

# Recurrent Laryngeal Cancer after Surgical Treatment

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**Objective:** Study the presentation pattern of recurrent laryngeal cancer after surgical treatment.

**Material and Method:** The patterns of recurrent laryngeal cancer after surgical treatment were reviewed: 17 cases were included in the present study.

**Results:** The most common encountered cancers among the recurrent cases were transglottic (59%), supraglottic (35%), and only rarely glottic. 88% were of an advanced stage. The most common site of recurrence were neck node (53%) followed by distant metastasis (29%) and primary recurrence (24%). The onset of recurrence was within a few months of surgery for nodal and primary recurrence and about 2 years for distant metastasis.

**Conclusion:** Factors influencing recurrence and appropriate management are discussed.

**Keywords:** Laryngeal cancer, Recurrence, Surgical treatment

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Although the authors consider many factors such as tumor extension, the necessity and type of neck dissection, the treatment of contralateral neck nodes, and the necessity of postoperative radiation before choosing which surgery to use for treatment of laryngeal cancer, recurrence of cancer is still the important problem after surgical treatment. A study of the patterns of recurrence following surgery might indicate which type of surgery and adjuvant therapy are most appropriate for each stage of laryngeal cancer, so the authors aimed to study the presentation pattern of recurrent laryngeal cancer after surgical treatment.

## Material and Method

The authors reviewed the records of patients diagnosed as squamous cell carcinoma of the larynx and undergoing surgical treatment in the Department of Otolaryngology at Srinagarind Hospital, Khon Kaen University, Thailand, between January 1, 1993 and December 31, 2002. Only cases that had a recorded recurrence of the cancer with adequate data were included. The parameters scrutinized were age, sex, site and stage of tumor, modality of treatment, time to

recurrence after surgery, and the site of the recurrence. Statistical analyses and correlation were performed and the results presented as percentages.

## Results

### Patient's data before treatment

The case files of 78 persons undergoing surgical treatment of laryngeal cancer were reviewed; 17 males (21.8%) (mean, 58.5 years of age; range, 42-82) experienced a recurrence after the surgery and 15 of these had complete records while two had sufficient data to allow a partial analysis.

Patient's data is revealed in Table 1. Ten of 17 cases were transglottic cancer, 6 were supraglottic and the other was glottic cancer. Fifteen cases were stage III and IV. Seven cases had metastatic neck nodes and three cases had bilaterally metastasis.

### Treatment's data

Fifteen cases underwent total laryngectomy and two underwent supraglottic laryngectomy. Fifteen cases received postoperative radiotherapy. One of the remaining two had received radiotherapy for treatment of metastatic cancer of neck node(s) from unknown primary tumor one year before developing the supraglottic cancer, so he did not receive it again.

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**Table 1.** Detail of patients who had recurrence of cancer

No.	Site	Stage	Type of surgery	Neck surgery		Post-op RXT	Site of recur.	Months after Rx
				N ipsi	N cont			
1	SG	IV	TL	M-II	M-II	Y	Ni+D	6
2	TG	III	TL	M-I	M-II	Y	2 <sup>nd</sup>	34
3	SG	IV	TL	R	M-II	Y	Ni	4
4	TG	IV	TL	ND	ND	Y	D	45
5	SG	I	SL	ND	ND	N*	T+Ni	7
6	TG	III	TL	M-II	M-II	Y	Ni+Nc	4
7	G	II	TL	ND	ND	Y	D	12
8	TG	III	TL	ND	M-I	Y	T	5
9	TG	IV	TL	ND	ND	Y	Ni	3
10	TG	IV	TL	R	M-II	Y	D	32
11	TG	III	TL	ND	ND	Y	T	47
12	TG	IV	TL	ND	ND	Y	Ni	3
13	SG	IV	TL	R	M-I	Y	Ni+Nc	NA
14	TG	IV	TL	R	M-II	Y	Ni+Nc	NA
15	SG	IV	SL	M-I	M-II	Y	D	NA
16	TG	IV	TL	M-II	M-II	Y	T	NA
17	SG	III	TL	ND	ND	N	Ni+Nc	NA

- Site: SG = Supraglottic cancer, G = glottic cancer, TG = transglottic cancer
- Type of surgery: TL = total laryngectomy, SL = supraglottic laryngectomy
- Neck surgery: R = radical neck dissection, M-I and M-II = modified neck dissection type I and II, ND = not do
- Post-op RXT: Y = yes, N = no
- Site of recurrence: T = primary site, Ni = ipsilateral neck, Nc = contralateral neck, D = distant metastasis, 2<sup>nd</sup> = second primary
- Months after treatment : NA = not available
- \* This case had received radiotherapy for treatment of unknown primary metastatic neck node one year before developing the supraglottic cancer.

Neck dissection was performed in all cases (7 cases) with palpable neck nodes. Five of 8 cases with impalpable neck node were treated with elective radiotherapy and the others underwent elective neck dissection followed by postoperative radiotherapy. However, the pathological reports of these cases confirmed malignancy in only one case. Elective neck dissection of contralateral neck was performed in 6 of 13 cases and no malignancy was found in any of the neck node specimens.

#### **Pattern of recurrence**

The mean duration of recurrence of cancer was 16.8 months, which included 4 (26%) primary recurrences, 9(53%) neck node recurrences and 5 (29%) distant metastasis. Two cases had multiple sites of recurrence and one case had a second primary tumor.

Of the four cases of primary recurrence, 3 were T<sub>3,4</sub>N<sub>0</sub> transglottic cancer. These underwent total laryngectomy and postoperative radiotherapy. The fourth case was a stage I supraglottic cancer with a

history of previous radiotherapy for treatment of metastatic cancer of neck node from unknown primary tumor the year before. He, therefore, underwent a supraglottic laryngectomy; however, within 7 months there was a recurrence at both the supraglottic site and the neck node. The other recurrences arose after 5 and 47 months post treatment.

Of the 9 cases of recurrent neck nodes, 5 were supraglottic and 4 transglottic cancers and all but one (a stage I tumor) were stage III and IV tumors. Three cases had metastatic neck node and underwent neck dissection with postoperative radiotherapy. Of the remaining 6 cases of N<sub>0</sub>, 2 underwent elective neck dissection with postoperative radiotherapy, 2 received elective radiotherapy and 2 didn't received anymore. Bases on the 6 cases with complete data, the onset of recurrence was on average within 5 months.

Five cases had distant metastasis, all had metastasized to the lung. There were two cases of supraglottic, 2 of transglottic and 1 of glottic cancer. All but one were stage III and IV and three cases had

node metastasis: all underwent surgery and post-operative radiotherapy. Neck dissection was done in cases with metastatic node. The onset of metastasis was on average within 24 months.

In the present study, one case presented with a second primary tumor at the oropharynx. He had T<sub>3</sub>N<sub>0</sub> transglottic cancer and underwent a total laryngectomy, neck dissection and postoperative radiotherapy. His second primary tumor occurred 34 months after treatment.

### Discussion

The authors found that patients who experienced recurrent laryngeal cancer after surgical treatment often have transglottic cancer followed by supraglottic cancer but rarely glottic cancer, which was found to be more advanced. Nodal recurrence was the most common site of recurrence followed by distant metastasis and primary recurrence. Although these results corroborate the other studies<sup>(1,2)</sup>, some studies<sup>(3)</sup> did not. The authors will discuss each type of recurrence orderly.

Nodal recurrence was reported in about 20% in supraglottic cancer<sup>(2)</sup>. Inappropriate treatment was claimed to be the cause. For prevention of nodal recurrence, elective neck dissection was recommended for N<sub>0</sub> laryngeal cancer especially in supraglottic cancer<sup>(2,4)</sup> and advanced cases<sup>(5)</sup>. Postoperative radiotherapy did not influence the reduction in the incidence of ipsilateral nodal recurrence in cases who underwent elective neck dissection<sup>(2,4)</sup> but may have some benefit in controlling nodal recurrence of non-surgically treated contralateral neck<sup>(2)</sup>.

However, Gallo et al<sup>(6)</sup> concluded that elective neck dissection did not significantly improve survival in N<sub>0</sub> laryngeal cancer patients with occult disease compared with those who underwent a therapeutic neck dissection when metastasis subsequently appeared. Similar to the study of Yuen et al<sup>(7)</sup> who concluded that "watchful waiting" policy of the management of N<sub>0</sub> neck is acceptable considering an eventual nodal failure rate of 10% after surgical salvage.

Treatment of nodal recurrence is surgical salvage with radical neck dissection and has 5-year survival rate was about 38%<sup>(7)</sup>.

The incidence of distant metastasis in laryngeal cancer was 7.2% and the lung(s) were most commonly involved<sup>(8)</sup>. The higher incidence was related to: 1) the more advanced the cancer, 2) a supraglottic primary site and 3) locoregional recurrences. In the present study, the lung is the most common site of

distant metastasis and related to advanced stage of cancer but only 1 of 5 cases had locoregional recurrence. The overall survival rate of these cases was 28 months. Treatment is usually palliative aim.

Primary or stomal recurrence found about 19%<sup>(9)</sup>. The incidence was higher in patients with initial subglottic lesion who underwent preoperative tracheotomy performed 48 hours or more before undergoing total laryngectomy<sup>(10)</sup>. In these cases, additional irradiation at the stomal site was recommended to reduce the incidence of stomal recurrence.

Management of stomal recurrence depends on their extension. Surgical salvage is still the treatment of choice with a 53% 5-year survival rate which is longer than palliative inoperable cases<sup>(11)</sup>.

Brenner et al<sup>(12)</sup> reported the estimated 2- and 5-year survival rates for recurrent laryngeal cancer were 67 and 56%, respectively. A univariate analysis confirmed that primary tumor site, T-stage and nodal status, duration of disease-free interval, site of recurrence, and operability of the recurrent tumor were all powerful prognostic factors for survival. A further multivariate analysis established that primary tumor site, site of recurrence, and operability were statistically significant.

### Conclusion

Recurrent laryngeal cancers were mostly transglottic followed by supraglottic cancer, while glottic cancer was rare and mostly advanced. Nodal recurrences were the most common site of recurrence and usually within a few months of treatment. Distant metastasis were found nearly equal to primary recurrences but had longer onset.

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## มะเร็งกล่องเสียงที่กลับเป็นซ้ำหลังการรักษาด้วยการผ่าตัด

ธีรพร รัตนานอกชัย, วิสูตร ริชัยพิชิตกุล

การศึกษานี้เป็นการศึกษาเกี่ยวกับรูปแบบของการกลับเป็นซ้ำของมะเร็งกล่องเสียงหลังการรักษาด้วยการผ่าตัด ซึ่งรวบรวมผู้ป่วยได้ 17 คน พบว่าผู้ป่วยที่มีการกลับเป็นซ้ำของมะเร็งส่วนใหญ่ (ร้อยละ 59) เป็นมะเร็ง transglottic รองลงมาเป็นมะเร็ง supraglottic (ร้อยละ 35) ส่วนมะเร็ง glottic พบได้น้อยมาก และผู้ป่วยร้อยละ 88 เป็นมะเร็งระยะท้าย ตำแหน่งที่พบว่ามีมะเร็งกลับซ้ำเกิดขึ้นมากที่สุดคือที่ต่อมน้ำเหลืองที่คอ (ร้อยละ 53) รองลงมาคือ มีการแพร่กระจายไปที่อวัยวะอื่น (ร้อยละ 29) และการเกิดซ้ำที่ตำแหน่งปฐมภูมิ (ร้อยละ 24) โดยระยะเวลาที่เกิดมะเร็งกลับซ้ำในตำแหน่งต่อมน้ำเหลืองที่คอและที่ตำแหน่งปฐมภูมิจะเกิดภายในไม่กี่เดือนหลังการผ่าตัด ในขณะที่การแพร่กระจายของมะเร็งไปที่อวัยวะอื่นจะพบได้ช้าประมาณ 2 ปีหลังผ่าตัด ซึ่งการศึกษานี้จะได้อภิปรายเกี่ยวกับปัจจัยที่มีผลต่อการเกิดการกลับเป็นซ้ำของมะเร็งหลังการผ่าตัดรวมทั้งแนวทางการรักษามะเร็งที่กลับเป็นซ้ำด้วย