Surgeons have always been interested in anatomic structures that can be visualized, palpated, dissected and resected. Because lymph nodes have all of these qualitative characteristics, they have attracted the interest of surgeons since the late 19th century. In fact, oncologic significance has been attributed to them and resection has been advocated and even mandated as being an essential component for the treatment of patients with carcinoma. Unfortunately, this theory was predicated more upon intuition than scientific evidence. Nevertheless, as we enter the 21st century, surgeons still remain adamant in believing that lymph node resection can benefit and even cure patients with cancer.

The Barrier Theory, postulated by 19th century surgeons, maintains that lymph flows in a consistent, predictable sequential manner from nodal station to nodal station where malignant cells are impeded or detained. In reality, lymph flows in a haphazard, bizarre, unpredictable manner skipping many nodal stations. Malignant cells pass through lymph nodes as if they were a sieve, and because of infinite lymphaticovenous communications, they can easily enter the vascular system achieving diffuse and distant dissemination.

Radical lymphadenectomy is not an innocuous procedure since it requires a major dissection that interrupts and damages neurogenic, vascular and lymphatic structures in the mediastinum. Neurogenic interruption can cause pulmonary vascular spasm that physiologically reduces vascular volume simulating cor pulmonale and can increase right heart burden. Cardiac output can be decreased and arrhythmias incited. A concurrent lobectomy, which anatomic evidence. Nevertheless, as we enter the 21st century, surgeons still remain adamant in believing that lymph node resection can benefit and even cure patients with cancer.

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the pathologist. Possibly, some of his cases had very early disease that would have had a long ‘lag’ time before grossly manifesting terminal signs and symptoms. Nevertheless, the mathematics could be challenged. The 45 survivors were compared to a base of 151 patients that were resected for a survival rate of 30%. Actually, the 45 survivors should have been compared to the entire group of 706 patients with N2 disease for an overall survival rate of 6%.

A voluminous scientific literature base exists dispensing any validity or benefit that can be derived from radical lymphadenectomy. Heys stated that “extensive lymph node dissection conferred no advantage in survival rate.” [5]. For T1N0 lesions, Funatsu had a 70% 5-year survival rate when radical lymphadenectomy was performed but a 90% survival rate when lymph nodes were not disturbed [6]. He insinuated, as did Heys, that lymph node resection could impair the immune system. A retrospective study by Nakahara reported no difference in long-term survival between radical lymphadenectomy and lymph node sampling [7]. Izbicki did a prospective random trial and could not demonstrate any benefits from radical lymphadenectomy [8]. Benfield has always maintained that lymph node resection is beneficial only for prognosis but not for survival [9]. Ginsberg has stated that radical lymphadenectomy has never been shown to improve survival [10]. Orringer has emphasized the failure of lymph node resection to benefit survival [11]. Even the Canadian Lung Oncology Group has recognized the hopelessness of resecting N2 disease and explicitly advocates a careful pre-operative evaluation to avoid operating on these terminal patients [12].

My interest in the lymphatic system began in 1960 when I was a surgical resident at the New York Hospital. Since lymphangiography had not yet evolved as a standardized radiological procedure, I devised small needles and special syringes which were made in the hospital workshop. Utilizing this rudimentary equipment, small lymphatics in the female breast were cannulated and injected with radiopaque contrast material. The lymphatic channels pumped the opaque material through its normal network, and they could be visualized and traced under fluoroscopy [13]. It quickly became evident that lymph did not flow in a consistent or predictable manner. It did not follow channels described in textbooks of that era. Since the early 20th century, all surgeons have been fascinated and enamored by the theoretical relationship between lymph nodes and cancer. It is certainly intuitively compelling to attribute an important role to lymph nodes in the treatment of cancer. Unfortunately, scientific evidence has never been produced that confirmed or documented any definite benefits that resulted from the resection of lymph nodes for patients with lung cancer. In fact, presently there is evidence that lymph node resection could be detrimental to these patients and their survival. Because of crude staging protocols and the inability to alter the natural intrinsic behavior of malignancies, long-term lung cancer survivals have not improved [14]. Lymph node resection has been a preoccupation and distraction for many years for most surgeons. In some countries, radical lymphadenectomy is a religion, whereas, in other countries it is totally ignored and not performed. Interestingly, long-term survivals, for patients with lung cancer, are similar for these various countries.

It is now time to move on and to seek other, more scientific avenues for the cure of lung cancer. We have an obligation to revisit our current philosophies, treatments and techniques for lung cancer. We must open our minds widely, suppress long held biases and rethink this disease if we hope to make a meaningful and beneficial impact on survival in the 21st century.

References