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Stomal recurrence in head and neck cancer patients with temporary tracheostomy

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ABSTRACT

Objective: Stomal recurrence following a temporary tracheostomy in the management of the head and neck squamous cell carcinoma (HNSCC) without laryngectomy is a rare finding. We studied the incidence and prognostic significance of stomal recurrence in patients who had a temporary tracheostomy.

Methods: Data were obtained retrospectively from a database on all patients with a HNSCC tumour diagnosed and treated at our hospital between 1985 and 2012.

Results: Of 491 patients who underwent temporary tracheostomy, six presented tumour recurrence in the stomal scar. The risk of stomal recurrence after a temporary tracheostomy was therefore 1.2% (6/491). Only one of the three patients who received salvage treatment achieved disease control.

Conclusion: Tumour recurrence in the stomal scar after a transitory tracheostomy in patients with head and neck carcinoma has an incidence of around 1% and very poor prognosis.

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1. Introduction

Tumour recurrence at the tracheal stomal following laryngectomy for a head and neck carcinoma is a well-recognized phenomenon, with an incidence ranging from 2% to 15% [1–11]. Tumour recurrence in the tracheal stoma scar following a temporary tracheostomy without laryngectomy, however, is relatively rare [12–16]. As studies about tumour recurrence on temporary tracheostomy are scarce, risk quantification and analysis of preventative measures for this rare complication are difficult.

The aim of this paper was to determine the incidence of stomal recurrence in patients who had a temporary tracheostomy during management of the head and neck squamous carcinoma and to assess the prognostic significance of this type of recurrence.

2. Methods

Data were obtained retrospectively from a database which prospectively collects information about the tumour characteristics, treatment and follow-up of all patients with a head and neck

malignant tumour diagnosed and treated at our hospital since 1985 [17]. From the database, we identified all patients who required a temporary tracheostomy for airway management at some time during the therapeutic process. Table 1 shows the demographic, epidemiological, oncological and therapeutic variables of the 491 patients included in the study.

Most patients ($n = 470$, 95.7%) were treated surgically. The temporary tracheostomy was performed at the beginning of the surgical procedure, before tumour resection. One hundred and eighty-seven patients treated with surgery received postoperative radiotherapy ($n = 169$) or chemoradiotherapy ($n = 18$). In most patients without poor prognostic pathological findings, postoperative radiotherapy consisted of administration of 50 Gy on the surgical field and the lymph node areas at risk. In patients with positive resection margins or lymph node metastasis with capsular rupture, a dose of 60–65 Gy was administered. In 94 cases, the temporary tracheostomy was carried out in patients treated with salvage surgery after local recurrence of a tumour treated with radiotherapy (53 patients), chemoradiotherapy (31 patients), or surgery (10 patients).

Twenty-one patients were not treated surgically. For these patients, the temporary tracheostomy was required to manage the airway before radiotherapy ($n = 13$) or chemoradiotherapy ($n = 8$).

Patients with a recurrence in the scar of the temporary tracheostomy were identified. We analysed the characteristics

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Table 1
Characteristics of the patients included in the study.

		Patients N (%)	Stomal recurrences N (%)
Location	Oral cavity	196 (39.9%)	2 (1.0%)
	Oropharynx	127 (25.9%)	2 (1.6%)
	Hypopharynx	10 (2%)	0 (0%)
	Supraglottis	122 (24.8%)	2 (1.6%)
	Glottis	36 (7.3%)	0 (0%)
Surgery	Larynx-hypopharynx partial surgery	179 (36.4%)	2 (1.1%)
	Oral cavity resection	206 (42.0%)	3 (1.5%)
	Oropharyngeal resection	85 (17.3%)	0 (0%)
	Non-surgically treated patients	21 (4.3%)	1 (4.8%)
Local extension	T1–T2	285 (58.0%)	2 (0.7%)
	T3–T4	206 (42%)	4 (1.9%)
Regional extension	N0	295 (60.1%)	2 (0.7%)
	N+	196 (39.9%)	4 (2.0%)
Type of surgery	Primary surgery	386 (78.6%)	0 (0%)
	Salvage surgery	84 (17.1%)	5 (1.3%)
	Non-surgically treated patients	21 (4.3%)	1 (4.8%)
Sex	Men	436 (88.8%)	6 (1.4%)
	Women	55 (11.2%)	0 (0%)
Age (median, range)	58.8 years (range 18.7–92.5 years)		

of these patients, the interval between the temporary tracheostomy and recurrence, the treatment for the stomal recurrence, and the results achieved.

The relationship between the appearance of tumour recurrence in the stomal scar and patient characteristics was analysed using the Fisher's exact test.

3. Results

During the study period, we diagnosed six cases of tumour recurrence in the stomal scar without evidence of recurrence at the

Table 2
Characteristics of the patients with a stomal recurrence following a temporary tracheostomy.

Patient	Age (years)	Location	TNM	Treatment of the primary tumour	Decannulation	Tracheostomy- recurrence (months)	Treatment of the recurrence	Result
1	43	Oropharynx	T3N2cM0	IC + Surg + CT-RT	15 days	8.5	CT + Surg + CT-RT	DOD
2	42	Oral cavity	T4N2bM0	Surg + RT	12 days	10.5	Palliative CT	DOD
3	51	Oropharynx	T2N0M0	Surg + RT	18 days	17	Palliative CT	DOD
4	60	Supraglottis	T3N2bM0	IC + RT	15 days	12	CT + Surg + CT-RT	DOD
5	54	Supraglottis	T2N0M0	Surg	10 days	3.5	Surg + RT	NED
6	67	Oral cavity	T3N2bM0	Surg + RT	12 days	8	Palliative CT	DOD

IC: induction chemotherapy; Surg, surgery; CT-RT: concomitant chemoradiotherapy; RT: radiotherapy; DOD: died of disease; NED: not evidence of disease.

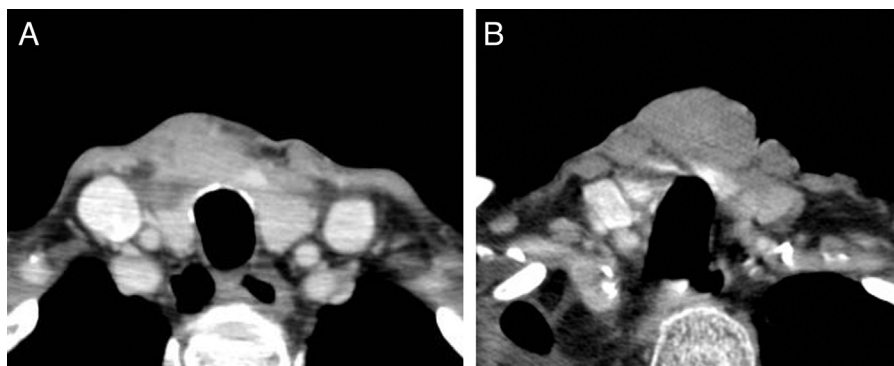


Fig. 1. Image of the recurrence in the scar of the previous tracheostomy in a patient with an oropharyngeal carcinoma (A, patient no. 1) and a patient with an oral cavity carcinoma (B, patient no. 2).

site of the primary tumour or lymph node areas. All cases were studied by CT and showed soft tissue infiltration of the scar in the anterior cervical area where the tracheostomy was performed (Fig. 1).

Table 1 shows the distribution of the cases of tumour recurrence in the stomal scar according to the characteristics of patients included in the study. There were no statistically significant differences in the risk of tumour recurrence in the stomal scar in the function of any of the characteristics analysed ($P > 0.05$).

Table 2 shows the patient's clinical features. Five patients underwent temporary tracheostomy at the beginning of the surgical procedure. Surgical procedures consisted of two supra-glottic laryngectomies, two glossectomies, and a buccopharyngectomy with hemimandibulectomy. In one additional case, the patient did not receive surgical treatment. This patient had a transglottic T3N2b tumour and developed a subclavian vein thrombosis after the first cycle of induction chemotherapy, needing a tracheostomy to secure the airway (patient no. 4). The patient completed treatment with hyperfractionated radiotherapy and a neck dissection due to suspected lymph node persistence, which turned out to be negative (ypN0).

According to our results, the risk of stomal recurrence after temporary tracheostomy was 1.2% (6/491). The average time between the temporary tracheostomy and the diagnosis of recurrence at the stomal scar was of 9.9 months (range 3.5–17 months).

Three patients were not considered candidates for radical treatment due to the extension of the recurrence and their poor general status. They received treatment with chemotherapy. All three patients died in a period of 1–3 months as a consequence of disease progression.

Salvage treatment was attempted in three patients. One patient with a previous supraglottic laryngectomy was treated with a total laryngectomy and anterior cervical soft tissue resection plus postoperative radiotherapy. This was the only patient in whom rescue treatment achieved final control of the disease. In two

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