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Inside this issue: Pleural diseases

Biomarkers of infection for the differential diagnosis of pleural effusions	2
Biomarkers of heart failure in pleural fluid	2
Thoracic ultrasound in the diagnosis of malignant pleural effusion	2
The volume of pleural fluid required for accurate diagnosis of malignant pleural effusion	3
Clinical impact and reliability of pleural fluid mesothelin in undiagnosed pleural effusions	3
Kinetics of soluble mesothelin in patients with malignant pleural mesothelioma during treatment	3
Guidelines for pathologic diagnosis of malignant mesothelioma	4
Full postpleurodesis lung expansion and successful outcome after talc pleurodesis	4
Pleural procedures and pleuroscopy	4
Serum and pleural fluid biomarkers for mesothelioma	5
Malignant pleural mesothelioma: an update on biomarkers and treatment	5
CT appearances of pleural tumours	5

Original articles

Reducing iatrogenic risk in thoracentesis: establishing best practice via experiential training in a zero-risk environment

Authors: Duncan DR et al.

Reference: Chest 2009; 135: 1315-20.

URL: <http://chestjournal.chestpubs.org/content/135/5/1315.full.html>

Comment: This study conducted in the Mayo Clinic examined the reasons behind the higher frequency of iatrogenic pneumothorax following thoracentesis performed by pulmonologists compared with that performed by radiologists, at that institution. The study then demonstrated a reduction in the iatrogenic risk related to thoracentesis, via a structured training program and granting the privilege of performing thoracentesis only to pulmonologists who had passed a proficiency assessment. In addition, mandatory use of ultrasound guidance and standardization of equipment were introduced. Initiation of these procedures markedly reduced the incidence of iatrogenic pneumothorax from 8.7% to 1.1% ($p=0.003$). This experience is valuable for respiratory departments worldwide.

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Biomarkers of infection for the differential diagnosis of pleural effusions

Authors: Porcel JM et al.

Reference: Eur Respir J 2009; 34: 1383-9.

URL: <http://www.erj.ersjournals.com/cgi/content/full/34/6/1383>

Comment: This study examined four selected biomarkers, C-reactive protein (CRP), procalcitonin (PCT), triggering receptors expressed on myelocyte cells (TREM) and lipopolysaccharide binding protein (LBP) in the pleural fluid of 308 patients, in order to assess the diagnostic utility of these biomarkers for separating infectious or non-infectious effusions, and complicated or uncomplicated parapneumonic effusions. The areas under the curve for distinguishing infectious (parapneumonic and tuberculosis) from non-infectious effusions were 0.87 for CRP, 0.86 for sTREM-1, 0.57 for PCT and 0.87 for LBP. None of these biomarkers performed better than the conventional parameters, pleural fluid pH, glucose and lactate dehydrogenase, in the diagnosis of complicated parapneumonic effusions.

Biomarkers of heart failure in pleural fluid

Authors: Porcel JM et al.

Reference: Chest 2010; 136: 671-7.

URL: <http://chestjournal.chestpubs.org/content/136/3/671.full.html>

Comment: This study showed that N terminal pro-brain natriuretic peptide (NT-proBNP) is a very useful marker for identifying pleural effusions related to cardiac failure. Area under the curve values for pleural fluid levels of NT-proBNP, BNP and ST2 were 0.96, 0.90 and 0.56, respectively for separating cardiac (n = 90) and non-cardiac (n = 91) pleural effusions. In 20 patients with cardiac failure effusions, the fluids were misclassified as exudates by Light's criteria and of these 90%, 70% and 50% were correctly classified using NT-pro-BNP, BNP and serum-pleural protein gradient, respectively. Unlike BNP, the reference level for NT-pro-BNP was unaffected by age, gender or serum creatinine level.

Thoracic ultrasound in the diagnosis of malignant pleural effusion

Authors: Qureshi NR et al.

Reference: Thorax 2009; 64: 139-43.

URL: <http://thorax.bmj.com/cgi/content/full/64/2/139>

Comment: This study established the usefulness of thoracic ultrasound in detecting features of malignant pleural effusions. It was found that thoracic ultrasound correctly diagnosed malignancy in 26 of 33 patients. Features of pleural thickening >1 cm, pleural nodularity and diaphragmatic thickening >7 mm were highly suggestive of malignant disease, with a positive predictive value of 100% and a negative predictive value of 79%.

A prospective study of the volume of pleural fluid required for accurate diagnosis of malignant pleural effusion

Authors: Abouzgheib W et al.

Reference: Chest 2009; 135: 999-1001.

URL: <http://chestjournal.chestpubs.org/content/135/4/999.full>

Comment: This prospective study showed that submitting more than 50 mL of pleural fluid for testing did not improve diagnostic yield. Forty-four patients (23 with positive cytology for malignancies) were included in the study. The first 50 mL and the remainder of the fluid drained were sent separately for cytological analyses. Identical results were obtained for the initial 50 mL specimen and for the larger volume sample in all cases.

Clinical impact and reliability of pleural fluid mesothelin in undiagnosed pleural effusions

Authors: Davies HE et al.

Reference: Am J Respir Crit Care Med 2009; 180: 437-44.

URL: <http://ajrccm.atsjournals.org/cgi/content/full/180/5/437>

Comment: This study showed that pleural fluid mesothelin levels were significantly raised in mesothelioma effusions compared with those from metastatic pleural carcinomas or benign pleuritis. Pleural fluid mesothelin levels provided additional information to pleural fluid cytology in the work-up of undiagnosed pleural effusions (n = 167). Mesothelin levels in pleural fluids remained stable after pleurodesis and were unaffected by the presence of bacteria. This study supports an adjunct role for pleural fluid mesothelin measurements in the work-up of pleural effusions.

Kinetics of soluble mesothelin in patients with malignant pleural mesothelioma during treatment

Authors: Grigoriu BD et al.

Reference: Am J Respir Crit Care Med 2009; 179: 950-4.

URL: <http://ajrccm.atsjournals.org/cgi/content/full/179/10/950>

Comment: This study demonstrated the clinical application of mesothelin measurements in patients with malignant mesothelioma. Increasing serum levels were seen with disease progression, while stable or decreasing values suggested response to treatment following intrapleural infusion of an adenoviral vector expressing human interferon-beta or chemotherapy. These findings therefore suggested that serial measurement of mesothelin may be useful for monitoring disease progression and response to treatment in patients with malignant mesothelioma.

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Guidelines for pathologic diagnosis of malignant mesothelioma: a consensus statement from the International Mesothelioma Interest Group

Authors: Husain AN et al.

Reference: Arch Pathol Lab Med 2009; 133: 1317-31.

URL: <http://www.archivesofpathology.org/doi/full/10.1043/1543-2165-133.8.1317>

Comment: This is an excellent set of practical diagnostic guidelines to help pathologists in the diagnosis of malignant mesothelioma. This article is not intended as a review of the literature, but provides insight into the often difficult process of confirming mesothelioma from a pathologist's perspective, and the role of immunohistochemistry and staining. It also includes summary tables of diagnostic features, and indicates caveats in diagnosis. This consensus statement is a useful reference document for respiratory physicians and pathologists with an interest in mesothelioma.

Is full postpleurodesis lung expansion a determinant of a successful outcome after talc pleurodesis?

Authors: Terra RM et al.

Reference: Chest 2009; 136: 361-8.

URL: <http://chestjournal.chestpubs.org/content/136/2/361.full>

Comment: This prospective study randomized patients (n = 60) with recurrent malignant pleural effusions to video-assisted thoracic surgery (VATS), talc poudrage or bedside talc slurry (TS). Nine patients (15%) required new pleural procedures (VATS group, 5 recurrences; TS group, 4 recurrences; p = 0.999). There were no differences between groups regarding quality of life, complications, drainage time, hospital stay, or survival. There was a higher rate of immediate total lung re-expansion with VATS (60% vs 30%; p = 0.027), but this did not correlate with radiological recurrence, clinical recurrence, or complications. This study adds further evidence to other recent publications reporting that VATS provides little benefit over talc slurry pleurodesis.

Review articles**Pleural procedures and pleuroscopy**

Authors: Wrightson JM et al.

Reference: Respiriology 2009; 14: 796-807.

URL: <http://www3.interscience.wiley.com/cgi-bin/fulltext/122553342/HTMLSTART>

Comment: This is an excellent and comprehensive review on complications of pleural procedures and pleuroscopy, and their management. This article is highly recommended for clinicians performing pleural procedures.

Serum and pleural fluid biomarkers for mesothelioma

Authors: Creaney J, Robinson BWS

Reference: Curr Opin Pulm Med 2009; 15: 366-70.

URL: http://journals.lww.com/co-pulmonarymedicine/Abstract/2009/07000/Serum_and_pleural_fluid_biomarkers_for.13.aspx

Comment: This is a comprehensive review of the development, clinical utility, and potential role of biomarkers, including mesothelin, CA125, osteopontin, and megakaryocyte potentiating factor, in the diagnosis and monitoring of mesothelioma. The article focuses on mesothelin and mesothelin-related peptide, which are the best biomarkers available to date. Mesothelin has a diagnostic sensitivity ranging from 50% at the time of diagnosis to 84% in advanced disease. No marker is currently suitable as a stand alone test for mesothelioma screening. There is no benefit in using combinations of markers.

Malignant pleural mesothelioma: an update on biomarkers and treatment

Authors: Ray M, Kindler HL

Reference: Chest 2009; 136: 888-96.

URL: <http://chestjournal.chestpubs.org/content/136/3/888.full.html>

Comment: This review article provides an overview of the diagnostic markers and treatment modalities for mesothelioma. This is valuable for chest physicians looking for a general update on the topic.

CT appearances of pleural tumours

Authors: Salahudeen HM et al.

Reference: Clin Radiol 2009; 64: 918-30.

URL: [http://www.clinicalradiologyonline.net/article/S0009-9260\(09\)00163-9/abstract](http://www.clinicalradiologyonline.net/article/S0009-9260(09)00163-9/abstract)

Comment: This review is a useful starting point for chest physicians looking for a brief overview of the CT features of benign and malignant pleural diseases.

APSR Respiratory Updates is an initiative of the APSR Education Committee

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