A Survey of Head and Neck Malignancy at Tokai University Hospital

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Patients with head and neck malignancy who visited Tokai University Hospital over seven years were statistically surveyed. Six hundred and eighty-three patients were newly registered in this period. The most frequent primary lesion was the larynx (29.3%), followed by the hypopharynx (20.6%), oral cavity (11.9%), oropharynx (11.9%), and nose and paranasal sinus (8.6%). About two-thirds of the patients had advanced cancers. The patients were referred from adjacent regions, most frequently from the Shonan area. Referred patients with malignancy were increasing each year. The trends in head and neck cancers and the treatment modality were discussed. After the opening of a new hospital building in 2006, a further increase in the number of referred patients and operations is expected.

Key words: Head and neck cancer, incidence, radical operation, clinical stage

INTRODUCTION

The cancer morbidity in Japan has gradually increased as the age distribution of the Japanese population has shifted towards higher ages. According to the Japan Cancer Surveillance Research Group, cancer incidence at all sites is rapidly increasing. The incidence of oral and pharyngeal cancers is rapidly increasing and that of larynx cancers is gradually increasing [1].

Tokai University Hospital opened in February, 1975 in Isehara city, Kanagawa, Japan. It serves as a core hospital providing medical care for the population in the city and the adjacent areas. It covers a wide range of the middle and western parts of Kanagawa prefecture. The authors have been involved in the Head and Neck Tumor Clinic for seven years, since 2000. We surveyed patients with head and neck malignancy and discussed the trend of this disease in this area.

PATIENTS AND METHODS

From 2000 to 2006, 683 patients were newly registered in the Head and Neck Tumor Registry at the Department of Otolaryngology, Tokai University Hospital. The diagnosis for head and neck malignancy was pathologically confirmed. For this survey, malignant lymphoma patients were excluded because they were treated at the Department of Hematology and Oncology after their definite diagnoses. Patient information, including the primary tumor sites, TNM staging, clinical stages, treatment methods, and the medical facilities from which the patients were referred, was obtained from the medical records.

RESULTS

Of 683 patients, 565 (82.7%) were men and 118 (17.3%) were women, with a mean age of 63.9 years (range, 12 to 93 years), most frequently in their sixties. The youngest, a 12-year-old boy, had a nasopharyngeal cancer, and the oldest, a 93-year-old man, had a maxillary cancer.

The primary sites of all patients are summarized in Table 1. The most frequent primary site was the larynx (29.3%), followed by the hypopharynx (20.6%), oral cavity (11.9%), oropharynx (11.9%), nose and paranasal sinus (8.6%), and others.

The TNM staging of each patient varied according to the primary site. Early cancers (stage I and II) accounted for 38%, and advanced cancers (stage III and IV) accounted for 62%. Laryngeal cancers tended to present in the early stage (67%), whereas cancers of the oropharynx, hypopharynx, nose and paranasal sinus were usually diagnosed in the advanced stages (75%, 85%, and 86%, respectively). In particular, stage IV hypopharyngeal cancers accounted for 75%, underlying its poor prognosis.

Figure 1 shows the chronological changes in registered patients with head and neck malignancy. The number of patients increased gradually, except in 2002. Over 100 patients were newly registered per year in 2005 and 2006. As for the annual changes in common primary sites (Fig. 2), hypopharyngeal and oropharyngeal cancers were increasing. Although the number of laryngeal cancer patients fluctuated every year, about 30 patients presented per year. The num-

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Table 1 Newly registered head and neck malignancies(2000-2006) (excluding malignant lymphoma)

Site	No. of cases		Stage I	Stage II	Stage III	Stage IV
NPx	33	(4.8%)	0	11	5	17
OPx	81	(11.9%)	5	15	9	52
HPx	141	(20.6%)	3	17	18	103
OC	81	(11.9%)	17	22	16	26
Lx	200	(29.3%)	61	73	21	45
PNS	59	(8.6%)	3	5	14	37
SG	30	(4.4%)	2	8	2	18
Thy	36	(5.3%)	6	9	9	12
Ear	5	(0.7%)	1	1	3	0
Neck	17	(2.5%)	0	0	0	17
total	683	(100%)	98	161	97	327
			(14.3%)	(23.6%)	(14.2%)	(47.9%)

NPx: nasopharynx, OPx: oropharynx, HPx: hypopharynx, OC: oral cavity, Lx: larynx, PNS: nose and paranasal sinus, SG: salivary gland, Thy: thyroid gland.

bers of paranasal sinus, nasopharynx, and oral cavity cancers showed no obvious changes in recent years.

Figure 3 and 4 show the state of patient referral at the Head and Neck Clinic. The annual numbers of all referred patients with benign or malignant disease were gradually increasing each year, amounting to over 1,000 patients per year (Fig. 3). Referred patients with head and neck malignancy were steadily increasing, up to 112 patients in 2006 (Fig. 3). Among the overall head and neck malignancy patients, 88% (605/608) were referred from hospitals and clinics. Seventy-eight patients presented without being referred or were referred from other clinics of Tokai University Hospital and were not included in this graph. Figure 4 demonstrates the geographic distribution of the medical facilities from which the patients were referred. Because of the location of our hospital, patients were referred from the hospitals and clinics in and around Isehara city; however, the number of patients referred from the Shonan area (Hiratsuka and Chigasaki cities) was the largest because of the population distribution. Outside Kanagawa prefecture, patients were referred from Shizuoka, Tokyo, and other prefectures. Patients from Shizuoka prefecture were decreasing after the opening of the Shizuoka Cancer Center in 2002.

The number of radical operations was analyzed in the medical records (Fig. 5). Radical operations signified surgery with the aim of curative surgical removal of the lesion, including salvage operation and radical neck dissection. Palliative operations or revision operations for wound failure were not included. Although the number and type of radical operations showed no particular trend, that of radical operations for head and neck malignancy were steady. Particularly in 2006 when a new hospital building opened, operation numbers increased remarkably.

DISCUSSION

Trends in head and neck cancers

The tumor registries [2] in Japan from 1980 to 1993 reported that the oral cavity (35.5%) was the most frequently affected primary site, followed by the larynx (30.1%), paranasal sinus (10.7%), nasopharynx (10%), and oropharynx (8.8%). A recent registry of 2002 [3] showed a slight change in the frequency order of head and neck cancers to the oral cavity (31.8%), larynx (23.8%), hypopharynx (18.0%), oropharynx (13.4%), and nasopharynx (4.1%). In the present study, the largest proportion of cases arose in the larynx (29.3%), not the oral cavity (11.9%). This depends not on the local situation but the institutional reasons, that is, the Department of Oral Surgery of our hospital also treated many patients with oral cancers.

From Korea, a similar frequency order of primary sites has been reported, in which the largest proportion of cases arose in the larynx (45.9%), followed by the oral cavity (16.5%), oropharynx (10.0%), hypopharynx (9.5%), nasopharynx (7.0%), and paranasal sinus (4.3%) [4]. In the United States, cancers were most frequent in the larynx (28.5%), followed by the oral cavity (24.6%), oropharynx (19.7%), hypopharynx (6.6%), nasopharynx (4.1%) [5].

The Japan Cancer Surveillance Research Group reported that the number of oral and oropharyngeal cancers was rapidly increasing (2.2 per 100,000 in 1975 and 7.5 per 100,000 in 2000) and laryngeal cancers were gradually increasing (1.3 per 100,000 in 1975 and 2.7 per 100,000 in 2000) [1]. In the United States, there was a trend to decrease in oral cavity, hypophayngeal, and laryngeal cancers. No change was noted in the incidence in the oropharynx [5].

In a report from Kitasato University Hospital [6], there were about 120 registered head and neck cancer patients per year, and the number was increasing. As for the patient distribution by cancer sites, a decreasing tendency was seen in paranasal sinus and nasopharyngeal cancers, and an increasing tendency in cancers of the hypopharynx, larynx, and oral cavity [6]. In our study, about 100 new patients were registered each year, and the number was gradually increasing. Hypopharyngeal and oropharyngeal cancers were also increasing each year.

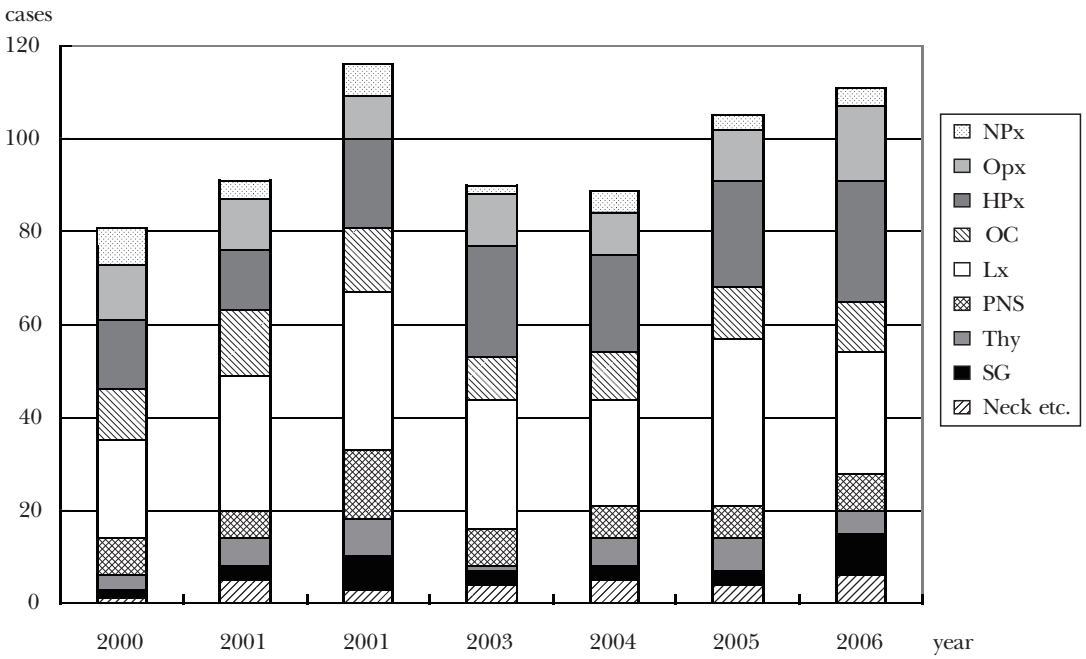

Fig. 1 Chronological changes in the registered patients
Total number of patients with head and neck malignancy was increasing, amounting to about 100 patients per year.

NPx: nasopharynx, OPx: oropharynx, HPx: hypopharynx, OC: oral cavity, Lx: larynx, PNS: nose and paranasal sinus, SG: salivary gland, Thy: thyroid gland.

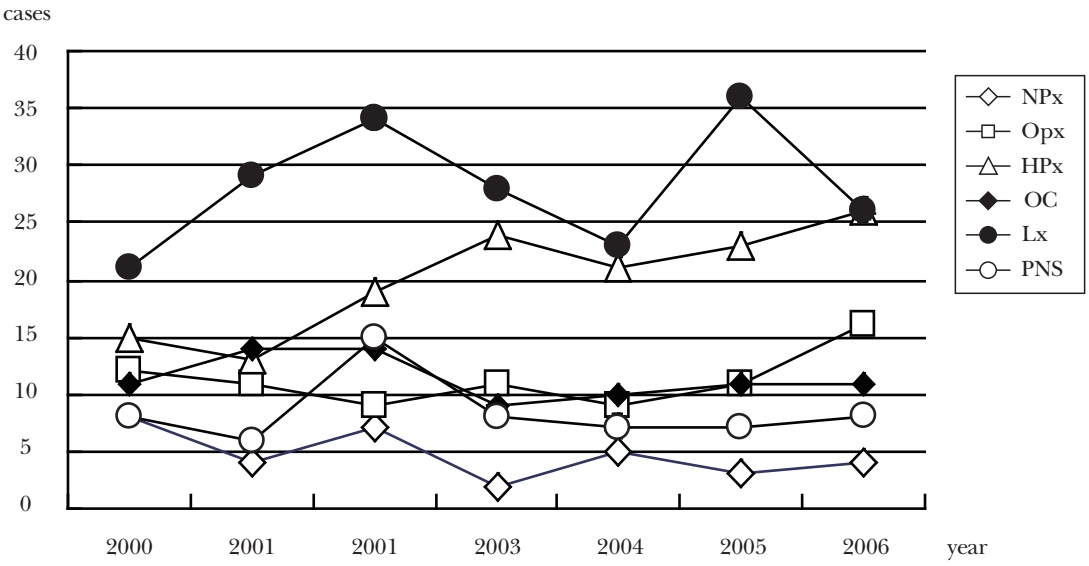

Fig. 2 Annual changes in common primary sites
Note that hypopharyngeal and oropharyngeal cancers were gradually increasing.

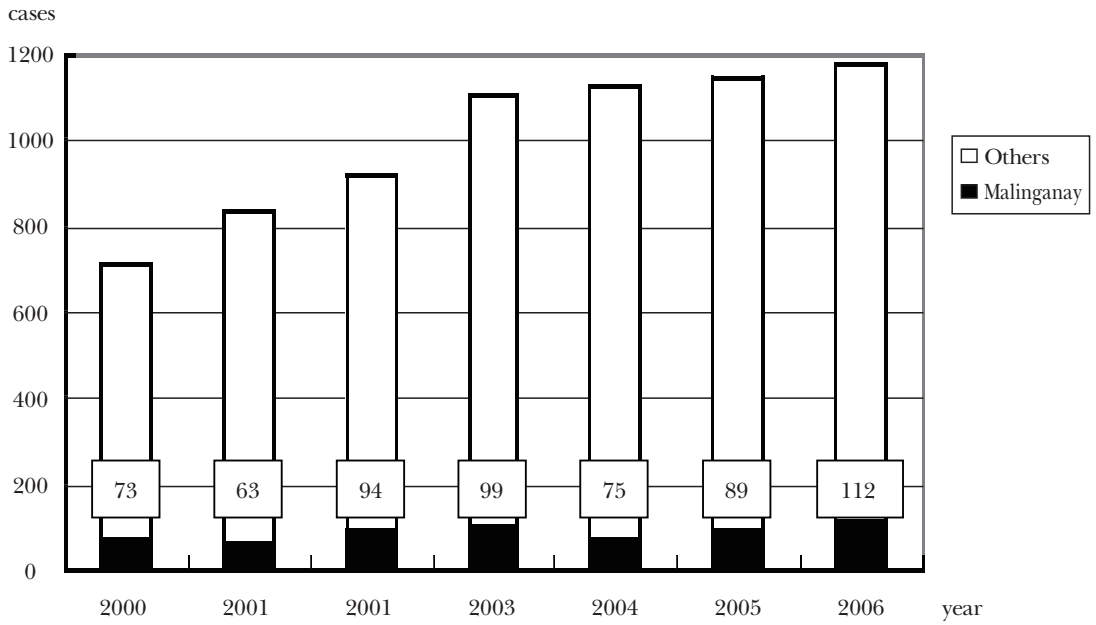

Fig. 3 Total numbers of referred patients and referred patients with malignancy
The number of patients with malignancy is shown in squares. Referred patients with benign or malignant lesions were increasing each year.

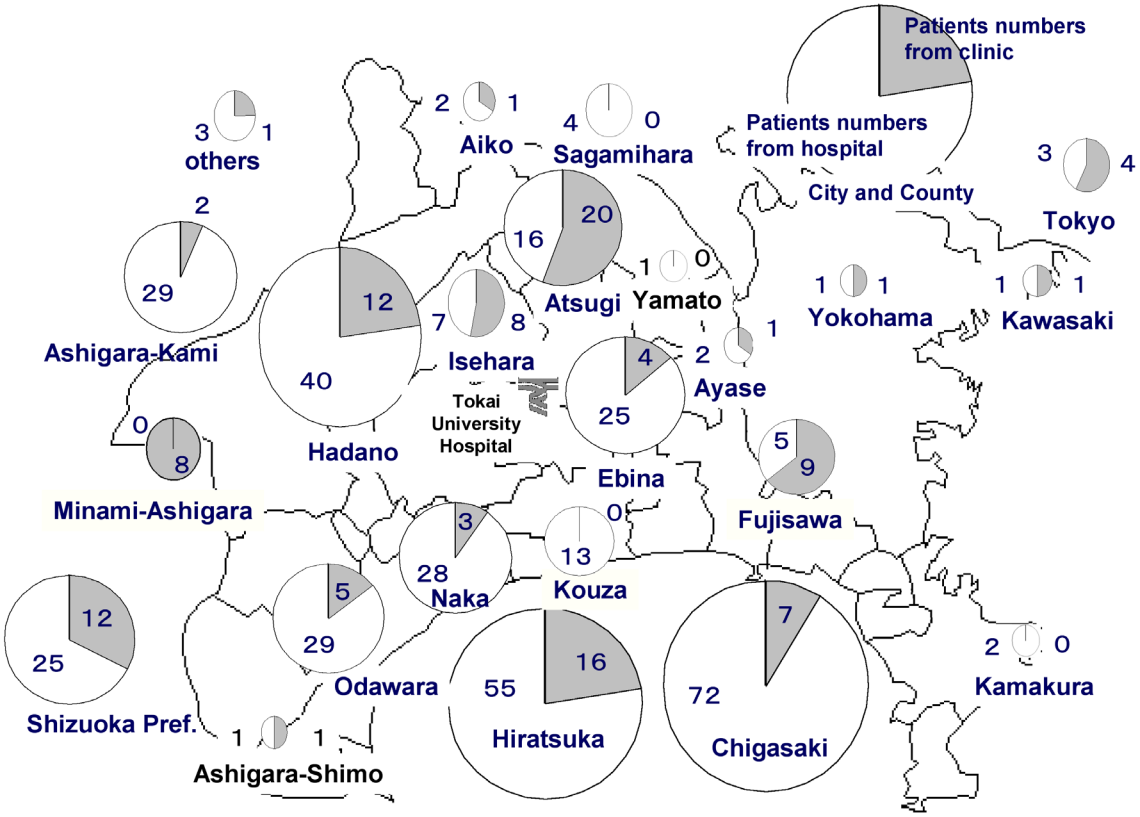

Fig. 4 Geographic distribution of the medical facilities from which the patients were referred
The size of each circle reflects the number of the referred patients. Patients were referred from the middle and western parts of Kanagawa prefecture, especially from the Shonan area.

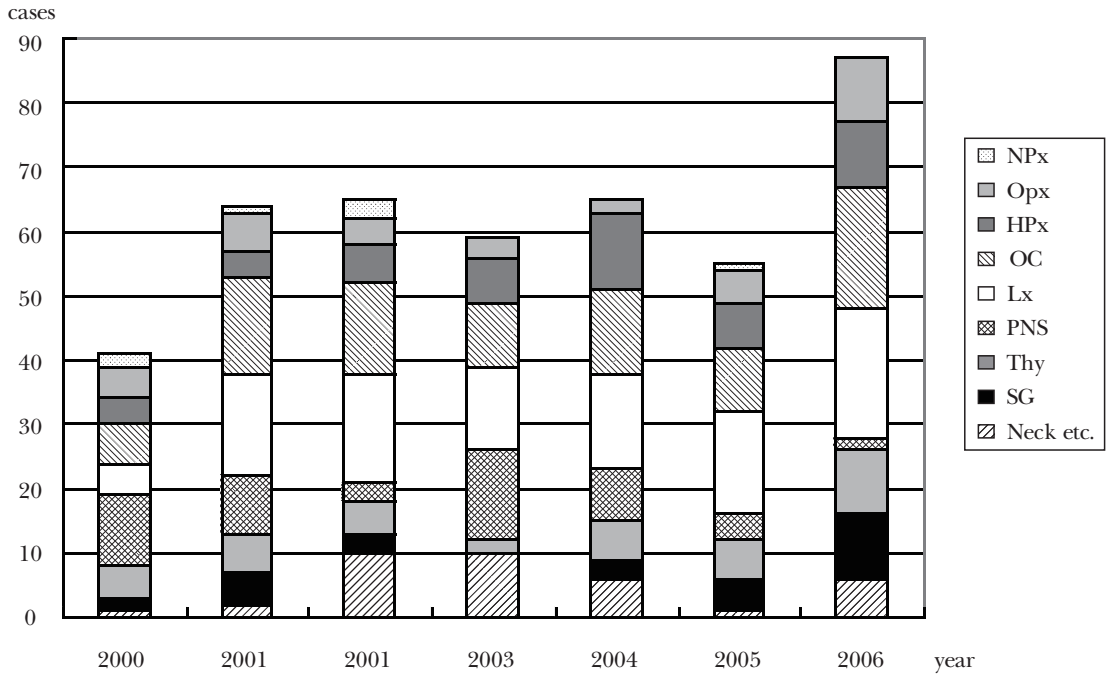

Fig. 5 Radical operation for head and neck malignancy
About 60 radical operations for head and neck malignancy were performed each year, except in 2006 when the new hospital opened.

Advanced cancers accounted for two-thirds of all patients, which worsens the prognosis and makes organ preservation treatment difficult. Early diagnosis is always a matter of great importance because the initial staging affects the treatment modality. In a recent Japanese head and neck cancer registry, advanced cancer patients were 58% [3]. In the present study, advanced cancers accounted for 62%, especially in cancers of the oropharynx, hypopharynx, and nose and paranasal sinus. Establishing an early diagnostic system or a practical screening system will be a key to the improvement of prognosis.

State of patient referral at the Head and Neck Clinic

Because of the location of Tokai University Hospital, many patients were referred from the adjacent regions, including the Shonan area. As the referred patients increased, the newly registered patients with head and neck malignancy increased. The importance of the connection between hospitals and clinics was recognized again as playing a very important role in the patient referral system. From 2006, we began to cooperate with the hospitals and clinics around our hospital, which will further increase the number of referred patients. In addition, a new hospital building opened in 2006. The patient support center and regional collaboration office play an important role in the patient referral system.

Treatment modality for head and neck cancers

Since the 1990s, organ preservation treatment with concurrent chemoradiotherapy has been introduced for head and neck cancers. In our department, chemoradiotherapy has been applied to early and advanced head and neck cancers for organ preservation; however, the numbers of radical operations did not decreased. This is because many advanced cases not indicated for organ preservation therapy or relapsed cases treated in other hospitals were frequently referred.

Organ and functional preservation is a matter of importance in head and neck malignancy, because these body parts play an essential role in daily life and communication. Functional preservation is achieved not only by chemoradiotherapy, but also by the improvement of surgical techniques, including free flap reconstruction. We must make an effort to improve minimally invasive surgery and reconstruction surgery.

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