Case Methodology: We are presented with an asymptomatic 27-year-old male overseas worker whose routine annual chest radiograph revealed an incidental finding of a right lung mass. Further evaluation with chest CT scan revealed a 10.2 x 10.1 x 9.9 cm posterior mediastinal mass. With these findings, the patient was admitted for surgery. Physical examination, laboratory work-ups, and pulmonary function tests revealed normal results. The patient underwent thoracotomy of the right hemithorax. Intraoperatively, an elongated, pulsatile, fixed mass measuring 10 x 12 x 12 cm occupying the middle and posterior mediastinum extending from the azygous vein down to the diaphragm was noted. Microscopic examination of the resected tissues showed fibrocollagenous and adipose tissue fragments with several variably sized vascular channels with no evidence of malignancy. Large caliber arteries and veins were encountered and there was excessive bleeding hence, total excision of the mass was aborted.

Results: Histopathologic examination revealed fibrocollagenous and adipose tissue with several irregular thick-walled vascular channels, nerve bundles, lymphocytic infiltrates, and hemorrhagic areas. The final anatomic diagnosis was: Fibrocollagenous tissue with proliferating blood vessels. A hemangiomia and arteriovenous malformation is considered. Elastic stain and immunohistochemical staining were done. Thick-walled blood vessels were highlighted by elastic stain. The endothelial cells were immunoreactive to Factor VIII. S100 stained a nerve bundle and isolated neural cells. Positivity to CD31 was also observed on the cells lining the vessels. The immunohistochemical staining result supported the diagnosis of arteriovenous malformation.

Conclusion: We report a rare case of posterior mediastinal arteriovenous malformation in a 27-year-old male. This is a case of an uncommon tumor in a very unusual location. The advent of immuno-histochemistry has aided in classifying proliferating vascular tumors. The need to identify markers for the prognostic significance was emphasized, providing the opportunity to better inform our clinical colleagues. Due to the rarity of the disease, it posed a great dilemma which required a multidisciplinary approach. It provided a diagnostic and surgical challenge to our clinicians, radiologists, pathologists, and thoracovascular surgeons as well.

Method: We studied 51 patients with AD and 49 patients with SQ who underwent surgery from April 2001 to June 2005. The resected specimens were fixed in formalin and stained with hematoxylin and eosin to identify tumor cells. Thus, only tumor cells were collected and the m-RNA expressions of TS, DPD, TP and OPRT were quantified using Danenberg tumor profiling technique. These m-RNA expressions obtained were compared between the AD and SQ groups. Pathological stage did not differ between the AD and SQ groups. Since mean age and gender population were significantly different between the two groups, the data were adjusted by analysis of covariance.

Results: m-RNA expressions of the 4 enzymes in the AD and SQ groups were as follows:

<table>
<thead>
<tr>
<th></th>
<th>TS</th>
<th>DPD</th>
<th>TP</th>
<th>OPRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD(n=51)</td>
<td>1.60±0.86</td>
<td>2.29±1.22</td>
<td>9.52±6.30</td>
<td>0.85±0.53</td>
</tr>
<tr>
<td>SQ(n=49)</td>
<td>4.33±3.35</td>
<td>1.52±1.20</td>
<td>16.27±11.84</td>
<td>2.26±1.14</td>
</tr>
<tr>
<td>p-value</td>
<td>&lt;0.0001</td>
<td>0.002</td>
<td>0.007</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

m-RNA expressions of TS, DPD, TP and OPRT were significantly different between the AD and SQ groups. The m-RNA expressions of the 4 enzymes were not different between pathological stages or gender, respectively.

Discussion: 5-Fu is theoretically more effective to tumor cells when the tumor cells have low activity of DPD, TP and OPRT. It is also reported that tumor cells with low TS activity is more sensitive to 5-Fu. Our study suggested that UFT may be more effective to AD than SQ because AD tumor cells have low TS activity and because additive Tegafur sufficiently suppresses high DPD activity of AD tumor cells.

Conclusions: m-RNA expressions of TS, DPD, TP and OPRT were significantly different between the AD and SQ groups. These results may provide some insight of mechanism in which UFT is more effective to AD than SQ in primary lung cancer.

P1-166 Pathology Posters, Mon, Sept 3

Influence of tumour patterns in mixed-type adenocarcinoma on post-operative survival

Kerr, Keith M.1 Fyfe, Nicky2 Nicolson, Marianne C.2 Lyall, Matthew S.2 Bakar, Salmah2 Thomas, Stuart C.2
1 Aberdeen University Medical School, Aberdeen, UK 2 Aberdeen Royal Infirmary, Aberdeen, UK

The 2004 WHO classification of pulmonary adenocarcinomas recognizes that most tumours are a mixture of up to four different tumour patterns: acinar, papillary, bronchioloalveolar (BAC) and solid adenocarcinoma. There is little data on the prevalence of different patterns within resected adenocarcinomas and what influence they may have on tumour behaviour. Predominance of the BAC pattern has been associated with a good prognosis while poorly differentiated (solid) or papillary tumour may be associated with a poor prognosis but these data are not necessarily expressed in the context of current methods of classifying adenocarcinoma.

Aim: To sub-categorise surgically resected pulmonary adenocarcinomas by patterns of tumour and relate this to post-operative survival.

Methods: All histological slides from 170 resected adenocarcinomas were reviewed and the proportion by area, to the nearest 10%, that each of the four patterns of tumour (BAC, acinar, papillary and solid) occupied in the haematoxylin and eosin stained sections was recorded.
Post-operative survival was derived from our own database, Cancer Registry and Hospital records.

Statistical analysis using SPSS v14 was used to perform Cox regression analyses and plot survival curves. For the purposes of analyses, proportions of each tumour pattern were classified as ‘low, medium or high’ using thresholds of 33 and 67%, or 20 and 50% respectively and as ‘low or high’ using thresholds of 30% or 50% respectively.

Results: 58% of patients were male. Maximum tumour diameter ranged from 0.4 cm to 11 cm. Tumours were pathologically Stage I in 51 %, Stage II in 33 % and Stage III in 15 %. The acinar pattern predominated in 78 cases (46%), solid pattern in 37 cases (22%), BAC in 29 cases (17%) and papillary pattern predominated in 19 cases (11%).

Furthermore each pattern accounted for more than 50% of the tumour as follows (cases / %); acinar (57 / 33%), solid (34 / 20%), BAC (16 / 9.4%), papillary (13 / 7.6%).

Female gender (P = 0.003 ) and increasing Stage (P = 0.007 ) were significantly associated with post-operative survival. No significant association could be found between the distribution of different tumour patterns in this study. Patients with predominantly BAC-pattern adenocarcinomas are more likely to be alive at 5 years (P = 0.03).

There are trends (not statistically significant) suggesting that when BAC is the predominant pattern or accounts for over 50% of the tumour, survival is longer (P = 0.13 and 0.07 respectively) and that when adenocarcinoma is predominantly or more than 50% solid, or predominantly papillary, survival is worse (P = 0.35, 0.25, 0.32). Yet tumours with over 50% papillary pattern tended towards longer survival (P = 0.13). A trend of worsening survival was seen, from predominantly BAC tumours, where survival was longest, followed in order by acinar, solid and papillary adenocarcinomas demonstrating increasingly poor survival. Again this trend failed to reach statistical significance.

Conclusion: In this series of surgically resected pulmonary adenocarcinomas, there was no significant association between post-operative survival and the patterns of adenocarcinoma identified and their relative frequency.

Methods: Patients who had undergone lung resectional surgery for the treatment of Non-small cell lung cancer at Seoul National University Hospital between December 1999 and January 2002 were included. We retrospectively reviewed the medical records including survival and pathologic results. Inflammatory inflammations of lung tissue were grouped into 3 categories (mild, moderate and severe) according to lymphoid follicles surrounding tumor or tumor parenchyma as well as infiltration of inflammatory cells between tumor islets by microscopic review.

Results: 231 patients with Non-small cell lung cancer were included. Median age was 61 years and 168 were male. Survival rates were analyzed by use of Kaplan-Meier estimation and the variables affected survival rates were analyzed by Cox-regression test. In the patients with adenocarcinoma, the patients with severe inflammatory infiltrations had more shorter survival (35.5 mon) than the patients with mild or moderate inflammatory infiltrations (61.8 mon, p=0.02). On the other hand, in the patients with squamous cell carcinoma, the patients with severe inflammatory infiltrations had a tendency to survive more longer and it was apparent in non smoker, especially. But the overall survival rates was not significantly different among three groups according to severity of inflammation (p=0.75).

Conclusions: Severity of inflammation in primary tumor might have a role to predict the prognosis of some patients with Non-small cell lung cancer.

Utility of intra-operative fine needle aspiration cytology for malignancy-suspected pulmonary nodules

Kobayashi, Satoru; Miyoshi, Shinichiro; Sawabata, Noriyoshi; Ishihama, Hiromi

Dokkyo University School of Medicine Department of Cardiothoracic Surgery, Tochigi, Japan

Background: As screening is popular, a small pulmonary nodule is often detected. Since routine bronchoscopic biopsy does not always provide an accurate diagnosis of the lesion, thoracotomy is sometimes employed as a final diagnostic procedure. The aim of this study is to evaluate the utility of intra-operative fine needle aspiration (FNA) cytology using modified Shorr’s staining method for detecting the presence of malignancy and cell typing.

Materials and Methods: Intra-operative FNA cytology was performed in 57 patients who underwent surgery for suspected lung cancer from April 2001 to March 2007. The samples were stained by the modified Shorr’s staining method, where EA-50 dye was substituted for Shorr’s dye. Since the staining procedure and investigation are performed in the operating room by a cytologist, it takes the cytological examination process only 3 minutes.

Results: The patient’s demographics were 36 males and 21 females with a mean age of 65.5 years. Both malignancy and cell typing were diagnosed in 46 cases. The tumor prevalence was primary lung cancer in 41 cases and metastatic lung cancer in 5 cases. One case turned out only a malignancy. Since 10 cases were not revealed by cytology, intra-operative histological study was added. Of the 10 cases, 5 were benign tumors including Cryptococcus in 2, Mycobacterium avium complex in 1, organizing pneumonia in 1, and nodular lymphoid hyperplasia in 1. The other 5 cases were diagnosed as primary lung cancer including adenocarcinoma in 4 and squamous cell carcinoma in 1. Three cases of the 4 adenocarcinomas were bronchioloalveolar carcinoma. Of the