Results: Ninety-five patients were included in this study. Seventy five underwent EPP, 9 P/D, and 11 P. Of these 95 patients with final diagnosis of MPM, 80 (84.3%) were classified as epithelial and 15 (15.7%) as biphasic. Among the 87 patients classified as MPM of epithelial type after the initial thoracoscopy procedure, 75 (86.2%) were confirmed as a true histological diagnosis and 12 (13.7%) were found to be biphasic at final diagnosis. One patient with a biphasic type at initial diagnostic procedure was found as epithelial type after surgical histological assessment. The sensitivity and specificity values of epithelial diagnosis after thoracoscopy were 94 % and 25 %, respectively, with a positive predictive value of 86 % and a negative predictive value of 37 %. At contrary, the sensitivity and specificity values of biphasic diagnosis after thoracoscopy were 20 % and 98 %, respectively, with a positive predictive value of 75 % and a negative predictive value of 87 %.

Conclusions: Thoracoscopy pleural biopsy is confirmed as the cornerstone for the diagnosis of MPM. However this procedure is less efficient in diagnosing histological type as epithelial versus biphasic subtype.

P1-122 Mesothelioma and Other Thoracic Malignancy Posters, Mon, Sept 3

Thymic neuroendocrine tumors: report of 8 cases

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Background: Thymic neuroendocrine tumors (TNET) are rare neoplasms. We report the clinical and pathological features of 8 TNET.

Results: There were 2 women and 6 men (mean age of 54.5 years), presenting with local symptoms (cough, dyspnea, thoracic pain) in 4 cases, bone metastases in 1 case and Cushing syndrome in 2 cases. One patient was diagnosed incidentally. None of them had history of MEN. The tumors were divided according to histopathologic features into high-grade (n=7) and low-grade (n=1) types. Staging revealed two stages I, three stages II, one stage III and two stages IV tumors. Six patients underwent surgery and complete excision was possible in 3 cases. Five patients had received postoperative radiotherapy. Six patients had received chemotherapy (at first to fourth lines). Follow-up was available in all patients. Three patients died of distant metastasis (at 13 and 52 months). Three patients are alive with disease (at 73 and 103 months) and two are alive and disease-free (at 10 and 81 months).

Conclusions: Patients with TNET are considered to have a worse prognosis than patients with pulmonary carcinoid. According to the 5 years-survival (>50%) in our study, prognosis may be better than reported in the literature.

P1-123 Mesothelioma and Other Thoracic Malignancy Posters, Mon, Sept 3

Response of atypical pulmonary carcinoid tumors to chemotherapy. A retrospective study of 37 patients.

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Background: There is little published data on chemotherapy in pulmonary carcinoid tumors. The objective of this retrospective study is to evaluate the response rates to different chemotherapy regimens in atypical pulmonary carcinoid patients.

Methods: Patients with pulmonary neuroendocrine tumors treated at our institution were identified. The medical records of patients with confirmed diagnosis of atypical pulmonary carcinoid were reviewed for the presence of progressive disease, treatment with chemotherapy, and response to this treatment.

Results: 37 pts with progressive atypical pulmonary carcinoid tumor who were treated with chemotherapy were identified. Of these, 2 patients received induction chemotherapy with cisplatin and etoposide (PE) before surgery, to which one had a partial response and the other had stable disease. One patient with unresectable pulmonary carcinoid tumor progressed under PE regimen.

34 metastatic patients (liver or bone metastasis) received various first-line chemotherapy regimens: 17 patients were treated with 5-FU and streptozotocin-based regimen (FS), 9 patients with PE-based chemotherapy, and 8 patients with other associations combining 5-FU or doxorubicin. There were overall 11 partial responses (PR), 11 stable disease (SD), and 12 progressive disease (PD).

The overall response rate to first-line chemotherapy was 32%. FS combination resulted in 6/17 PR (35%) and 5/17 SD (29%). PE regimen resulted in 3/12 PR (25%) and 4/12 SD (33%) in the whole population, 2/9 PR (22%) and 3/9 SD (33%) in metastatic patients.

22 patients received a second-line chemotherapy resulting in 2 PR, one PR to 5-FU and dacarbazine regimen, the other to FS combination; 10 patients achieved a SD of whom 5 were treated with FS-based regimen and 4 with 5-FU drug. 3 PE regimen resulted in PD. 7 patients received a third-line chemotherapy resulting in 1 PR to 5-FU and 3 SD under 1 FS association, 1 5-FU and dacarbazine regimen, and 1 dacarbazine and interferon combination. Prolonged stable disease were observed and 4 patients then could receive chemoembolization.

Conclusion: This retrospective review of 37 patients with atypical pulmonary carcinoid tumors shows a response rate to first-line chemotherapy of 32%. More objective responses and prolonged stable diseases were observed in metastatic patients treated with 5-FU and streptozotocin-based regimen.

P1-124 Mesothelioma and Other Thoracic Malignancy Posters, Mon, Sept 3

Malignant mesothelioma: prognosis not as bad as generally believed

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Introduction: It is generally considered that survival in malignant mesothelioma is less than one year. In the largest study so far on the disease, the Pemetrexed Study in the US, where 448 patients were randomized to either Pemetrexed + Cisplatin or to Cisplatin alone, the survival in the Pemetrexed arm was 12 months versus 9 months in the cisplatin arm alone. Many other studies have come to similar results. However, the experience of the Nordic Mesothelioma Groups is different We here present some data from the last study, where 184 patients with malignant mesothelioma, all stages, PS 0-2, all ages, were treated with a combination of Liposomized Doxorubicine, Carboplatin, and Gemcitabine.

Results: In 147 patients, subtyping of the mesothelioma and follow-up until death or at least 18 months were available. 73 % (108 patients) were of the epithelial subtype. Their median survival was 15 months; 44% survived 18 months, 25% 2 years, and 9 % 3 years. Two patients are still alive after 5 years. 14 were staged as Stage IV (i.e. metastases outside the hemithorax) when included in the study; their median survival was 11 months, 2 have survived 2 years, and one is still alive at 61 months. 14% had a mixed subtype; their mean survival was 8 months, 28 % survived 1 year, 19 % 18 months, and none 2 years. For the 12 % with sarcomatous subtype, mean survival was 4 months, 11% survived 1 year, and there was no 2-year survivor.

Discussion: The survival was considerably better than in most other studies. The reason is probably not that the treatment is superior but rather a different selection. Traditionally, surgery has been used only very sparingly in the Nordic countries; in countries where this is performed, patients with the best PS and the lowest stages will be selected for surgery. Thus, generally only patients in worse conditions will be treated with chemotherapy. This is important to remember when surgical results are evaluated. It is also obvious that subtype is more important than stage.

P1-125 Mesothelioma and Other Thoracic Malignancy Posters, Mon, Sept 3

Aberrant methylation of DAP-K, p-16, MGMT, RAR-β and HPP1 in thymic epithelial tumor

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Background: Thymoma is an uncommon neoplasm that is derived from the epithelial cells of the thymus. Carcinogenesis of thymic epithelial tumor has not been clear yet. Our previous study showed high frequency of p53 protein expression in thymic carcinoma but not in thymoma. Recent reports demonstrated that epigenetic inactivation of certain tumor suppressor genes by aberrant promoter methylation is frequently observed in cancers and that seems to play an important role in carcinogenesis. We examined aberrant methylation patterns of 5 cancer-related genes in 28 thymic epithelial tumors to clarify their carcinogenesis.

Materials and Methods: We examined aberrant methylation of 5 cancer-related genes (DAP-K, p-16, MGMT, RAR-β and HPP1 genes) in 20 thymomas, 7 thymic carcinomas and one thymic carcinoid that we resected between 1985 and 2006 in Tokushima University Hospital. There were 1 type A, 6 type AB, 8 type B1, 3 type B2, 2 type B3 thmomas, 7 thymic carcinoma and one carcinoid according to World Health Organization histologic classification. Masaoka's clinical staging was 9 cases in stage I, 7 cases in Stage II, 6 cases in stage III, 5 cases in stage IV. The genes selected DAP-K, p-16, MGMT, RAR-β and HPP1 genes that were previously described as aberrantly methylated in lung carcinoma or malignant mesothelioma. Samples were frozen and stored. Genomic DNA was subjected to bisulfite treatment. PCR amplification was done with bisulfite-treated DNA, using specific primer sequences for the methylated and unmethylated forms of the genes. PCR products were loaded on agarose gels.

Results: In thymoma, aberrant methylation was detected in 3 of 13 (23.1%) for DAP-K, 1 of 14 (7.1 %) for p-16, 1 of 16 (6.3%) for MGMT, 1 of 10 (10%) for RAR-β and 1 of 16 (6.3%) for HPP1. Six (29%) of 21 thymomas had aberrant methylation of cancer-related genes (1 case in type A, 1 case in type AB and 3 cases in type B1) (3 cases in stage I and 3 cases in stage II). Methylation was 5 cases in one gene and one case in 2 genes. On the other hand, in thymic carcinoma, aberrant methylation was detected in 2 of 5(40%) for DAP-K, 0 of 6 (0 %) for p-16, 5 of 7 (71.4%) for MGMT, 0 of 6 (0%) for RAR-β and 3 of 7 (42.9%) for HPP1. Six (86%) of 7 thymic carcinomas had aberrant methylation. Methylation was 3 cases in one gene, 2 cases in 2 genes and one case in 3 genes.

Conclusion: Aberrant methylation were more frequent in thymic carcinoma (86%) than in thymoma (29%). And half of thymic carcinoma had methylation of several genes. In thymoma, methylation of cancer-related genes was not related to clinical stage.

P1-126 Mesothelioma and Other Thoracic Malignancy Posters, Mon, Sept 3

Pathological study of malignant pleural mesothelioma resected with extrapleural pneumonectomy

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Background: Patients with malignant pleural mesothelioma (MPM) are rarely diagnosed at their early stages. It is not fully recognized what is the earliest event in the development of MPM and how it progresses. The aim of this study was to elucidate the early microscopic changes of MPMs that were removed surgically and confirmed to be MPM by histological and immunohistochemical examination.

Methods: Fourteen cases with MPM who underwent exrapleural pneumonectomy between 1995 and 2006 were investigated. We arbitrarily defined mesothelioma at early stage as tumor whose thickness was equal to or less than 6mm. We used a panel of immunohistochemical markers to confirm the diagnosis of mesothelioma.

Reults: The age of the patients ranged from 40 to 66 and all were male. Four were with Stage IB, five with Stage II, five with Stage III, and one with Stage IV mesothelioma. Seven of these patients were designated at early stage according to our definition. Five cases were epithelioid mesothelioma, one was biphasic, and one was sarcomatoid. There was pleural cavity between parietal and visceral pleura and the surface of the lung looked normal, but both pleura were fused focally in some cases. There was no visible nodule in these cases, but white flat maculae or small yellow nodules were observed at the surface of the pleura in some of the cases. Microscopically mesothelioma cells proliferated both on the parietal and visceral pleura and invaded into it. They proliferated in solitary, trabecular, papillary, or solid patterns in epithelioid mesothelioma. The lesions were discontinuous and multifocal. Microscopic invasion into the lung and/or diaphragm was observed after evaluation of many blocks even in MPM with clinical stage I. Interlobar pleura and interlobular connective tissue was also invaded by the mesothelioma cells. The size of the lesion in the parietal pleura was larger than that in the visceral pleura. In an extremely early case, the lesions existed mainly in the parietal pleura, but a few foci of visceral pleural invasion were observed. Seeding of the mesothelioma cells on the tract of thoracoscopy was observed in three cases, and recurrence occurred in four of seven early stage MPMs. One-year and two-year overall survival rates for the early stage mesothelioma were 100% and