Surgeon's View
Is Palliative Resection of Lung Cancer Ever Justified?

Farid M. Shamji, MBBS, FRCS(C)[a,*],
Jean Deslauriers, MD, FRCS(C)[b]

KEYWORDS

• Surgery for lung cancer • Palliative resection for lung cancer • Palliative treatment • Chest wall pain • Massive hemoptysis • Syndrome of superior vena caval obstruction

KEY POINTS

- Clarification of terminology to avoid conceptual misunderstanding: complete resection, incomplete resection, and palliative resection of lung cancer.
- Recognize the indications of palliative resection of lung cancer in the past.
- Understand the pathogenesis and management of malignant pleural effusion accompanying lung cancer.
- Understand endobronchial complications of cancer in the main bronchi: obstruction with distal infected atelectasis and nonresolving sepsis, massive hemoptysis, wheezing, and stridor.
- Understanding complications of direct mediastinal invasion and mediastinal nodal metastases: superior vena cava obstruction, esophageal displacement and obstruction, compression and obstruction of trachea and main bronchi, phrenic nerve and recurrent laryngeal nerve palsies.

INTRODUCTION

The role of surgery in the management of patients with localized primary lung cancer of all histologic cell types, possibly with the exception of small cell lung cancer unless it is limited stage I disease, is to cure. The Lung Cancer Study Group was a multicentre initiative between 1977 and 1989 and had major influence on standardizing treatment of primary lung cancer and, for thoracic surgeons and the oncologists, it outlined guiding principles in the surgical management.

Of all patients with primary lung cancer, more than 50% are unsuitable for surgical management when first they are seen, because of clinical, radiographic, bronchoscopic, thoracoscopic, and mediastinoscopic evidence of metastases, in the form of either extrapulmonary intrathoracic spread or extrathoracic systemic dissemination. For this group of patients, primary treatment consisting of chemotherapy or radiation therapy sometimes works and survival is often limited to less than 6 months.

For primary lung cancer, like cancer that begins at other native sites, treatment is necessary for relief of symptoms. The treatment is surgical and curative for localized cancer, to prolong disease-free survival, or palliative for advanced cancer, to alleviate suffering for the duration of life.

DEFINITION OF RESECTIONS

Proper understanding and appropriate use of terminology in the types of surgical resection

[a] Division of Thoracic Surgery, Ottawa Hospital – General Campus, University of Ottawa, 501 Smyth Road, Room 6362, Box 708, Ottawa, Ontario K1H 8L6, Canada; [b] Division of Thoracic Surgery, Institut Universitaire de Cardiologie et de Pneumologie de Québec (IUCPQ), Laval University, 2725 chemin Sainte-Foy, L-3540, Quebec G1V 4G5, Canada
* Corresponding author.
E-mail address: fshamji@ottawahospital.on.ca

Thorac Surg Clin 23 (2013) 383–399
http://dx.doi.org/10.1016/j.thorsurg.2013.05.005
1547-4127/13/$ – see front matter

performed for primary lung cancer are necessary to avoid confusion and conceptual misunderstanding about the goal of resection and to evaluate the role of multimodality treatment regimens.[1,2]

First, there is the complete resection, which is the final aim of the surgical treatment of all types of localized non–small cell lung cancer and for stage I localized small cell cancer. Complete resection means that the primary tumor is completely removed, that there is no gross tumor left behind, that there is no microscopic residual disease in the resection margins, and that there is no metastatic tumor in the highest resected ipsilateral superior mediastinal node.[3–9] It is the only complete R0 resection that cures primary lung cancer.

Second, there is incomplete resection, when complete resection is unsuccessful and residual gross tumor is left behind at the margin of resection R2 or there is microscopic tumor present in the margin of resection R1. Incomplete resection does not cure in most instances. The higher the stage of the disease at surgical exploration, tumor (T) or node (N), or both descriptors, the greater is the likelihood for incomplete resection and the lower is the chance of cure. Incomplete resection must be distinguished from palliative resection; these are not synonymous terms and improper use of terminology has been a source of confusion in the published surgical literature and has misguided many novice chest surgeons.[1,4,8–13]

Third, there is palliative resection, when the resection of tumor-bearing lung, whole or part, is performed in the presence of known extrapulmonary intrathoracic spread or in the presence of distant metastases, when cure is not a goal and the aim is to relieve local symptoms. By definition, palliative resection is incomplete resection and gross tumor is left behind. Few patients are palliated by this type of resection; it is physiologically damaging, especially in the presence of inadvertent intraoperative injury or postoperative complications, both having an adverse impact on the duration and quality of life. With the advances made in radiation and chemotherapy in the last 4 decades, it is now preferable to use less invasive and less damaging methods of relieving local symptoms. In the remote past, palliative resection of primary lung cancer was performed on rare occasions in 4 clinical situations:

- To control septic complications in obstructive pneumonia
- To prevent asphyxiation in massive hemoptysis
- To palliate unstable vertebral body invasion and impending spinal cord compression
- To relieve severe pain from chest wall and thoracic spine invasion.

PALLIATION VERSUS SUFFERING

The expectations of palliative treatment need to be defined. According to the Concise Oxford English Dictionary, the word palliative means making the symptoms of a disease less severe without removing the cause; it is derived from the Latin lenimentum, meaning soothing. In order to consider palliative treatment to relieve suffering in selected cases of lung cancer, it is necessary first to understand the pathogenesis of certain clinical manifestations; the impact of each of these clinical manifestations on quality of life, as measured in length of survival and the general state of the patient during that period; when the local advanced extent of the growth is only manifest at operation; the benefit to be achieved by palliative treatment in the relief of suffering; and the effect of palliative treatment on the duration of terminal illness.

The duration of palliation to be expected by palliative treatment is hard to define but it must be longer than 9 months (because most patients with advanced lung cancer die within 6 months of the diagnosis), during which patients should be capable of caring for themselves, and the duration of terminal illness should be less than 1 month when patients are more or less incapable of caring for themselves and require the best supportive hospice care, supplemental oxygen, and narcotics.

Thoracic clinical manifestations for which palliative resection might be required:

1. Bronchopulmonary symptoms caused by the lung cancer arising proximally from the main or lobar bronchi (centrally located tumor) causing irritation, ulceration, or obstruction of the bronchus with distal lung atelectasis and nonresolving infection leading to septic complications.[4]

   Proximal involvement by tumor of both main bronchi and distal trachea constitutes oncologic emergency for urgent relief of acute airway obstruction

   Massive hemoptysis is life threatening, requiring urgent management to prevent fatality by asphyxiation

   Nonresolving distal pneumonia complicated by suppuration and formation of lung abscess in the infected lung, parapneumonic effusion, and rupture of lung abscess, resulting in pyopneumothorax