

[Home](#) > [Journal](#) > [Medicine & Healthcare](#) > [OJTS](#)[Indexing](#) [View Papers](#) [Aims & Scope](#) [Editorial Board](#) [Guideline](#) [Article Processing Charges](#)[OJTS](#) > [Vol.2 No.4, December 2012](#)

OPEN ACCESS

Current status of Radiologic Diagnosis for Mediastinal Lymph Node Metastases of Non-Small-Cell Lung Cancer: Retrospective Study of pN2 Cases

PDF (Size: 266KB) PP. 126-132 DOI: 10.4236/ojts.2012.24026

Author(s)

Shinsuke Saisho, Koichiro Yasuda, Ai Maeda, Takuro Yukawa, Riki Okita, Yuji Hirami, Katsuhiko Shimizu, Masao Nakata

ABSTRACT

Objective: Advances in diagnostic imaging techniques, such as 18F-fluorodeoxyglucose positron emission tomography (FDG-PET), have led to greater accuracy in preoperative mediastinal staging for patients with non-small-cell lung cancer (NSCLC), but surgical staging remains the "gold standard" for diagnosis. A proper understanding of the current accuracy of diagnostic imaging is needed for further improvements. Methods: Forty-three patients who underwent resection for NSCLC involving mediastinal lymph node (MLN) metastasis at our hospital between June 2003 and May 2011 were enrolled in this study. We conducted a retrospective study of the radiological and pathological findings for 53 metastatic MLNs in the 43 patients. Results: The preoperative imaging modality was computed tomography (CT) alone for 18 patients (22 MLNs) and CT and FDG-PET for 25 patients (31 MLNs). The sensitivities of CT and FDG-PET were 41.5% and 58.0%, respectively. The sensitivity of CT did not differ according to any clinicopathological factors, but the sensitivity of FDG-PET tended to be higher for primary tumors with high SUVmax values and for non-adenocarcinomas. In the lymph nodes, all micrometastatic foci ≤ 2 mm were PET-negative, but 4 lymph nodes with metastatic foci larger than 10 mm were also PET-negative. Conclusions: For the diagnostic imaging of MLN, FDG-PET has a greater sensitivity than contrast-enhanced CT based on "size criteria", but it is still not sufficiently sensitive and is influenced by various factors. At present, histological confirmation of MLNs is necessary when making decisions regarding treatment plans and the type of surgical procedure that should be performed.

KEYWORDS

Non-Small-Cell Lung Cancer; Mediastinal Lymph Node Metastasis; Positron Emission Tomography; Computed Tomography

Cite this paper

S. Saisho, K. Yasuda, A. Maeda, T. Yukawa, R. Okita, Y. Hirami, K. Shimizu and M. Nakata, "Current status of Radiologic Diagnosis for Mediastinal Lymph Node Metastases of Non-Small-Cell Lung Cancer: Retrospective Study of pN2 Cases," *Open Journal of Thoracic Surgery*, Vol. 2 No. 4, 2012, pp. 126-132. doi: 10.4236/ojts.2012.24026.

References

- [1] C. F. Mountain, "Revisions in the International System for Staging Lung Cancer," *Chest*, Vol. 111, No. 6, 1997, pp. 1710-1717. doi:10.1378/chest.111.6.1710
- [2] J. LoCicero, "Surgical Treatment of Non-Small Cell Lung Cancer. In: T. W. Shields, J. LoCicero, B. P. Ronald and V. W. Rusch, Eds., *General Thoracic Surgery*, 7th Edition, Lippincott Williams & Wilkins, Philadelphia, 2009, pp. 1388-1425.
- [3] B. A. Dwamena, S. S. Sonnad, J. O. Angobaldo and R. L. Wahl, "Metastases from Non-Small Cell Lung Cancer: Mediastinal Staging in the 1990s—Meta-Analytic Comparison of PET and CT," *Radiology*, Vol. 213, No. 2, 1999, pp. 530-536.
- [4] M. K. Gould, W. G. Kuschner, C. E. Rydzak, C. C. Maclean, A. N. Demas, H. Shigemitsu, et al., "Test

[OJTS Subscription](#)[Most popular papers in OJTS](#)[About OJTS News](#)[Frequently Asked Questions](#)[Recommend to Peers](#)[Recommend to Library](#)[Contact Us](#)

Downloads: 5,102

Visits: 31,707

[Sponsors, Associates, and Links >>](#)

Performance of Positron Emission Tomography and Computed Tomography for Mediastinal Staging in Patients with Non-Small-Cell Lung Cancer," *Annals of Internal Medicine*, Vol. 139, No. 11, 2003, pp. 879-892.

- [5] O. Birim, A. P. Kappetein, T. Stijnen and A. J. Bogers, " Meta-Analysis of Positron Emission Tomographic and Computed Tomographic Imaging in Detecting Mediastinal Lymph Node Metastases in Non-Small Cell Lung Cancer," *The Annals of Thoracic Surgery*, Vol. 79, No. 1, 2005, pp. 375-381. doi:10.1016/j.athoracsur.2004.06.041
- [6] Y. L. Lv, D. M. Yuan, K. Wang, X. H. Miao, Q. Qian, S. Z. Wei, et al., " Diagnostic Performance of Integrated Positron Emission Tomography/Computed Tomography for Mediastinal Lymph Node Staging in Non-Small Cell Lung Cancer: A Bivariate Systematic Review and Meta-Analysis," *Journal of Thoracic Oncology*, Vol. 6, No. 8, 2011, pp. 1350-1358. doi:10.1097/JTO.0b013e31821d4384
- [7] G. A. Silvestri, M. K. Gould, M. L. Margolis, L. T. Tanoue, D. McCrory, E. Toloza, et al., " American College of Chest Physicians. Noninvasive Staging of Non-Small Cell Lung Cancer: ACCP Evidence-Based Clinical Practice Guidelines (2nd Edition)," *Chest*, Vol. 132, Suppl. 3, 2007, pp. 178S-201S.
- [8] F. C. Detterbeck, M. A. Jantz, M. Wallace, J. Vansteenkiste, G. A. Silvestri and American College of Chest Physicians, " Invasive Mediastinal Staging of Lung Cancer: ACCP Evidence-Based Clinical Practice Guidelines (2nd Edition)," *Chest*, Vol. 132, Suppl. 3, 2007, pp. 202S-220S.
- [9] P. De Leyn, D. Lardinois, P. E. Van Schil, R. Rami-Porta, B. Passlick, M. Zielinski, et al., " ESTS Guidelines for Preoperative Lymph Node Staging for Non-Small Cell Lung Cancer," *European Journal Cardio-Thoracic Surgery*, Vol. 32, No. 1, 2007, pp. 1-8. doi:10.1016/j.ejcts.2007.01.075
- [10] A. Billé, E. Pelosi, A. Skanjeti, V. Arena, L. Errico, P. Borasio, et al., " Preoperative Intrathoracic Lymph Node Staging in Patients with Non-Small-Cell Lung Cancer: Accuracy of Integrated Positron Emission Tomography and Computed Tomography," *European Journal Cardio-Thoracic Surgery*, Vol. 36, No. 3, 2009, pp. 440-445. doi:10.1016/j.ejcts.2009.04.003
- [11] R. J. Cerfolio, B. Ojha, A. S. Bryant, C. S. Bass, A. A. Bartalucci and J. M. Mountz, " The Role of FDG-PET Scan in Staging Patients with Non-Small Cell Carcinoma," *The Annals of Thoracic Surgery*, Vol. 76, No. 3, 2003, pp. 861-866. doi:10.1016/S0003-4975(03)00888-9
- [12] N. Al-Sarraf, R. Aziz, K. Gately, J. Lucey, L. Wilson, E. McGovern, et al., " Pattern and Predictors of Occult Mediastinal Lymph Node Involvement in Non-Small Cell Lung Cancer Patients with Negative Mediastinal Uptake on Positron Emission Tomography," *European Journal Cardio-Thoracic Surgery*, Vol. 33, No. 1, 2008, pp. 104-109. doi:10.1016/j.ejcts.2007.09.026
- [13] W. Yang, Z. Fu, J. Yu, S. Yuan, B. Zhang, D. Li, et al., " Value of PET/CT versus Enhanced CT for Locoregional Lymph Nodes in Non-Small Cell Lung Cancer," *Lung Cancer*, Vol. 61, No. 1, 2008, pp. 35-43. doi:10.1016/j.lungcan.2007.11.007
- [14] H. Nomori, K. Watanabe, T. Ohtsuka, T. Naruke, K. Suemasu and K. Uno, " The Size of Metastatic Foci and Lymph Nodes Yielding False-Negative and False-Positive Lymph Node Staging with Positron Emission Tomography in Patients with Lung Cancer," *The Journal of Thoracic and Cardiovascular Surgery*, Vol. 128, No. 3, 2004, pp. 396-401. doi:10.1016/j.jtcvs.2004.03.020