharyngeal reflux and severe rhinolalia, which occurred in 9 patients (4.7%). Although not statistically significant (P = .06), an association between this complication and patients with more extensive soft palatal spread was suspected. Therefore, patients with substantial disease that involves the velum should be counseled preoperatively about the likelihood of this adverse effect.

Of note, the 10 patients who underwent preoperative radiation therapy did not experience an increased rate of complications. However, we recommend that TLO should be used only with great caution in this subset of patients and not for routine surgical salvage for radiation failure.

**Figure 9.** In the cadaver, fat lobules overlying the right internal carotid artery (asterisk) have been removed to reveal the vessel covered by fascia. Other landmarks are shown for orientation: small arrows, line of resection along posterior pharyngeal wall; star, right medial pterygoid muscle; U, uvula; and large arrow, prevertebral fascia and muscles.
The patients described in this series had extensive comorbid disease and alcohol and tobacco use. A total of 32% of patients had a Charlson Comorbidity Index greater than 2 (Table 3). Not only did our patients range in age from 30 to 83 years, but also 45% of patients acknowledged drinking more than 1 L of wine per day. A total of 71.5% of patients acknowledged more than a 20-pack-year history of tobacco intake. Altogether, these comorbidity data suggest strongly that the TLO procedure might be offered to a wide array of patients with minimal systemic or local morbidity.

Postoperative treatment of patients after TLO is straightforward. Functional rehabilitation includes oral care, salt and soda rinses, and enteral feeding in less than 60% of patients and temporary tracheotomy in less than 5%. Although other researchers advocate broad-spectrum antibiotics only preoperatively when performing head and neck surgery that violates mucosal surfaces, we recommend an extended course of antibiotics that lasts 5 to 7 days, as advocated by some authors in the literature devoted to tonsillectomy. We believe that this antibiotic regimen combined with aggressive pain management speeds postoperative recovery time by promoting tissue healing after the use of electrocautery. However, corticosteroids are not routinely used.

In this series, patients’ length of hospitalization averaged 9 days and was directly related to the need for and length of NGT placement (P < .001) or tracheotomy (P < .001). In fact, the length of hospitalization in this report should be viewed as the estimated time to recover normal oral swallowing, since all patients were kept in our department until they could achieve proper oral alimentation. More than 40% of patients did not require postoperative NGT feeding. For those who did, the mean length of time to removal was only 7 days. Finally, since postoperative management has changed during the last 5 to 10 years and trended toward outpatient management, we believe that many patients undergoing TLO may be safely discharged after 2 days and receive enteral alimentation, if needed, as an outpatient.

Only 3.7% of patients underwent a perioperative tracheotomy in this series. The decision to perform tracheotomy was made by the surgeon at the time of the resection and should be determined on a case-by-case basis. For these patients, all underwent decannulation by the eighth postoperative day (mean, 5 days). We encountered no episode of immediate postoperative airway edema due to the electrodissection. In fact, the oropharynx is actually widened during TLO, effectively enlarging the airway, not diminishing it. Although a single patient, early in the series, developed airway collapse, this occurred on postoperative day 7 and the cause of this delayed respiratory collapse was never determined. A tracheotomy was performed without difficulty, and the patient made an uneventful recovery. Based on our experience, there is no need for a routine associated tracheotomy when TLO is performed.

From a functional point of view, TLO might be advocated in a wide array of patients and tumors when one considers the low rates of morbidity and mortality and the absence of any statistical correlation with known risk factors, such as age, sex, comorbidity, and predisposing conditions (preoperative chemotherapy, neck dissection, or postoperative radiation therapy). Although the only technical contraindication is poor exposure, due to individual patient anatomical considerations (limited oral opening or dental issues), a detailed assessment of oncologic contraindications is fully discussed in our companion article. Although 28.5% of patients underwent radiation therapy, its primary indication was for the neck, either for extracapsular spread or multiple nodes with abnormalities.

Several technical refinements facilitate success with the TLO. The first is the use of the flexible anesthesia loop, which enables the surgeon and assistant to operate unimpeded by the proximity of a Mayo operating stand. Second, our department’s practice is to mark the appropriate surgical margin of the primary tumor at the time of the initial endoscopy and before induction chemotherapy with an India ink tattoo. Not only does this serve as a critical guide to assess clinical response during treatment, but these lines of demarcation also guide the surgeon in outlining the mucosal margins of resection when the TLO is performed. It is our practice to generally require a mucosal margin of at least 1 cm. Third, the entire procedure must be performed with the monopolar electrocautery tip and angled bipolar electrocautery forceps. Careful and fastidious attention to complete hemostasis cannot be overemphasized, especially at the transection zone at the inferior tonsillar pillar.

In conclusion, the current series strongly suggests that the TLO is a safe and reliable operation with few functional limitations. In our companion article published in this issue of the ARCHIVES, we present and discuss the oncologic criteria for treatment selection of appropriate SCCs of the tonsil or tonsillar fossa together with the incidence and consequences of local recurrence after the TLO procedure. On the basis of these 2 reports, we propose that the TLO should be fully integrated into the available head and neck surgical armamentarium. When used with induction chemotherapy, such a treatment approach offers an excellent organ preservation strategy to manage invasive SCC of the tonsillar region.

Submitted for Publication: June 22, 2004; final revision received September 14, 2004; accepted January 4, 2005.

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Funding/Support: This study was supported in part by the Fulbright US Scholars Grant Program (Dr Holsinger), administered by the Commission Franco-

**Previous Presentation:** This study was presented at the Sixth International Conference on Head and Neck Cancer; August 9, 2004; Washington, DC.

**Acknowledgment:** We acknowledge the following attending otorhinolaryngologists and head and neck surgeons for allowing us to study their files: Paul André, MD, Jean-Pierre Bessede, MD, Patrice Beutter, MD, Bernard Biacabe, MD, Serge Bobin, MD, Michel Bodard, MD, Daniel Bransu, MD, Régis Cauchois, MD, Eric Chabardes, MD, Alain Fabre, MD, Dominique Fernandez, MD, Stéphane Hans, MD, PhD, François Janot, MD, Véronique Jouffre, MD, Jean Lacau St Guily, MD, Henri Laccourreye, MD, Ollivier Laccourreye, MD, Madeleine Ménard, MD, Philippe Naudo, MD, Pascal Pichancourt, MD, and Pierre Tison, MD.

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