

Table 4 Characteristics of patients who underwent salvage surgery or nonsurgical treatment for local recurrence or residual disease

Variable	No. of patients (%)		P
	Salvage surgery (n = 11)	Nonsurgical treatment (n = 24)	
Age (year)			
Median (range)	54 (42–75)	64.5 (46–78)	0.04
Gender			
Male/female	11/0 (100/0)	20/4 (83/17)	0.28
Comorbidity			
Diabetes	0 (0)	3 (13)	0.54
Hypertension	2 (18)	2 (8)	0.57
Cardiac disease	3 (27)	1 (4)	0.08
Pulmonary disease	0 (0)	2 (8)	1.00
Multiple primaries			
No/yes	5/6 (45/55)	16/8 (67/33)	0.41
Initial disease			
Subsite			
Lateral/anterior/superior/posterior	5/3/1/2 (45/27/9/18)	16/5/1/2 (67/21/4/8)	0.95
T classification			
1, 2/3, 4	6/5 (55/45)	5/19 (21/79)	0.11
N classification			
0/1–3	6/5 (55/45)	6/18 (25/75)	0.18
Stage			
I, II/III, IV	3/8 (27/73)	2/22 (8/92)	0.30
Completion of CRT			
Yes/no	8/3 (73/27)	15/9 (63/37)	0.71
Nutrition after CRT			
Oral/oral + tube/tube	9/2/0 (82/18/0)	13/4/2 ^a (54/17/8)	0.90
Recurrent/residual disease			
Disease status			
Recurrent/residual	8/3 (73/27)	14/10 (58/42)	0.48
Regional recurrence			
No/yes	10/1 (91/9)	11/13 (46/54)	0.02
Distant metastasis			
No/yes	11/0 (100/0)	18/6 (75/25)	0.15

P values < 0.05 were shown in bold

^a Nutrition data were not available for 5 patients in the nonsurgical treatment group

treated without salvage surgery ($P = 0.04$), whereas it was significantly lower than that for patients without local failure ($P = 0.02$).

Discussion

In the current study, the local failure rate among patients treated with CRT was 21 %, the salvage surgery rate was 31 %, and the 5-year overall survival rate after salvage surgery was 49 %. Roosli et al. and Zafereo et al. [10, 11] also reported an analysis of salvage surgery for the local recurrence of OPC. Their local failure rates were 12 and 29 %, their salvage surgery rates were 21 and 22 %, and their 5-year overall survival rates after salvage surgery

were 28 and 25 %, respectively. It should be noted that salvage surgery was performed in only 20 to 30 % of patients with local failure. There were significant differences in patient age and simultaneous regional recurrence between the patients who underwent salvage surgery and those receiving nonsurgical treatment for local failure in the current study. In addition, the opportunity for salvage surgery tended to be more limited in patients who initially had advanced primary disease. Although 10 patients experienced only local failure without neck disease or distant metastasis, they received nonsurgical treatment. According to the analysis of their characteristics, their ages ranged from 56 to 76 years (median, 63 years), the rate of T4a disease was 50, and 50 % of patients had such poor performance status that they experienced swallowing

Table 5 Successful salvage rate by T classification

T classification (no. of patients)	No. of patients (%)		
	Local recurrences/ residuals	Salvage surgeries	Successfully salvaged
T1 (18)	1	1 (100)	1 (100)
T2 (69)	10	5 (50)	3 (30)
T3 (38)	9	3 (33)	3 (33)
T4 (44)	15	2 (13)	1 (7)
Total (169)	35	11 (31)	8 (23)

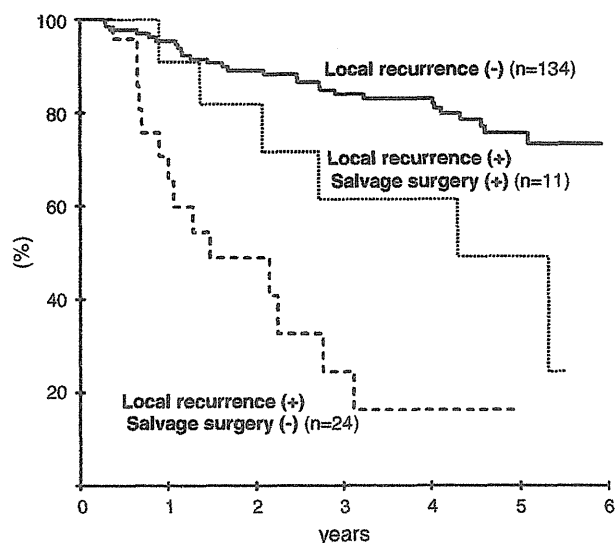
Table 6 Successful salvage rate by subsite

Subsite (no. of patients)	No. of patients (%)		
	Local recurrences/ residuals	Salvage surgeries	Successfully salvaged
Lateral (105)	21	5 (24)	4 (19)
Anterior (45)	8	3 (38)	3 (38)
Superior (8)	2	1 (50)	0 (0)
Posterior (12)	4	2 (50)	1 (25)
Total (170)	35	11 (31)	8 (23)

Table 7 Swallowing function and larynx preservation in patients with local recurrence or residual disease after salvage surgery ($n = 11$)

Variable	No. of patients (%)	
	Preoperative	Postoperative
Nutrition		
Oral feeding	9 (82)	6 (55)
Oral and tube feeding	2 (18)	3 (27)
Tube feeding	0 (0)	2 (18)
Larynx preservation		
Yes	–	8 (73)
No	–	3 (27)

function disorders and required tube-feeding support after CRT. In contrast, in the patients undergoing salvage surgery, ages ranged from 42 to 75 years (median, 54 years), the rate of T4a disease was 18, and 18 % of patients required tube-feeding support after CRT. However, the presence of an advanced tumor is a high-risk factor for local failure and, moreover, the general condition after CRT in such cases is generally poor. Laryngeal cancer, by contrast, offers a greater opportunity for salvage surgery for local recurrence. One hundred and twenty-nine patients developed local recurrence in the RTOG 91-11 laryngeal cancer trial, and the disease was found to be resectable in all cases [12]. Consequently, there might be only a limited

**Fig. 3** Overall survival in 11 patients who underwent salvage surgery for local recurrence, 24 patients who did not undergo salvage surgery for local recurrence, and 134 patients who had no local recurrence

number of cases suitable for salvage surgery among patients who initially received CRT for advanced OPC and subsequently developed local recurrence.

Another point of controversy is that patients undergoing salvage surgery for local failure cannot always achieve long-term survival. In our study, 8 patients developed a second recurrence, including 3 cases of local recurrence, 3 of neck disease, and 5 of distant metastasis. Similarly, Zafereo et al. [11] reported that 26 of 39 patients (66.7 %) developed a second recurrence after salvage surgery. It has been regarded that patient age, disease-free interval, T and N classification of recurrent tumors, and surgical margin status influence survival and recurrence rate after salvage surgery for recurrent OPC [11, 13, 14]. However, at the moment, the fact remains that any salvage therapy is less effective than surgery. It is hoped that a novel adjuvant therapy after salvage surgery, such as molecular targeted drug therapy, will be developed in the future.

In this study, 10 patients (91 %) underwent microvascular free flap reconstruction for salvage surgery, with 5 patients (50 %) requiring tube-feeding support after surgery and the larynx preservation rate was 73 %. On the other hand, of the 40 patients who underwent reconstruction surgery with preoperative or postoperative irradiation as an initial treatment, 12 patients (31 %) required tube-feeding support after surgery and the larynx preservation rate was 78 %. Zafereo et al. [11] similarly reported that only 9 (22 %) patients required tube-feeding before salvage surgery, whereas 26 (64 %) required tube-feeding support after surgery. With regard to initial therapy for advanced OPC, it has been reported that patients treated with surgery show a statistically higher frequency of

swallowing disorders than those treated with CRT [15]. However, these results suggest that salvage surgery after CRT would worsen swallowing function in the patients in comparison with initial open surgery.

Chemoradiotherapy is more advantageous in organ and function preservation than definitive surgery; however, survival rates for patients treated with CRT are not always superior to those treated by surgery. Furthermore, it is difficult to salvage local failures, as already described. We have to make an effort to detect persistent tumor or recurrence as early as possible; this should lead to a higher salvage rate. In recent years, clinical trials of less-intensive therapy for patients with HPV-positive OPC have been undertaken by some groups. Considering the difficulty of salvage surgery, the initial treatment method for OPC should be decided carefully and the limitations of salvage surgery should be fully considered.

In conclusion, salvage surgery for OPC was indicated in a limited number of patients with local failure, and the survival rate of these patients was not so high as expected. In addition, swallowing function was worse in patients undergoing salvage surgery after CRT than in those undergoing initial open surgery. However, it is a fact that salvage surgery is the only curative treatment for the patients with recurrence after CRT in most cases. These results should be given adequate consideration when the initial treatment method for OPC is decided.

Conflict of interest No conflict of interest.

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Mucosal Defect Repair with a Polyglycolic Acid Sheet

Takeshi Shinozaki*, Ryuichi Hayashi, Mitsuru Ebihara, Masakazu Miyazaki and Toshifumi Tomioka

Department of Head and Neck Surgery, National Cancer Center Hospital East, Kashiwa City, Japan

*For reprints and all correspondence: Takeshi Shinozaki, Division of Head and Neck Surgery National Cancer Center Hospital East, 6-5-1 Kashiwanoha, Kashiwa, Chiba 277-8577, Japan. E-mail: tashinoz@east.ncc.go.jp

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Objective: Early-stage oral or oropharyngeal carcinomas are often treated with surgical resection. Resulting wounds that are too large for primary closure can be covered with skin grafts or patches made from various biomaterials. Recently, polyglycolic acid sheets have been used for this purpose.

Methods: We treated six patients with large wounds resulting from the resection of oral or oropharyngeal squamous cell carcinoma by grafting polyglycolic acid sheet patches. All patients were initially treated at the National Cancer Center East Hospital from March 2010 through July 2012. After mucosal resection, the wounds were covered with polyglycolic acid sheet patches attached with fibrin glue. Oral intake was started 4 days after surgery.

Results: Mucosal resection was the initial treatment in seven patients (five with oral squamous cell carcinoma and two with oropharyngeal squamous cell carcinoma). The polyglycolic acid sheet patches became detached in two patients (on the day of surgery and on post-operative day 6), who then required large doses of analgesics. A patient who underwent tooth extraction also required large doses of analgesics. The other four patients required only small doses of analgesics. One patient had bleeding at the surgical site. No adverse effects were caused by the polyglycolic acid sheet patch or by fibrin glue.

Conclusions: Our study has shown that grafting of a polyglycolic acid sheet patch is effective and provides good pain control for patients with large, open wounds after mucosal resection of oral or oropharyngeal squamous cell carcinoma. We plan to evaluate tissue contraction and oral intake after polyglycolic acid patch grafting.

Key words: polyglycolic acid sheet – fibrin glue – good pain control

OBJECTIVE

Early-stage oral or oropharyngeal carcinomas are often treated with surgical resection. Because the resulting wounds are often too large for primary closure, they can be covered with skin grafts and patches made from various biomaterials. Skin graft leave donor-site wound and often detach within a few days. Some biomaterials often detach in the early post-operative period. Early detachment causes pain and tissue contraction. Recently, polyglycolic acid (PGA) sheets have been used to cover wounds and to prevent bleeding and leakage in liver and lung surgery (1–4). We evaluated the

use of PGA sheets to reduce postoperative complications after the resection of oral or oropharyngeal carcinomas.

PATIENTS AND METHODS

We reviewed seven patients with large wounds resulting from the resection of an oral or oropharyngeal squamous cell carcinoma (SCC) which were repaired with PGA sheet grafts. All patients were initially treated at the National Cancer Center East Hospital from March 2010 through July 2012 (Table 1).

Table 1. Patients' courses and outcomes

Case	Sex	Age	Tumor site	Stage	Resection	Mucosal defect (mm)	Oral feeding start	Analgesic (Loxoprofen) use	Complications	Discharge
1	M	86	Retromolar	T2N0	Mucosa	22 × 42	POD 10	None	None	POD 11
2	M	62	Oral floor	T1N0	Mucosa	34 × 31	POD 7	None	None	POD 13
3	F	64	Buccal mucosa	T2N0	Mucosa	10 × 22	POD 10	None	None	POD 13
4	M	78	Hard palate	T1N0	Mucosa, hard palate	34 × 34	POD 6	POD 2,9	None	POD 12
5	M	62	Soft palate	T1N0	Mucosa	35 × 32	POD 4	Every meal	PGA detached, day of surgery	POD 10
6	F	60	Soft palate	T2N0	Mucosa, hard palate	42 × 26	POD 8	Many times	Bleeding, POD7; PGA detached, POD 10	POD 12
7	M	52	Lower gingiva	T2N0	Mucosa, tooth extraction	40 × 35	POD 4	Many times	None	POD 9

Patients 1–4, without early sheet detachment, required no analgesics or only small doses of analgesics. In contrast, patients 5 and 6, with early sheet detachment, required large doses of analgesics. A patient who underwent tooth extraction also required large doses of analgesics. POD, postoperative day.

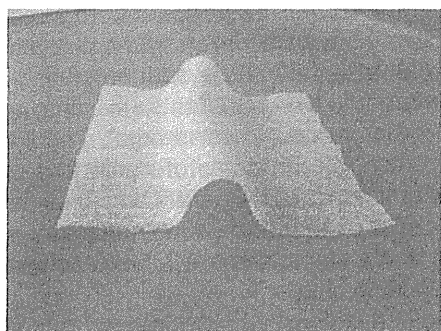


Figure 1. Polyglycolic acid (PGA) sheet. Soft nonwoven fabric with elasticity.

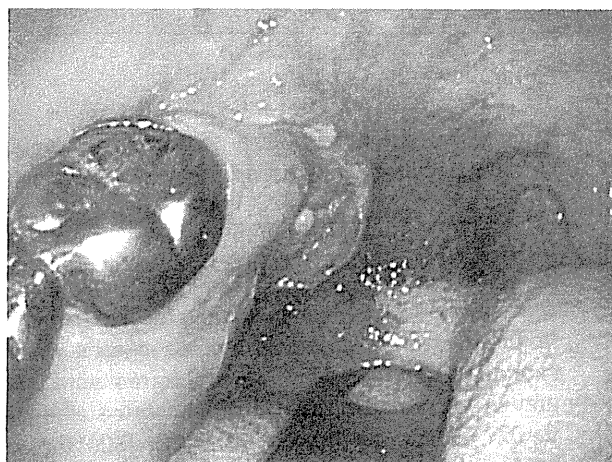
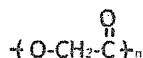


Figure 2. Case 7, before surgery. Lower gingiva T2N0 squamous cell carcinoma.

We indicate the patient with the defects resulting from SCC resection could not be closed primarily and when transfer of a bulky free cutaneous flap would interfere with oral function.

After mucosal resection, the wounds were covered with PGA sheet patches attached with fibrin glue. First, a solution of fibrinogen was applied to the wound. Secondly, the wound was covered with a PGA sheet that cut off one or many pieces slightly smaller than the area of resection. Finally, the wound was sprayed with a solution of fibrinogen and thrombin. Oral intake was started 4 days after surgery, and analgesics (nonsteroidal anti-inflammatory agent loxoprofen) were administered as required. At the surgical site, the edges of separated PGA sheets were cut off.

EQUIPMENT

Polyglycolic acid felt sheet is a soft nonwoven fabric that becomes elastic through a special process. (Neoveil[®], Gunze Co., Ltd., Tokyo, Japan) (Fig. 1). The PGA sheet was attached with fibrin glue derived from human blood (Bolheal[®], Chemo-sero-Therapeutic Research Institute, Kumamoto, Japan).

RESULTS

Mucosal resection was the initial treatment in seven patients (five with oral SCCs and two with oropharyngeal SCCs; Figs 2 and 3). The PGA sheet patches became detached in two patients (on the day of surgery and on postoperative day 6), who then required large doses of analgesics. A patient who underwent tooth extraction also required large doses of analgesics. The other four patients required no analgesics or only small doses of analgesics (Table 1). The PGA sheets in

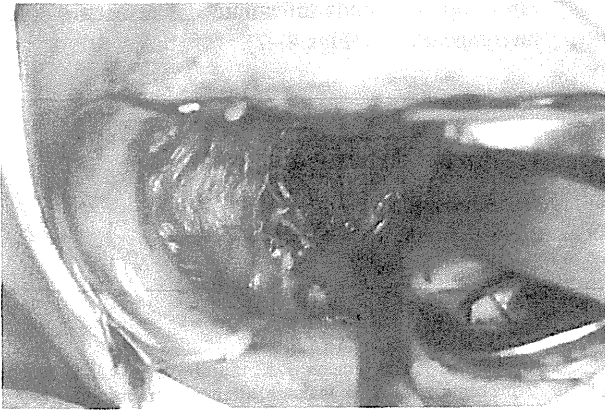


Figure 3. Case 7. Mucosal resection with tooth extraction.

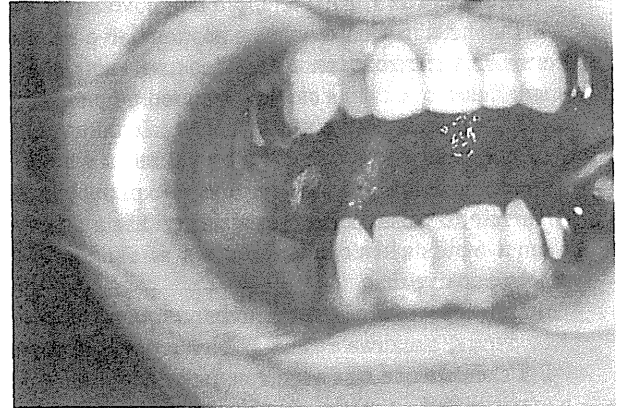


Figure 6. Case 7. Nine days after surgery. The PGA sheet and fibrin are observed. The edge of the PGA sheet is covered with granulation tissue.

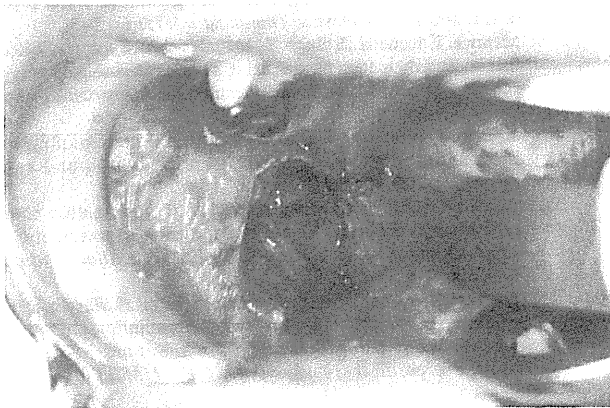


Figure 4. Case 7. The mucosal defect was covered with a PGA sheet attached with fibrin glue.

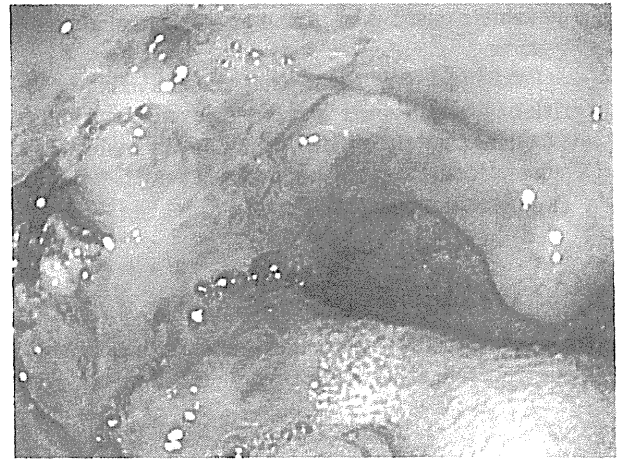


Figure 7. Twenty-two days after surgery. Most of the defect is covered with mucosa and granulation tissue.

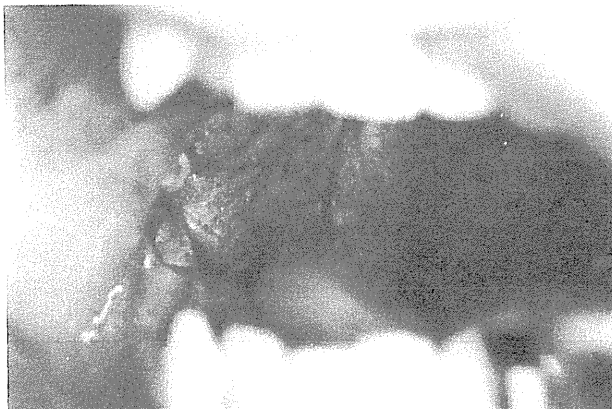


Figure 5. Case 7. Six days after surgery. The PGA sheet and fibrin are observed.

these four patients detached on postoperative days 26 to 38. One patient had bleeding at the surgical site. No adverse events were caused by the PGA sheet patch or by fibrin glue. In patients without early PGA patch detachment, healing was

excellent. Wound contraction was not observed in any patient, with or without early detachment.

DISCUSSION

After the resection of oral or pharyngeal cancers, mucosal defects are repaired primarily with sutures or covered with skin grafts or various biomaterials. Skin grafts or various biomaterials attached with sutures easily become detached and cause pain. Because adhesion is weak between the materials and the mucosal defects, gaps can open, through which saliva or ingested food can pass. Several authors have reported the usefulness of PGA sheets attached with fibrin glue for covering wounds after oral and pharyngeal surgery (5,6). Covering wounds with PGA sheets and fibrin glue is simple and less time-consuming than the tie-over method or skin grafting or the use of other artificial materials and may avoid the need for microvascular graft reconstruction.

Murata et al. (5) have reported that covering wounds with PGA and fibrin glue reduces postoperative pain. Our report confirms the reduction of pain, as no analgesics or only small doses of analgesics were required by patients in whom the PGA sheets did not detach early. In contrast, large doses of analgesics were required by patients in whom the PGA sheets had detached early, and one patient had bleeding. Therefore, the use of PGA sheets and fibrin glue for covering open wounds after oral resection was useful for avoiding postoperative pain.

In the present study, tissue contraction was not observed. However, Yonezawa et al. (7) have reported that the use of PGA sheets and fibrin glue causes early epithelialization in experiments in rabbits. Furthermore, in the present study, PGA sheets and fibrin glue seemed to cause early epithelialization and to reduce pain.

We plan to study additional patients in whom wounds have been covered with PGA sheets and fibrin glue and to evaluate tissue contraction and oral intake after PGA patch grafting.

Products from animal tissue, such as fibrin glue, carry a risk of blood-borne disease. However, our patients showed excellent pain control and good healing wound. Our findings suggest that PGA sheets attached with fibrin glue can be used to cover mucosal defects.

CONCLUSION

The use of PGA sheet patch grafts attached with fibrin glue is effective and provides good pain control for patients with

large, open wounds after mucosal resection of oral or oropharyngeal SCC (Figs 4–7).

Conflict of interest statement

None declared.

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Treatment Strategy for Superficial Pharyngeal Squamous Cell Carcinoma Synchronously Combined with Esophageal Cancer

Kazuhiro Kaneko^a Tomonori Yano^a Keiko Minashi^a Takashi Kojima^a
Miki Ito^a Hironaga Satake^a Yoko Yajima^a Yusuke Yoda^a Hiroaki Ikematsu^a
Yasuhiro Oono^a Ryuichi Hayashi^b Masakatsu Onozawa^c Atsushi Ohtsu^a

Departments of ^aGastroenterology and Gastrointestinal Oncology, ^bHead and Neck Surgery and ^cRadiation Oncology, National Cancer Center Hospital East, Kashiwa, Japan

Key Words

Pharyngeal cancer · Chemotherapy · Esophageal squamous cell carcinoma · Narrow band imaging · Early detection

Abstract

Background: Esophageal squamous cell carcinoma (ESCC) is often synchronously accompanied by pharyngeal squamous cell carcinoma (PSCC). However, treatment strategies for these synchronous cancers have not been established. **Aim:** To evaluate retrospectively the effects of both chemoradiotherapy (CRT) targeted for invasive ESCC on synchronous superficial PSCC and additional endoscopic resection (ER) for PSCC. **Patients and Methods:** Screening endoscopy in the pharynx was performed in newly diagnosed ESCC patients. CRT combined with 5-fluorouracil (5-FU) and cisplatin (CDDP) was administered to all patients. The effect on superficial PSCC was only evaluated for 5-FU-CDDP chemotherapy that excluded the pharynx from the radiation field. When PSCC was remnant or recurrent in patients evaluated at complete response (CR) of ESCC, ER was performed on the PSCC. **Results:** Fourteen cases of superficial PSCC (4.0%) were detected in 348 ESCC patients. Three PSCC reached CR in 8

ESCC-CR patients, while all 3 lesions recurred. No treatment response was found in the remaining 11 PSCC. As a second treatment, ER for 8 PSCC was completed in the 8 ESCC-CR patients, with one complication due to pneumonia. **Conclusions:** Standard 5-FU-CDDP CRT targeted for invasive ESCC did not demonstrate a sufficient efficacy for superficial PSCC, while ER even for PSCC after chemotherapy was curative.

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Introduction

Esophageal squamous cell carcinoma (ESCC) is often accompanied by pharyngeal squamous cell carcinoma (PSCC) either simultaneously with the primary lesion (synchronously) or after a period of time (metachronously). These findings have been explained by the 'field cancerization' theory that describes how repeated local exposure to carcinogens contributes to the occurrence of multiple cancers in the esophageal and head and neck regions [1]. For more than 5 decades many epidemiological studies have attributed the increased cancer risks associated with alcohol drinking and smoking to this phenomenon

[2–6]. In 2009, the Working Group of WHO-IARC concluded that acetaldehyde associated with alcoholic beverages was carcinogenic to humans and confirmed the group 1 classification of alcohol consumption [7]. In addition, heterozygous traits found in 40% of Asians, who have an inactive alcohol metabolizing enzyme of aldehyde dehydrogenases 2, accumulate acetaldehyde, with higher relative risks of these cancers [7, 8]. Furthermore, the prevalence of multiple Lugol-unstained lesions (LULs) [9, 10], which are caused by repeated exposure to acetaldehyde, was strongly related to the occurrence of synchronous or metachronous cancers in the esophagus and head and neck regions [11].

In contrast, most patients with PSCC are detected at an advanced stage with a poor prognosis. Even in an operable PSCC case, the extensive surgical resection required may cause a loss of function with respect to swallowing and/or speaking and can lead to cosmetic deformities. Thus it is difficult to determine a final treatment from the viewpoints of both curability and retaining organ function. In cancers combining ESCC and PSCC, the selection of treatment is even more critical. Because of this, the ability to detect pharyngeal lesions at an earlier stage, e.g. as carcinoma in situ, would be of clear benefit to patients. Recently, superficial PSCC has been detected by NBI endoscopy [12].

Systemic 5-fluorouracil-cisplatin (5-FU-CDDP) chemotherapy combined with radiotherapy is the standard treatment for ESCC, and the same treatment is also effective for PSCC patients [13, 14]. The radiation field used in radiotherapy for ESCC does not generally reach the region of the larynx and pharynx, while chemotherapy acts systemically. There have been no reports regarding the efficacy of systemic chemotherapy for patients with superficial PSCC. In this study, we examined the effect on superficial PSCC of chemoradiotherapy (CRT) targeted for invasive ESCC.

Patients and Methods

Patients

Between January 2003 and December 2006, concurrent CRT was performed in 348 patients with invasive ESCC who met the following criteria of this study: (1) newly diagnosed thoracic ESCC; (2) aged between 20 and 75 years; (3) clinical stage I to IVA according to the UICC-TNM classification; (4) absence of previous chemotherapy for malignancy; (5) absence of radiation or surgical treatment for head and neck, and esophageal cancers, and (6) absence of active malignancy except ESCC and PSCC. All patients with invasive ESCC visited our hospital to receive treatment after histological diagnosis of ESCC by endoscopy at another hospital.

Endoscopic Observation of the Oral Cavity and Pharynx

Since January 2003, endoscopic screening of the oral region has been performed in all ESCC patients in order to detect synchronously superficial PSCC. In the initial endoscopic observation in our hospital, narrow band imaging (NBI) or conventional endoscopy was used because both evaluation of ESCC and gastroduodenal screening including oral cavity and pharynx are performed in all patients. When a mucosal abnormality in the oral cavity or pharynx, or multiple LULs in the esophagus, were found in initially conventional endoscopy, the oral cavity and pharynx were observed again by magnifying NBI endoscopy within 2 weeks. Figure 1 shows the NBI findings of an oral cavity and pharynx using a video endoscope system (EVIS LUCERA CV-260, Olympus Optical Co. Ltd., Tokyo, Japan). When a brownish area and an enhancement of the intraepithelial papillary capillary loop were found in the pharynx (fig. 2), an endoscopic biopsy was performed to histologically confirm the carcinoma.

Lugol chromoendoscopy was performed in all patients for both diagnosis of the correct cancer region and evaluation of LULs in the background esophageal epithelium. After ordinary endoscopic observation, 5–10 ml of 2.0% glycerin-free Lugol iodine solution, which is a brown liquid consisting of 2.0 g potassium iodine and 4.0 g iodine in 100 ml distilled water, was sprayed from the upper thoracic esophagus to the gastroesophageal junction using a plastic spray catheter passed through the biopsy channel of the endoscope. Multiple LULs were defined as described in our previous study [15].

Definition of Superficial Pharyngeal Cancer

According to the Japan Society for Head and Neck Cancer [16], a superficial pharyngeal lesion is defined as one in which the invasion depth is comparatively limited and visual changes do not indicate an advanced cancer. The pharynx has no muscularis mucosa, so this somewhat vague definition suggests that the depth of invasion is limited to the epithelium or just beneath the epithelium, but does not extend to the muscle layer.

Treatment Schedule of CRT for ESCC

Chemotherapy consisted of a protracted infusion of 5-FU at a dose of 1,000 mg/m² per day on days 1–5 and 22–26, combined with a 2-hour infusion of CDDP at 75 mg/m² on days 1 and 22. A 10-MV radiation treatment was administered for 6 weeks (5 days/week) at 1.8 Gy/day with a total radiation dose of 50.4 Gy, concomitantly with chemotherapy.

Patients who were evaluated for an objective response to this treatment received additional chemotherapy consisting of a continuous infusion of 5-FU at a dose of 1,000 mg/m² on days 1–5 and CDDP at a dose of 75 mg/m² on day 1. This treatment schedule was administered for 1 week followed by a 3-week break. All patients receiving CRT were monitored by neck, chest and abdominal computed tomography, and by endoscopy to evaluate the efficacy of the treatment on both ESCC and PSCC.

As for response for ESCC, objective responses of measurable metastatic lesions were evaluated according to the response evaluation criteria in solid tumors (RECIST v 1.0) guideline. Response of the primary tumor was evaluated by the criteria of the Japan Esophageal Society [17, 18].

Evaluation of Response for PSCC

All follow-up evaluations after 5-FU-CDDP chemotherapy for PSCC were performed every 2 months for the first year and every 6 months thereafter by magnifying NBI endoscopy, with the same periods of evaluation as for ESCC. For PSCC, complete response (CR) was defined as the disappearance of all visible tumors (brownish areas), including ulceration, for at least 4 weeks, confirmed by normal endoscopic biopsy specimens. The recurrence was defined as the reappearance of a brownish area accompanied by an enhancement of intraepithelial papillary capillary loop by NBI endoscopy, and was confirmed in histological findings by endoscopic biopsy. Non-CR for PSCC was defined as the remnant of brownish areas and was classified into a partial response, stable disease or progressive disease.

In the case of non-CR for PSCC, the second treatment was selected according to the efficacy of CRT for ESCC. When ESCC reached CR with remnant or recurrence of PSCC, endoscopic resection (ER) was performed for PSCC. When the ESCC was evaluated for non-CR, thereafter treatment for ESCC, such as second-line chemotherapy, salvage surgery or palliation was performed.

ER for PSCC after CRT

The ER involved endoscopic mucosal resection using the cup method or an endoscopic subepithelial dissection method with the patient under general anesthesia. An important consideration was that ER for PSCC should be performed with cooperation from the endoscopists and the head and neck surgeons. Some head and neck surgeons participated in the ER to prepare emergency treatment, such as tracheostomy, with evaluation of the degree of laryngeal edema after the procedure.

Statistics

All statistical analyses were performed using IBM SPSS Statistics 18 software (SPSS Inc., Tokyo, Japan). Overall survival data were calculated from the date of commencement of CRT to the date of death or the most recent follow-up visit. Survival curves were plotted according to the Kaplan-Meier method. The significance of differences was assessed using the log-rank test. A *p* value of <0.05 was considered statistically significant.

Results

Patient Characteristics

Fourteen patients (4.0%) with synchronous superficial PSCC were found among the 348 patients with invasive ESCC (table 1). Of the 14 patients, 13 (93%) were male and the median age was 62 years. The number of patients for ESCC clinical stage I, II, III, and IVA were 5, 2, 6 and 1, respectively. All 14 patients had both daily alcohol consumption and multiple LULs of the esophagus. All PSCC lesions were detected at our institute with no prior detection in other hospitals. Twelve (86%) PSCC lesions were detected using magnifying NBI endoscopy and the other 2 (14%) by conventional endoscopy. The latter 2 lesions were reevaluated with magnifying NBI endoscopy before

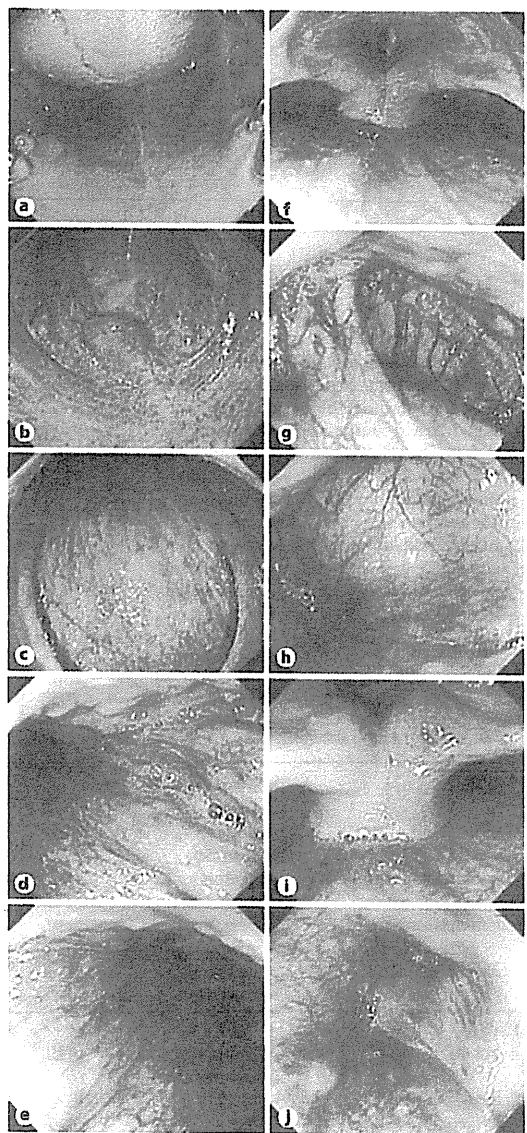


Fig. 1. Narrow Band Imaging observations in individual regions from the oral cavity to the pharynx. **a** The view seen from the entrance of the oral cavity: dorsal side of tongue, hard palate and soft palate. **b** Uvula, palatoglossal arch and lateral walls of oropharynx. **c** The posterior wall of oropharynx. **d** The right side of base of tongue and lateral wall of oropharynx. **e** The left side of base of tongue and lateral wall of oropharynx. **f** Posterior wall of hypopharynx and larynx. **g** Vallecule of epiglottis, median glossoepiglottic fold. **h** The lateral wall and apex of right piriform sinus. **i** Arytenoids. **j** The lateral wall and apex of left piriform sinus.

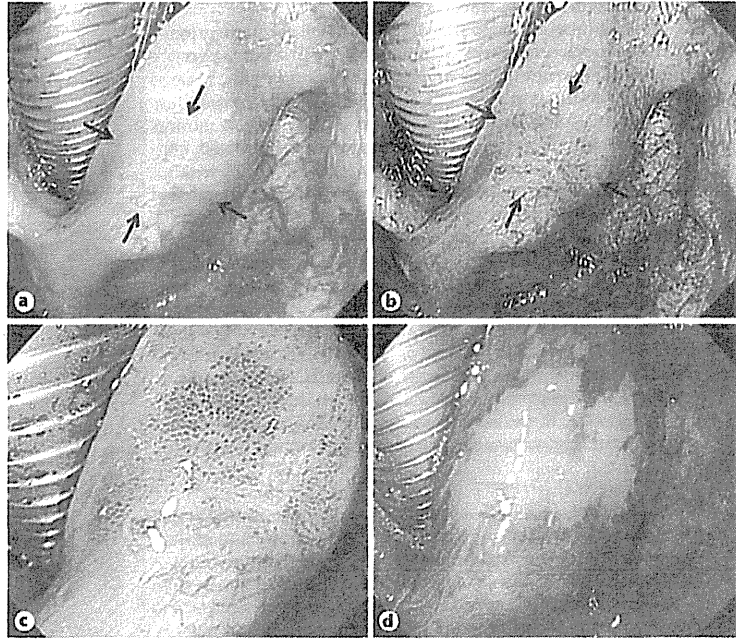


Fig. 2. Superficial cancer of the right arytenoid. **a** Conventional endoscopic observation. The margin of the cancer is unclear (black arrows). **b** NBI observation. Cancer is shown as a brownish area (black arrows) and the margin is clear. **c** Magnifying NBI observation. The enhanced intraepithelial papillary capillary loop is seen in the cancer area. **d** The view of Lugol staining. Lugol-unstained lesion coincided with the cancer area. Lugol staining method was used to improve lesion visualization during endoscopic treatment. Color refers to the online version only.

Table 1. Patient characteristics

Age, years	Median	62
	Range	47–71
Gender	Male	13
	Female	1
Alcohol consumption	Presence	14
	Absence	0
Cigarette smoking	Presence	12
	Absence	2
Multiple LULs	Presence	14
	Absence	0
PSCC		
Location	Hypopharynx	10
	Oropharynx	4
Size, mm	Median	20
	Range	5–50
Macroscopic findings	Elevated type	5
	Flat type	4
	Depressed type	5
ESCC		
Clinical stage	I	5
	II	2
	III	6
	IVA	1

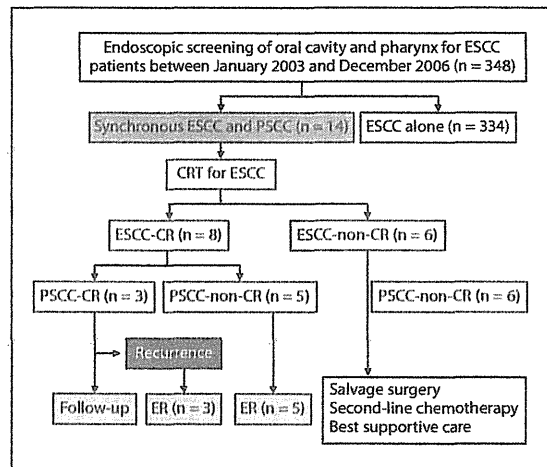


Fig. 3. Flow chart of this study.

CRT. The majority of PSCCs were located in the hypopharynx. In macroscopic findings, there were various lesion types. The median lesion diameter was 20 mm, ranging from 5 to 50 mm. All PSCC lesions were superficial cancers with no advanced cancers.

Efficacy of 5-FU-CDDP Chemotherapy for PSCC

The treatment for PSCC was determined according to response to CRT for primary ESCC (fig. 3). CRT for ESCC resulted in CR in 8 of the 14 patients. In contrast, only 3 of 14 PSCC lesions were evaluated as CR. The 3 PSCC-CR lesions (38%) were found in the ESCC-CR patients (fig. 3). However, the 3 PSCC-CR lesions were only transiently disappeared, and local recurrence was found in the same region. In the 6 ESCC-non-CR patients, there were no PSCC-CR lesions. Of the 6 patients, 2 who were finally evaluated as partial response for ESCC had transformation of their superficial PSCC to invasive lesions. Therefore, active salvage surgery with laryngopharyngeal and esophageal resection was undertaken in these 2 patients. Of the remaining 4 patients, 2 lesions had no change in size and shape while the other 2 were evaluated as partial response because of decreased tumor size.

ER for PSCC and Complications

ER for PSCC was performed in the 8 patients with ESCC-CR. Histologic findings showed the depth of infiltration was invasive PSCC in 2 patients and cancer in situ in 6 patients. However, no lymphovascular involvement was found in any of the 8 cases with PSCC.

Major complications associated with ER included 1 case of aspiration pneumonia. There were no severe complications such as subcutaneous emphysema, post-ER stricture or delayed bleeding. Of the 8 PSCC lesions, 1 was recurrent 4 months after ER. Because the recurrent lesion was superficial and small, an additional ER was performed with complete resection. The median duration of follow-up after ER was 28 months ranging from 12 to 39 months, and no more recurrences of the PSCC were found.

Survival

The 8 ESCC-CR patients received ER for PSCC and the remaining 6 ESCC-non-CR patients did not. The pretreatment clinical stages of ESCC in 8 ER and 6 non-ER patients were 4 and 1 patient in stage I, 1 and 1 in stage II, 2 and 4 in stage III and 1 and 0 in stage IVA, respectively. There were no differences in clinical staging variety in the ESCC pretreatment evaluation between ER and non-ER patients. Median survivals of ER and non-ER patients were 51 and 14 months, respectively ($p = 0.002$; log-rank

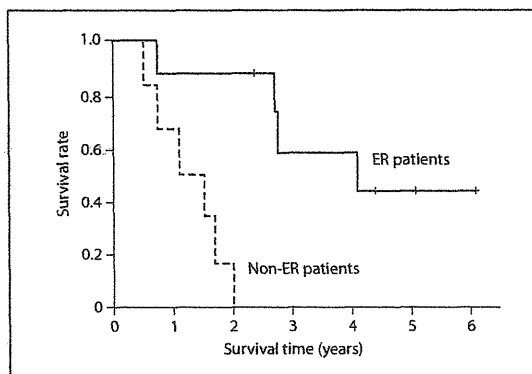


Fig. 4. Overall survival. Median survivals of ER and non-ER patients were 51 and 14 months, respectively ($p = 0.002$; log-rank test).

test; fig. 4). The 3-year survival rates of ER and non-ER patients were 63 and 0%, respectively. In contrast, 4 of the 8 ER patients died during follow-up periods. Preclinical stages of the 4 patients were 2 patients in stage I, 1 in stage II and 1 in stage IVA, respectively. The 2 patients in stage I died of radiation-induced pneumonia and cerebral infarction. The patient in stage II died of ESCC progression with lymph node metastases and the remaining patient in stage IVA died of multiple lung metastases.

After CR confirmation in ESCC, ER was performed in PSCC. The median duration from commencement of CRT to ER in the 8 patients receiving ER was 5.4 months, ranging from 3.8 to 18.9 months. ER was performed in 5 of the 8 patients immediately after CRT since PSCC lesions of the 5 patients were not evaluated as CR. However, the time periods to perform ER after CRT were extended in the remaining 3 PSCC-CR patients from 10 to 18.9 months due to following-up for PSCC-CR. There were no cases in which superficial PSCC transformed to an advanced stage during the follow-up periods. Thus, no functional disorder caused by progression of PSCC, such as difficulty swallowing or speaking, were found in ER patients during all follow-up periods.

Discussion

Of 348 patients with invasive ESCC, 14 (4%) had superficial PSCC detected through endoscopic screening of the oral cavity and pharynx. Standard 5-FU-CDDP CRT targeted for invasive ESCC was administered to the 14

patients with synchronous superficial PSCC and invasive ESCC. After CRT, 8 (57%) were evaluated as CR for invasive ESCC, while only 3 patients with superficial PSCC (21%) achieved transient CR despite receiving 5-FU-CDDP chemotherapy. Therefore, systemic 5-FU-CDDP chemotherapy had no CR potential for superficial PSCC. In contrast, ER for superficial PSCC is quite effective even in a situation after chemotherapy because of minimally invasive treatment with no functional disorder in the pharyngeal region. We propose using novel treatment strategies for synchronous superficial PSCC and invasive ESCC.

Acetaldehyde associated with alcoholic beverage and aldehyde dehydrogenases 2 heterozygous traits can cause pharyngeal and esophageal cancers [7]. According to recent reports regarding multiple cancers, the prevalence of multiple LULs is a biomarker of synchronous or metachronous cancers in the esophagus and head and neck regions [19–21]. In our present study, all 14 patients with synchronous ESCC and PSCC had both daily alcohol consumption and multiple LULs in their esophageal background epithelium. Lugol chromoendoscopy is useful not only to detect superficial ESCC but also to understand the risk of multiple cancers. However, the Lugol solution cannot be routinely sprayed in the region of the pharynx and larynx of patients under conscious sedation because of the stimulation caused by the application of the solution. Thus, we suggest that detecting superficial PSCC by NBI is useful in ESCC patients, especially those with both an alcohol drinking habit and multiple LULs in their esophagus.

5-FU-CDDP treatment has been performed in PSCC patients since the 1980s. The CR rate of this therapy without radiotherapy was 17–20% of locally advanced or metastatic PSCC cases in phase I–II studies [13, 14], and was 5–7% of metastatic or recurrent cases in phase III studies [22, 23]. 5-FU-CDDP treatment alone is likely to be more effective in locally advanced PSCC than in metastatic PSCC. In contrast, there has been no study of 5-FU-CDDP alone in PSCC of early clinical stage, especially stage 0–I. Therefore, the 5-FU-CDDP treatment efficacy in superficial PSCC is uncertain. If the therapy had a high efficacy for superficial PSCC, overlooked superficial PSCC would be cured by the systemic 5-FU-CDDP therapy given to treat ESCC. This is quite a benefit for the patients with these synchronous cancers. As a result, PSCC-CR was found, while no efficacy in continuing CR for superficial PSCC was found in 5-FU-CDDP treatment. In contrast, no progression of PSCC was found in patients having excellent efficacy with CRT for ESCC, al-

though the time periods until CR confirmation for ESCC were required to be at least several months. A good correlation in treatment efficacy between PSCC and ESCC was indicated. It seems that 5-FU-CDDP chemotherapy has a potential in restraining the progression of PSCC. In some recent reports, platinum-based chemotherapy or CRT plus cetuximab were more effective in esophageal and the head and neck cancers [24–26]. CRT combined with cetuximab, a molecular targeted drug, may contribute to a novel treatment strategy for patients with synchronous PSCC and ESCC.

The outcomes of ER for superficial PSCC have been reported [27]. Complications, such as laryngeal edema requiring overnight intubation, aspiration pneumonia and sustained dermatitis around the mouth caused by backflow of Lugol solution from the pharynx, were found in 13% of patients after ER [27]. Complications are transient and tolerable in most of cases, and feasibility is confirmed with no functional disorder. In our study, there were no severe complications, with high treatment efficacy for ER during long follow-up periods, although ER was performed in the condition after 5-FU-CDDP chemotherapy. It is important to maintain function with respect to swallowing and/or speaking, and to perform ER under cooperation with head and neck surgeons.

Regarding the treatment strategy, CRT for ESCC should be the initial therapy in patients with both superficial PSCC and ESCC. As the second step, ER for PSCC should be determined after evaluation of CRT for ESCC. A factor deciding the prognosis of patients with the synchronous cancers depends on the CRT effects for ESCC. In our previous study, the prognosis between CR and non-CR cases of ESCC was quite different [28]. In our present study, the median survival time of ER (ESCC-CR) patients was also significantly longer than that of non-ER (ESCC-non-CR) patients. Furthermore, 5-FU-CDDP chemotherapy showed potential in restraining the progression of PSCC including transient CR. If ER was performed initially, the period before commencement of CRT would be delayed. In addition, when complications occurred in ER, the commencement would be further delayed. Therefore, ER for superficial PSCC should be secondary to CRT for invasive ESCC. We suggest that the ER for PSCC contributed to the beneficial prognosis in patients with synchronous superficial PSCC and invasive ESCC. It is uncertain whether all superficial PSCC lesions progress to an advanced stage in the natural history. However, if superficial PSCC was overlooked and progressed to an advanced stage in ESCC-CR patients, it would be difficult to achieve long survival. Furthermore,

when the patients with advanced PSCC receive active treatments, such as surgery or CRT, functional disorder of swallowing or speaking might occur. On this point, ER for superficial PSCC can prevent a progression to an advanced stage, with favorable prognosis.

In our present study, not all patients received magnifying NBI endoscopy in their initial pretreatment evaluation, while superficial PSCC was detected in 4% of 348 patients with newly diagnosed ESCC. From the results of previous studies, Shimizu et al. [29] proposed that superficial PSCC was metachronously found in 2% of ESCC patients receiving EMR through laryngoscopy. Katada et al. [30] reported that superficial PSCC was found in 11% of patients with previous or current ESCC through magnifying NBI observation. In our study, 12 (86%) of the 14 cases of superficial PSCC were detected by magnifying NBI observation. We emphasize that NBI endoscopy in the oral region should be performed in ESCC patients to detect superficial PSCC. A recent report of a multicenter trial suggested that NBI should be the standard examination for the early detection of superficial cancer in the esophagus and head and neck [12]. Furthermore, we demonstrated that magnifying NBI endoscopy was effective in following up patients after treatment since we could detect a transient lesion disappearance or a minor local recurrence. We suggest that NBI should be used not only in the screening observation of the pharynx but also for follow-up endoscopy after treatment with 5-FU-CDDP chemotherapy or ER. However, a limitation is that our study was a single-institute retrospective study.

In conclusion, systemic chemotherapy for superficial PSCC was regrettably found to have no potential in continuing CR, while CRT as targeted to ESCC led to control of superficial PSCC progression. In the present condition, the detection of superficial PSCC is important in making a treatment strategy for synchronous PSCC and ESCC. One of the treatment strategies in patients with the synchronous cancers was that CRT for invasive ESCC should precede ER for superficial PSCC, and that the treatment of superficial PSCC should be decided according to the efficacy of CRT for ESCC. ER for superficial PSCC caused no functional disorders and was effective in curing even the lesions remaining after 5-FU-CDDP chemotherapy. We suggest that curative ER contributes to a beneficial prognosis in patients with ESCC-CR and believe a large-scale clinical trial will be required to establish treatment strategies.

Acknowledgment

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Disclosure Statement

The authors declare no conflict of interest.

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特集

高齢者の癌治療—気管食道科領域における—

高齢者に対する外科治療—頭頸部—

林 隆 一¹⁾

¹⁾国立がん研究センター東病院 頭頸部外科

要旨 気管食道科領域における高齢者に対する外科治療について喉頭癌, 下咽頭癌に対する喉頭温存手術を中心に述べた。1992年から2006年までに喉頭癌・下咽頭癌において初回治療として原発巣切除を行った症例は喉頭癌392例, 下咽頭癌367例であった。75歳以上の患者に対する喉頭温存手術の適応は, 喉頭癌では75歳から80歳までの症例に対して35例中12例(34%)に行われ, 80歳以上の症例に対しても3例(12%)に実施されていた。一方, 下咽頭癌では80歳以上の症例に対する再建手術を伴う喉頭温存手術はなく, 内視鏡切除が2例(15%)に行われた以外喉頭摘出となっており, 高齢者に対する適応は喉頭癌に比べ難しいことが示された。高齢者における身体状況は個人によりそれぞれ異なってくるため, 年齢の面から一概に喉頭温存手術の適応を決定することは難しい。高齢者の就労も社会的なテーマとなっていることから, 高齢者であるからといって機能保持に消極的にならないことが必要である。

キーワード: 高齢者, 頭頸部癌, 外科治療, 喉頭温存

I. はじめに

わが国が高齢化社会と言われて久しい。厚生労働省が発表した平成22年簡易生命表に基づく日本の平均寿命では男性79.64歳, 女性86.39歳で, 男性は世界第4位, 女性は26年連続世界第1位である。頭頸部癌は従来高齢者の占める割合が高い腫瘍と言われている。日本頭頸部癌学会による頭頸部悪性腫瘍登録の集計結果を見ると, 70歳以上の患者の占める割合は30%を越え, 80歳以上も約10%を占める¹⁾。頭頸部領域は摂食や会話など社会生活において重要な機能を有する領域であり, 癌治療では根治性と同時に機能保持が求められる。

II. 高齢者頭頸部癌に対する治療方針

頭頸部癌に対する治療方針は①腫瘍自体に関する要因, ②患者の身体的状況に関する要因, ③患者の社会的状況に関する要因, ④患者・家族の意向や希望を総合して決定されるのが一般的である。このなかで最も重要なものは腫瘍自体に関する要因であり, 治療方針の決定における診断から治療方針の決定のプロセスは高齢者の場合でも変わりはない。しかし, 高齢者においては高血圧や心疾患, 脳中枢神経疾患, 糖尿病などの合併症の頻度が高く, 70%に併存疾患を認めるという報告もある^{2,3)}。身体的状況や社会的状況, 患者や家族の意向など腫瘍以外の要因が大きく関わってくることが特徴であり, そのために根治治療の行えない場合も経験される。高齢者の頭頸部癌に対する治療方針の決定には種々の要因を考慮しなければならず, 個々の症例において根

別刷請求: 〒277-8577 柏市柏の葉 6-5-1

国立がん研究センター東病院 頭頸部外科
林 隆一

治療を行うか否か、そしてその治療法を判断することになる。根治治療が可能であれば高齢者であっても満足のいく治療成績が得られるとする報告が多く、高齢であることのみでは根治治療の妨げにはならないとする考え方が一般的である^{4~6)}。

頭頸部癌扁平上皮癌に対しては外科療法、放射線療法、化学療法いずれも有効な治療手段となるが、切除か化学放射線治療かの選択は、高齢者の場合併存疾患の有病率が高く化学療法の適応が難しいことも多い。また、高齢者では嚥下機能が低下している場合も多く、誤嚥性肺炎の危険性から喉頭を温存したいいわゆる機能温存手術の適応も制限される。すなわち、根治治療は可能であっても高齢者では腫瘍以外の要因により治療法の選択が若年者のそれとは異なってくる。ここでは、喉頭癌、下咽頭癌を対象として高齢者に対する外科治療について述べる。

III. 手術症例の実態

1992年から2006年までの15年間の喉頭癌・下咽頭癌において初回治療として原発巣切除を行った症例は喉頭癌392例、下咽頭癌367例であった。それぞれの年齢分布をみると喉頭癌では75歳以上の症例が61例(16%)、下咽頭癌では39例(10%)を占めていた。80歳以上の症例は喉頭癌26例(7%)、下咽頭癌13例(3%)である(Fig. 1, 2)。75歳以上の患者に対する原発巣の切除術式をみると、喉頭癌では75歳から80歳までの症例に対して12例(34%)に喉頭部分切除が行われ、80歳以上の症例に対しても3例(12%)に行われていた。一方、下咽頭癌では80歳以上の症例においては遊離組織移植による再建手術を伴う喉頭温存手術はなく、内視鏡切除が2例(15%)に行われた以外喉頭摘出となっていた(Fig. 3, 4)。

IV. 喉頭・下咽頭癌に対する喉頭温存手術

70歳以上の高齢者では喉頭周囲の筋群や靭帯の緩みから喉頭(甲状軟骨の位置)が下垂することから、喉頭挙上の動作が遅延し嚥下の協調運動がうまくいかず結果として誤嚥をきたしやすいとされる⁷⁾。すなわち、高齢者は誤嚥をきたしやすい状態にあり脳梗塞の既往など潜在的な嚥下障害が疑われる場合には喉頭温存手術の適応は慎重に行わなければならない。適応の判断は暦年齢のみではなく、病変局在や切除範囲を評価し個々の症例での判断が必要とな

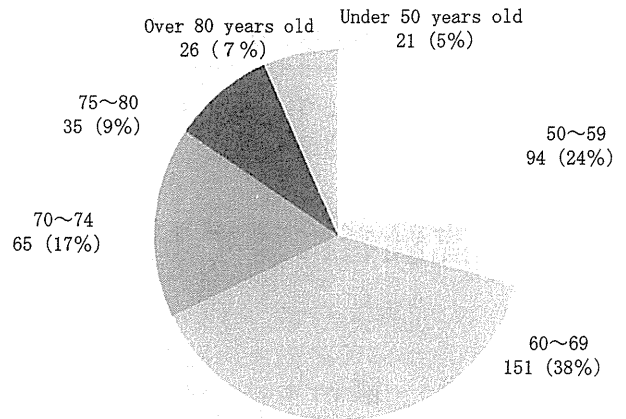


Fig. 1 Age distribution of patients with laryngeal cancer who underwent resection of the primary. (n = 392)

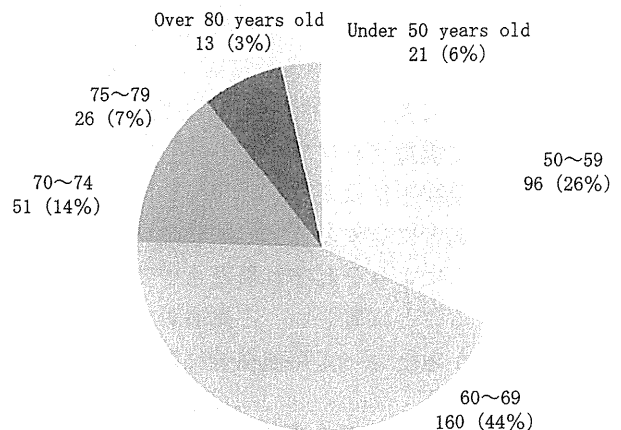


Fig. 2 Age distribution of patients with hypopharyngeal cancer who underwent resection of the primary. (n = 367)

る。

1. 喉頭癌

LASERによる切除や喉頭部分切除, supracricoid partial laryngectomy (SCPL)-CHEPやSCPL-CHPがあげられる。喉頭部分切除には声門癌に対して主に行われる垂直部分切除と声門上癌に対して主に行われる水平部分切除がある。これらの喉頭温存手術の適応はおもにT1, T2症例が対象となるが、早期の喉頭癌症例に対しては、治療後の音声の質や放射線単独治療成績が良いことから放射線治療が選択されることが多い。しかし、声門下進展を認めるものや前交連に腫瘤を形成する症例、室に進展する症例では放射線治療による制御率は下がる傾向にあり喉頭温存手術も選択肢の1つとなる。喉頭温存手術を初回治療として行う場合は手術単独で根治

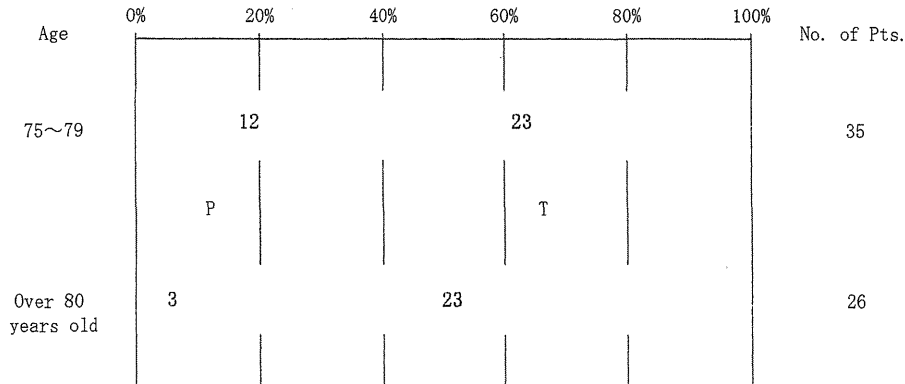


Fig. 3 Indication of surgical procedures to laryngeal cancer.
 P : partial laryngectomy, T : total laryngectomy.

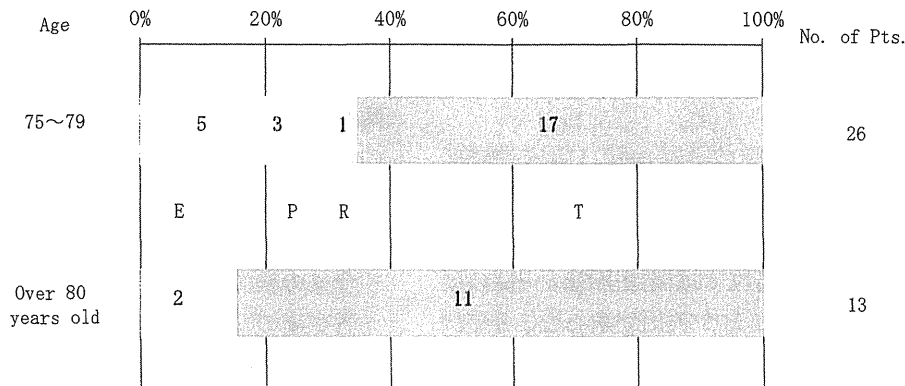


Fig. 4 Indication of surgical procedures to hypopharyngeal cancer.
 E : endoscopic surgery, P : partial pharyngectomy,
 R : partial pharyngectomy with reconstruction, T : total pharyngo-laryngectomy.

が得られる症例が対象であり、術後治療を念頭に置いた外科治療は推奨されない⁸⁾。

当院で行っている喉頭部分切除の多くは垂直部分切除であり、なかでも前側方切除ないしは拡大前側方切除が中心である。声帯の切除部分は前頸部の皮膚で再建するため一時的な喉頭皮膚瘻を形成することになる。この喉頭瘻は二期的に局所麻酔下に閉鎖する。喉頭垂直部分切除は侵襲も少なく、喉頭瘻が一時的な気道として機能するため安全な術式といえ高齢者においても適応範囲は広く喉頭温存率も80%と良好である⁹⁾。当院での垂直部分切除症例の最高齢は85歳である。本症例の術後経過は問題なく喉頭温存も可能であったが、82歳男性の症例では喉頭瘻が開存した状態では誤嚥のため経口摂取が困難であった。しかし、その後喉頭瘻を閉鎖することで経口摂取が可能となった。通常、喉頭瘻の状態では経口摂取は可能であるが、声門下圧がかからないこ

とが誤嚥の原因であったことが推察される。喉頭垂直部分切除のなかで披裂軟骨までを切除する拡大前側方切除術では術後誤嚥のリスクが増加する。1992年から2001年までの喉頭部分切除80例の解析では、披裂軟骨までの切除を要した25%の症例に、全切除した症例では50%の症例に誤嚥を認めている⁹⁾。喉頭垂直部分切除は侵襲も少なく適応範囲は広いとはいえ高齢者に対しては拡大垂直部分切除の適応は制限されると考える。先述したように本術式の初回治療としての適応は少ないが放射線治療後の再発に対しては機能温存手術として有用な治療手段となる^{9~11)}。高齢者の放射線治療後再発症例に対する喉頭部分切除の適応について明確に規定はできないが、放射線治療後の喉頭部分切除の有用性を検討した多施設での集積結果では、50例中4例が75歳以上であり3例(75歳2例, 77歳1例)に対して垂直部分切除が行われ、1例原発巣再発のため喉頭

全摘となったが、術後誤嚥が問題となった症例はなかった。声帯のみの切除や前方切除、前側方切除で根治切除となる場合は適応を考慮して良い術式と考える¹²⁾。

一方、水平部分切除は喉頭蓋癌で喉頭癌先端部に局限した腫瘍以外は高齢者に対する適応は難しい。しかし、このような症例は放射線治療での制御も十分期待できるので初回治療として高齢者に対する適応は少ない。喉頭蓋が全切除されるような場合は若年者においても術後の誤嚥の管理に難渋することがあり、高齢者においては水平部分切除の適応は少なく喉頭全摘が安全で確実といえる。今回の検討でも水平部分切除の最高齢は75歳であり年齢の中央値も59.5歳と垂直部分切除の中央値63歳より若い傾向にある。

2. 下咽頭癌

1980年代より頭頸部癌の外科治療に自家遊離組織移植が導入され下咽頭癌に対する喉頭温存手術が開発されてきた。本術式はT1, T2, 一部のT3症例が主な適応となる。当院では開始当初は一側の梨状陥凹、後壁を切除することで根治切除となる症例で喉頭の切除を伴わないものを適応としていたが、1997年以降、披裂から披裂喉頭蓋ヒダの切除を伴う症例に対しても適応を拡大している^{13, 14)}。喉頭の切除を伴わない症例においては切除部分の再建は粘膜再建が主となるため遊離空腸移植が中心となる。一方、喉頭の切除を伴う症例では前腕皮弁を好んで用いている。これは披裂から披裂喉頭蓋ヒダの形態の再構築が誤嚥予防に必要であり、薄くしなやかな再建材料が適するためである¹⁴⁾。当院での経験では喉頭の切除を伴わない症例では92%、喉頭の切除を伴う症例では75%の喉頭温存が可能となっており、全体では87%の喉頭温存が得られている。喉頭非温存となった症例は局所再発や健側の披裂までを切除したために喉頭温存ができなかったものである。遊離組織移植自体は高齢者でも可能であり、高齢者だからといって血管吻合に関するトラブルが増加するとは考えていない。しかし、術後の誤嚥や再建手術を伴う長時間の手術となるため高齢者に対する適応は慎重に行わなければならない。喉頭温存・下咽頭部分切除症例の手術時年齢の中央値は62歳、70歳以上の症例は4例、最高齢は75歳であった。喉頭癌に対する部分切除では80歳以上の症例に対しても行われているが、下咽頭癌に対する喉頭

温存手術において高齢者の占める割合は喉頭癌に比べ少ない。喉頭温存・下咽頭部分切除のよい適応は原則としては70歳位までと考えられ、高齢の症例では喉頭の切除を伴う喉頭温存手術の適応は制限される。

近年、頭頸部癌ハイリスク群の抽出とNBIをはじめとする内視鏡技術の進歩により頭頸部表在癌が発見されるに至った。これらに対しては内視鏡的粘膜切除術(EMR)や内視鏡的粘膜下層剥離術(ESD)、内視鏡的咽喉頭手術(ELPS)など経口腔的に内視鏡を活用した切除が行われている^{15~17)}。これらの手技はいずれも非侵襲的な治療であり高齢者に対する適応範囲は広いと考えられる。今回の検討でも80歳以上の症例2例に対して行われており術後経過も順調であった。しかし、表在癌では多発病変の頻度が高く複数回の切除にどの程度耐えうるのか、また広範囲の粘膜切除は部位によっては嚥下機能に影響することを考慮すると、若年者の適応と高齢者に対する適応状況は変わってくる可能性があり今後の検討課題である。

表在癌の発見に伴い先述したような遊離組織移植による再建を伴う喉頭温存手術ではなく、切除部分を一次縫合できる早期の症例も経験されるようになってきた。遊離組織移植を行わないので当然手術侵襲は少なく75歳以上の症例に対しても3例行われている。当院では内視鏡切除が困難と判断される深部浸潤が高度な症例に対して頸部切開による切除を行っている。T1, T2症例の一部が対象となる。一次縫合が可能な範囲については、梨状陥凹癌では一側梨状陥凹、輪状後部癌では輪状後部から一側の梨状陥凹内側、後壁癌では粘膜欠損2~3cmで後壁に局限と考えている。2006年までに39例に対して行い局所制御率は82%、術後合併症で瘻孔形成を3例(7.6%)に認めうち1例に再手術を要したが、誤嚥のために喉頭摘出を要した症例はなかった。

V. 喉頭摘出時の対応

進行した喉頭癌、下咽頭癌の外科治療においては喉頭摘出が必要となる。また高齢者では術前の嚥下機能の低下も考慮し喉頭摘出がむしろ安全な場合も少なくない。そのような患者に対しては術後のコミュニケーション手段の確保が必要である。高齢者では食道発声は難しく電気喉頭など器械を用いた発声のリハビリテーションが中心となる。しかし、患者

によっては器械の使用が難しい場合もあり, 視力の低下や手指の振戦のため筆談が困難な場合にも遭遇する。voice prosthesisを用いたTEシャント造設手術も報告されており^{18,19)}, 治療前から術後のコミュニケーションの手段について本人や家族と十分に相談しておく必要がある。

VI. おわりに

気管食道科領域における高齢者に対する外科治療として喉頭癌, 下咽頭癌を対象に主に喉頭温存手術の観点から述べた。高齢者における身体状況は個人によりそれぞれ異なってくるため, 年齢の面から一概に喉頭温存手術の適応を決定することは難しい。高齢者の就労も社会的なテーマとなっていることから, 高齢者であるからといって機能保持に消極的にならないことが必要である。

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