

resection was defined by free resection margins, but with less rigorous lymph node evaluation than systematic dissection and/or positivity of the highest mediastinal lymph node removed. Incomplete resection was defined by the presence of gross or microscopic residual disease. Patient follow-up was updated until Jan/2019. Overall survival was analyzed by the Kaplan-Meier method, Log rank test and Cox proportional regression. **Result:** A total of 663 patients were identified. Mean age was 65.64 years, 338 men(50.9%). The predominant histological type was adenocarcinoma(n = 466, 70.2%), followed by squamous cell carcinoma(n = 162, 24.4%). Lobectomy was the most commonly performed procedure(n = 576, 86.8%), followed by segmentectomy and pneumonectomy(n = 40, 6.0% and n = 34, 5.1%, respectively). There was 388 patients(59.81%) classified as stage I, 146(23.1%) stage II, 97(15.3%) stage III and 11(1.74%) stage IV. Resection was complete in 374 cases (56.4%), uncertain in 252 cases(38.0%) and incomplete in 37 cases(5.5%). Mediastinal lymphadenectomy was adequate in 421 cases (63.4%) and inadequate in 242 (36.5%). Reasons for inadequate lymphadenectomy were: no nodal station sampling (n = 30, 4.5%), no station 7 sampling (n = 103, 15.5%) and sampling of less than 3 mediastinal stations (n = 109, 16.4%). The highest mediastinal lymph node removed was positive in 45 cases (6.7%). Surgical margins were positive in 37 cases (5.5%). The median follow-up was 19.5 months (IQR 7.4 - 42.5), and 5 years follow-up was completed in 15.5%. During follow-up, 133 (20.4%) patients had recurrence of the disease. Median disease-free survival was 64 months in the general group and 84.0, 58.6 and 31.5 months in the complete, uncertain and incomplete resection groups, respectively (log rank p = 0.15). Median overall survival in the complete resection group was 98.3 months, in the uncertain resection group it was 64 months. The incomplete resection group did not reach the median. There was no statistical difference in survival between groups (log rank p = 0.22). **Conclusion:** The analysis showed a high prevalence of uncertain resection, but comparable to other studies already published. This demonstrates that lymphadenectomy is not being performed according to IASLC recommendations. However, in this study, there was no impact on overall survival and disease-free survival at 5 years, which may be due to the small sample size and the short follow-up time of the vast majority of patients included in the PLCR. **Keywords:** Non small cell lung cancer, lobectomy, Lymphadenectomy

P2.17-28

Examination of the Indication and Validity of Segmental Resection as Intentional and Palliative Limited Resection for Lung Cancer



K. Kojima,¹ Y. Morifuji,¹ H. Inoue,² H. Umeguchi,³ M. Kato,⁴ C. Takasaki,⁵ M. Yano,⁵ K. Okubo⁶ ¹Department of Thoracic Surgery, Karatsu Red-Cross Hospital, Karatsu-Shi, Saga/JP, ²Department of Respiratory Medicine, Karatsu Red-Cross Hospital, Karatsu-Shi, Saga/JP, ³Thoracic Surgery, Karatsu Red-Cross Hospital, Karatsu-Shi, Saga/JP, ⁴Surgery, Hiramatsu Hospital, Ogi City/JP, ⁵Department of Thoracic Surgery, Musashino Red-Cross Hospital, Musashino-Shi, Tokyo/JP, ⁶Thoracic Surgery, Tokyo Medical and Dental University, Tokyo/JP

Background: Segmental resection with lymph node dissection as intentional limited resection is now regarded as the effective surgical procedure for early lung cancer from the view point of curability and preservation of respiratory function. But the curability of this procedure for more advanced cancer is not well known. We may show it by investigating the detailed results of all segmental resection cases as intentional and palliative limited resection.

Method: We targeted 167 cases who passed more than five years after operation among 240 lung cancer cases on whom we have performed segmental resection with lymph node dissection between January in 2003 and March in 2019. It was decided that the indication

of segmental resection as intentional limited resection was cStage 0, IA1 and IA2 (UICC 8th) with meeting the SUVmax value of FDG-PET was 1.5 or less (=group A). Segmental resection as palliative limited resection was performed on cStage IB or less patients who had difficulty in lobectomy because of poor respiratory function, multiple lung cancer or presence of serious other disease, etc, (=group B). We investigated prognosis and pathological recurrent factors in both groups, and we considered each indication of segmental resection as intentional or palliative limited resection again. **Result:** Group A contains 102 cases and 5-year survival rate was 97% (All death cases died of other disease). In group A, local recurrence occurred in 1 case (pStage IA1, surgical margin insufficient) but distant metastasis did not occur. Group B contains 65 cases and 5-year survival rate was 71% (The original death from lung cancer was 5 cases among 17 death cases). In group B, local recurrence occurred in 4 cases (pStage IA2: 1(surgical margin insufficient), pStage IB: 2, pStage IIIA: 1), distant metastasis occurred in 6 cases (pStage IA3: 1, pStage IB: 1, pStage IIIA: 3, pStage IIIB: 1) and 3 cases on which postoperative adjuvant chemotherapy had been performed had no recurrence (pStage IB: 1, pStage IIB: 2). Recurrence of pStage IA3 was only 1 case (10% in all pStage IA3 cases, Sm, distant metastasis). The multivariable analysis of pathological recurrent factors (pStage, p, v, ly) in group B (except for 3cases on which postoperative adjuvant chemotherapy was performed) showed that lymphatic involvement had a significant influence on recurrence (p-value / Hazard ratio: lymphatic involvement: 0.03 /6.49, more than pStage II: 0.37 /2.50). **Conclusion:** We are convinced that the current indication of our intentional limited resection to be almost proper but we have thought that we should include a part of Stage IA3 depending on a condition. In palliative limited resection cases, postoperative adjuvant chemotherapy should be considered if possible when pathological result show lymphatic involvement or more than pStage II. **Keywords:** Lung cancer, indication, Segmental resection

P2.17-29

Impact of Second Predominant Pattern on Recurrence in Early Stage Resected Lung Adenocarcinoma: A Multicentric Study



P. Bertoglio,¹ M. Cattoni,² D. Nachira,³ F. Lococo,⁴ V. Aprile,⁵ M. Rodriguez,⁶ F. Guerrero,⁷ F. Franzini,⁸ A. Viti,¹ S. Bellafiore,⁹ G. Rindi,¹⁰ D. Bacchin,⁵ M.D. Lozano Escario,¹¹ F. Femia,¹² G. Querzoli,¹³ L. Garcia Tobar,¹¹ E. Ruffini,⁷ M. Paci,⁴

S. Margaritora,³ M. Lucchi,⁵ A. Imperatori,² A. Terzi¹ ¹Division of Thoracic Surgery, Irccs Sacro Cuore Don Calabria Hospital, Negrar Di Valpolicella/IT, ²Center for Thoracic Surgery, University of Insubria, Varese/IT, ³Department of Thoracic Surgery, Fondazione Policlinico Universitario "a. Gemelli" Irccs, Università Cattolica Del Sacro Cuore, Roma/IT, ⁴Unit of Thoracic Surgery, Irccs-Arcispedale Santa Maria Nuova, Reggio Emilia/IT, ⁵Division of Thoracic Surgery, Azienda Ospedaliero-Universitaria Pisana, Pisa/IT, ⁶Thoracic Surgery Department, Clinica Universidad de Navarra, Madrid/ES, ⁷Surgical Sciences - Thoracic Surgery, University of Torino, Torino/IT, ⁸Unit of Pathology, University of Insubria, Varese/IT, ⁹Division of Pathological Anatomy, Irccs Arcispedale Santa Maria Di Reggio Emilia, Reggio Emilia/IT, ¹⁰Institute of Anatomic Pathology, Fondazione Policlinico Universitario "a. Gemelli" Irccs, Università Cattolica Del Sacro Cuore, Rome/IT, ¹¹Pathology Department, Clinica Universidad de Navarra, Madrid/ES, ¹²Department of Thoracic Surgery, University of Torino, Torino/IT, ¹³Division of Pathological Anatomy, Irccs Sacro Cuore Don Calabria Hospital, Negrar Di Valpolicella/IT

Background: The ATS/ERS/IASLC adenocarcinoma classification allowed not only a better anatomical-pathological definition, but it showed a significant influence on long-term outcomes. It has been proposed that adenocarcinoma patterns could be divided in three

groups according to their clinical and pathological behaviors: low (lepidic), moderate (papillary or acinar) and high grade (micropapillary and solid). Moreover, different patterns might mingle influencing biological features and prognosis. We focused on resected adenocarcinomas analyzing the impact of second predominant pattern on recurrence rate and Disease-Free Survival (DFS). **Method:** We retrospectively collected all stage I and II lung adenocarcinoma operated on between January 2014 and December 2017 in seven European thoracic surgery departments. We selected all patients who underwent an anatomical resection with lymphadenectomy; patients with incomplete follow up, pure adenocarcinoma or those composed by more than two subtypes (if third pattern accounted for more than 10%) were excluded. Mucinous adenocarcinoma were considered separately from other patterns. DFS, incidence and localization of recurrence were calculated according to the second predominant pattern. **Result:** Among 500 patients, 331 were selected. There were 186 male, mean age was 68.1 years (\pm SD 8.2) and 105 (31.7%) patients were active smokers at the moment of diagnosis. The majority of patients (271, 81.9%) underwent a lobectomy. Low, medium and high-grade first predominant pattern were 45 (13.6%), 208 (62.9%), 57 (17.2%) respectively and 21 cases were mucinous. Second predominant pattern was present as follow: acinar 96 (29%), lepidic 86 (26%), papillary 74 (22.4%), solid 29 (8.8%), micropapillary 26 (7.9%), 20 mucinous (6%). DFS analysis showed a significant impact of grade of the second predominant pattern ($p=0.046$), while first predominant pattern's grade did not significantly impact on DFS ($p=0.322$). According to the subtypes of second predominant pattern, lepidic pattern showed a better mean DFS (56.1 versus 49.6 months, $p=0.014$) and a lower recurrence rate ($p=0.018$, and, in particular, a lower distant recurrence rate, $p=0.016$), while micropapillary had a worse DFS (42.3 versus 52.1 months, $p=0.014$), higher recurrence rate ($p=0.017$, and in particular, a higher regional recurrence, $p=0.038$); moreover, also pleural invasion influenced DFS significantly ($p=0.001$). At multivariate analysis, lepidic second pattern and pleural invasion confirmed their influence on DFS ($p=0.044$, IC 0.28-0.98 and $p=0.001$, IC 1.36-3.4). When we analyzed the subgroup with only moderate grade (acinar and papillary) first predominant pattern (208 patients), lepidic and micropapillary second predominant patterns and pleural invasion confirmed their significant impact on DFS ($p=0.015$; $p=0.021$; 0.015 respectively). **Conclusion:** Our multicentric study confirms the impact of adenocarcinoma patterns on recurrence rate and DFS. The second predominant pattern in early stage resected adenocarcinoma seems to play an important role in influencing the outcomes. Micropapillary and lepidic second pattern demonstrated to be significantly related to recurrence development and their presence should require different and dedicated postoperative management. **Keywords:** lung adenocarcinoma, adenocarcinoma patterns, early stage adenocarcinoma

P2.17-30

Superior Vena Cava Resection and Prosthetic Replacement for NSCLC: Is It Worthwhile?



J. Chenesseau, D. Mitilian, S. Mussot, O. Mercier, D. Fabre, E. Fadel
Thoracic and Vascular Surgery, Hopital Marie Lannelongue, Le Plessis Robinson/FR

Background: Direct involvement of superior vena cava (SVC) by NSCLC requires en-bloc tumor resection with complete vascular clamping and prosthetic replacement. We present our experience with this highly demanding procedure in order to determine whether this complex surgery is warranted **Method:** Since 1980, complete en-bloc resection of NSCLC invading the SVC followed by prosthetic replacement was performed in 48 patients (30 squamous, 18 non-squamous)

in our Department. Patients with partial resection of the SVC with or without patch reconstruction, less complex procedure, were excluded. There were 38 male and 10 female with a mean age of 57 years (range, 38-82 years). N2, N3 disease and distant metastasis diagnosed on preoperative workup were considered as a surgical contraindication. Neoadjuvant therapy was given to 17 patients including chemotherapy ($n=11$), radiotherapy ($n=1$) or both ($n=5$). Surgical approach was a right thoracotomy ($n=40$), median sternotomy ($n=5$) or an anterior cervico-thoracotomy ($n=3$). Although vascular shunt was never used, in one patient a VA-ECMO was necessary for ventilation difficulties. Lung resection was carinal pneumonectomy ($n=15$), pneumonectomy ($n=14$), upper bilobectomy ($n=1$), lobectomy ($n=16$) or a sublobar resection ($n=2$). Mean SVC clamping time was 31.6 minutes (range, 10 to 120 minutes). On definitive histology, an R0 resection was achieved in 41 (85%) patients, and lymph node involvement was pN0 in 8, pN1 in 23, pN2 in 14 and pN3 in 3 patients. Tumor size ranged from 1.9 cm to 17 cm with a medium size of 5.2 cm. 31 patients received adjuvant therapy including chemotherapy ($n=5$), radiotherapy ($n=1$) or both ($n=25$). **Result:** Postoperative death occurred in 5 patients (10%), all of them underwent a right pneumonectomy ($p=0.02$). 13 other patients experienced postoperative complications. No neurologic events related to SVC clamping occurred. Graft thrombosis occurred in 2 patients who died postoperatively from bronchopleural fistula. With a median survival of 24 months, 3, 5 and 10 years survival rates were 45%, 40% and 35%, respectively. During follow-up, recurrence occurred in 31 patients and was mostly systemic ($n=26$). Disease free survival at 3, 5 and 10 years were 37%, 37% and 30%, respectively. By univariate analysis, only incomplete resection was found to be associated with poorer survival ($p=0.04$). **Conclusion:** In highly selected patients with NSCLC involving SVC, complete en-bloc resection and prosthetic replacement is feasible in expert center with acceptable mortality mainly due to right pneumonectomy. Good long-term survival is obtained provided a complete R0 resection is achieved. **Keywords:** NSCLC, surgery, superior vena cava

P2.17-31

Central Lung Tumors Treated with Stereotactic Radiotherapy. Toxicity and Early Results in a Single Institution



M. Nuñez,¹ A. Folgar,² L. Diez,¹ R. Gomez,¹ E. Mur,¹ J.M. Sole¹
¹Radiation Oncology, Consorci Sanitari de Terrassa, Terrassa/ES,
²Radiation Oncology, Hospital Universitario Lucus Augusti, Lugo/ES

Background: Stereotactic ablative radiotherapy (SABR) for stage I-II inoperable non-small-cell lung cancer (NSCLC) peripherally located has become a standard treatment. However the role in centrally located lung cancer remains controversial because potential severe toxic effects. When adaptive dose regimens to location and appropriated dose-volume constraints for normal tissues are used, the expected toxicity are mild and the local control are comparable to those for peripheral lesions. We report our experience with central SABR. **Method:** Retrospective analysis of patients diagnosed with inoperable centrally located early lung cancer, defined as a tumor within 2 cm in all directions of any mediastinal critical structure, who were treated in a single institution between May 2017 and January 2019 with VMAT-SABR. All patients underwent 4DCT simulation. Cone beam CT (CBCT) and fluoroscopy prior and CBCT after to each treatment fraction was performed. Dose to the PTV was prescribed to the 95% isodose line. Acute toxicity was assessed by the CTCAE v.4.03 scale and local control was reported using RECIST criteria. **Result:** 40 patients were treated with stereotactic ablative radiotherapy for early inoperable NSCLC and 15 male patients had centrally located lesions. The mean age of included patients were 75 years (65-81) with a median follow-up of 6.6 months (2,2-19,8). The main cause of inoperability was pulmonary functionalism and cardiac comorbidities. 2 (13%) were treated