

Thoracic Surgery

Introduction

The Division of Thoracic Surgery deals surgically with various kinds of neoplasms in the thorax: lung tumors both primary and metastatic, mediastinal, pleural, and chest wall tumors. Surgical treatment of pulmonary carcinoma employing various surgical techniques has been the major challenge for the division. The modes of surgical treatment for the carcinoma include limited resection (wedge or segmental resection), simple resection (lobectomy or pneumonectomy) with or without systematic lymph node dissection, to more complex approaches such as bronchoplasty, combined resection with adjacent structures, perioperative adjuvant treatment and thoracoscopic surgery.

The division has three consultant surgeons and 3-5 residents. One of the two years of our senior residency program in general thoracic surgery is dedicated to research work. One to two of the three years of our junior residency course is devoted to the study of pathology, endoscopy, image diagnosis and medical oncology depending on each resident's interest. This rotation system in the related oncologic specialties provides our residents with great learning opportunities.

The number of patients who undergo surgical intervention for primary lung cancer in our division is one of the largest three in Japan, second to the National Cancer Center Hospital Tokyo. In 2003, however, patient numbers stayed almost the same compared to the previous year both at the East and Tokyo Hospitals. We have been one of the most active leaders in this field since its establishment in 1992.

Routine Activities

All possible candidates for surgical intervention are presented in English at our conference with the thoracic oncology physicians and pathologists every Tuesday evening to determine their treatment

modalities. Selected patients among those who underwent resection are radiologically and cytopathologically reviewed every Friday morning.

Primary pulmonary carcinomas of non-small cell histology in clinical stages I/II, and IIIA without bulky mediastinal nodes, and those of small cell histology in clinical stage I are usually indicated complete surgical resection. In an attempt to improve the poor prognosis of patients with bulky or clinically and histologically proven mediastinal lymph node metastases, with disease invasive to the neighboring vital structures, or with small cell cancer, the optimal treatment modalities are sought for in clinical trial settings.

Resection of metastatic lung tumors has been attempted on Thomfold's criteria with slight modification upon consultation with the patient. Histologically, metastases from colorectal carcinoma constitute the majority of the cases.

The majority of mediastinal tumors were thymic epithelial tumors, and we did not attempt to apply thoracoscopic procedures in these patients.

New Developments in 2004

Our surgical procedures stayed unchanged for the past several years. The postoperative hospital stay is 4 days in the shortest and 7 days on average for primary lung cancer cases. Thirty-day operative mortality occurred in 1 patient during the past one year.

We initiated a new limited resection trial for small ground-glass opacity (GGO) lung tumors in November 2003. Patient selection is based solely on high resolution CT (HRCT) findings: pure or mixed GGO lesion 2 cm or smaller in the lung periphery with tumor disappearance ratio (TDR) 0.5 or greater on HRCT. TDR is defined as $1 - \frac{DM}{DL}$, where DM is the maximum tumor diameter on mediastinal settings and DL on lung settings.

We started lavage cytology examination in limited resection for primary and metastatic lung cancer patients to confirm negative resection margin. This includes washing used stapler cartridges and on-site cytological evaluation of washed saline sediment.

Ongoing Clinical Trials

1. Induction chemotherapy and irradiation for advanced thymic epithelial tumor [phase II].
2. Limited resection for small peripheral ground-glass opacity (GGO) lung tumors [phase II].

3. Induction chemotherapy for stages IB and II non-small cell lung cancer [randomized phase II].
4. Prospective study of radiologic-pathologic correlation for peripherally located lung cancer for radiologic definition of "early" peripheral lung cancer.
5. Pleural lavage cytology examination in limited resection for primary and metastatic lung cancer patients.

● K. Nagai, J. Yoshida ●

Number of Patients Operated

	2000	2001	2002	2003	2004
Lung carcinoma	236	270	263	291	317
Metastatic lung tumor	25	29	43	31	41
Mediastinal tumor	19	26	14	23	21
Esophageal carcinoma	19	24	37	29	57
Others	31	39	40	58	33
Total	330	388	397	432	469

Operative Method for Primary Lung Carcinoma

	2000	2001	2002	2003	2004
Pneumonectomy	7	8	15	12	17
Lobectomy	179	207	203	217	233
(Bronchoplasty)	(4)	(7)	(5)	(5)	(6)
Limited resection	24	30	12	37	36
Lung resection	210	245	230	266	286

Survival Rates for Resected Primary Lung Carcinoma

p-Stage	3-year survival rate(%)	5-year survival rate(%)
IA	93.5	86.5
IB	82.3	70.3
IIA	76.6	46.3
IIB	58.9	46.8
IIIA	51.2	33.8
IIIB	42.2	31.0