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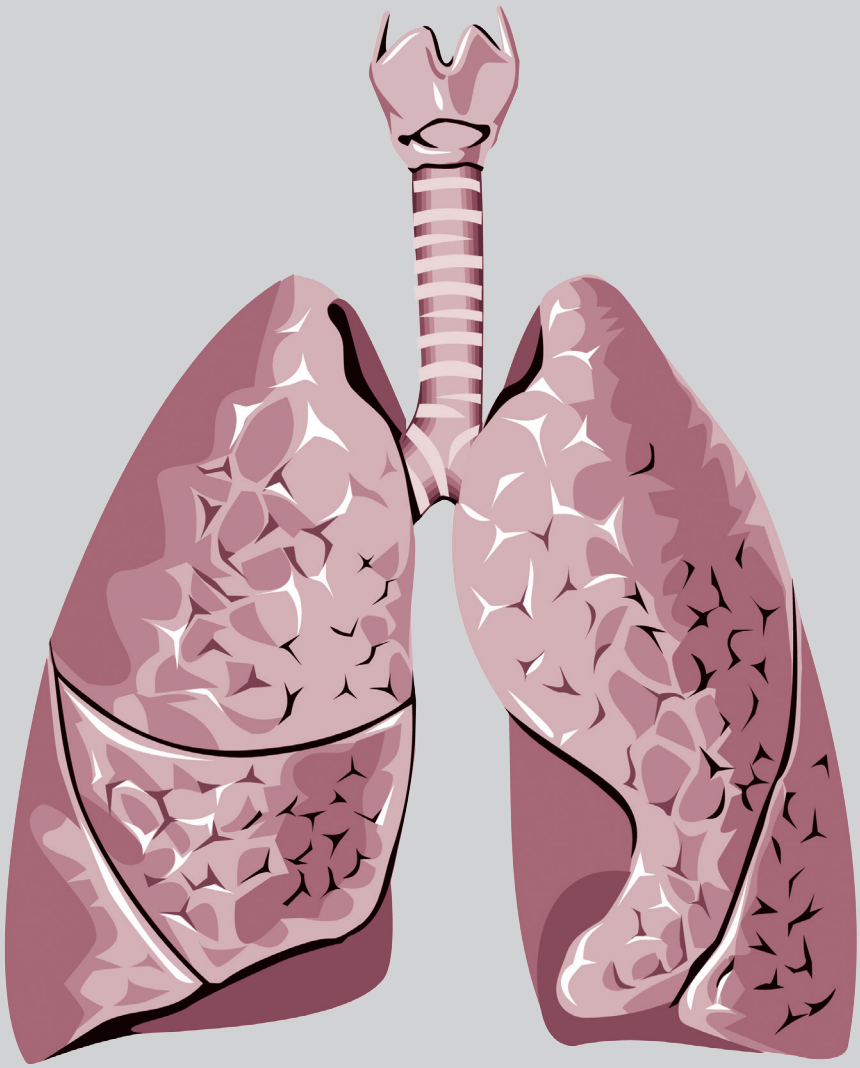

The Official Journal of

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# Pre-Extubation Cuff Leak Test and Extubation Outcome in Critically Ill COVID-19 and Non-COVID-19 Pneumonitis Patients with Acute Respiratory Failure

Mei-Chun Lin[1], Hsun-Yun Chang[1], Ching-Tzu Huang[1], Hsiu-Feng Hsiao[1,2], Han-Chung Hu[1,2,3], Chung-Chi Huang[1,2,3], Meng-Jer Hsieh[1,2,3]

**Background:** The cuff leak test (CLT) is recommended to predict post-extubation stridor (PES) in high-risk patients. The impact of the CLT, and extubation outcomes in severe COVID-19 patients were analyzed.

**Methods:** The CLT was performed in severe COVID-19 patients with endotracheal intubation. The results of the CLT were compared with that in patients with severe non-COVID community-acquired pneumonia (CAP). The CLT results were also compared in COVID-19 patients with or without pre-extubation corticosteroid therapy.

**Results:** This study includes 34 severe COVID-19 and 42 severe non-COVID CAP patients. Twenty-one of the 34 COVID-19 patients had the CLT before extubation. The positive CLT percentages were similar in the COVID-19 and non-COVID CAP patients (9.5% vs. 14.3%, *P*=0.593). The cuff leak volumes (307.80±118.58 ml vs. 272.30±148.98 ml, *P*=0.346) and cuff leak percentages (50.49±17.24% vs. 45.94±22.02%, *P*=0.412) were not significantly different between the 2 groups. All of the COVID-19 patients were extubated successfully without PES, irrespective of the CLT results. Only 1 in 6 CLT-positive non-COVID CAP patients had PES, but this was managed well without re-intubation. Multivariate analysis revealed female gender and the duration of endotracheal intubation were positively correlated with a positive CLT.

**Conclusion:** The positive CLT rate in severe COVID-19 patients was no higher than that in severe non-COVID CAP patients. The CLT results and extubation outcomes in COVID-19 patients were similar to those in non-COVID CAP patients. Similar to other patients with endotracheal intubation, severe COVID-19 patients with a higher risk of PES would undergo a CLT, especially female patients and those with a longer duration of endotracheal intubation.
***(Thorac Med 2024; 39: 1-12)***

Key words: Cuff leak test, post-extubation stridor, COVID-19, acute respiratory failure, corticosteroids

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# Variation in Oxygen Saturation Measured by a Wearable Device May Predict Response to Treatment in Patients with Community-Acquired Pneumonia

Yu-Cheng Wu[1], Chien-Chung Huang[2,3], Chiann-Yi Hsu[4], Wen-Cheng Chao[1,5,6,7], Chieh-Liang Wu[1,5]

**Background:** Community-acquired pneumonia (CAP) is 1 of the leading causes of death worldwide, and early prediction of response to treatment is crucial in managing patients with CAP. Wearable devices are increasingly being used to monitor physiological parameters continuously. Therefore, the aim of this study was to determine the ability of wearable devices to predict the outcome of treatment for patients with CAP.

**Methods:** We prospectively enrolled patients with CAP at a tertiary referral hospital in central Taiwan between 2020 and 2021, and used wearable devices to monitor oxygenation (SpO2) and physical activity for 2 days after admission. An unfavorable treatment outcome on Day 5 was determined by clinical deterioration, radiographic progression, or pneumonia-related complications. Multivariate logistic regression was used to determine the odds ratio (OR) and 95% confidence interval (CI).

**Results:** A total of 62 patients with CAP were enrolled, and 51.6% (32/62) of them were classified as having unfavorable treatment outcomes. The groups with favorable and unfavorable treatment outcomes had similar disease severities, including CURB-65 (1.13±0.82 vs. 1.06±0.8, *p*=0.719) and the pneumonia severity index (97.3±36.21 vs. 98.06±31.7, *p*= 0.983). We found a lower $SpO_2$, a higher variation in $SpO_2$, and lower physical activity in those with an unfavorable response compared to those with a favorable response. After adjusting for age, sex, and severity, we found that a lower average $SpO_2$ (OR: 0.91, 95% CI 0.62–1.33, *P*=0.624) and a greater variation in $SpO_2$ (OR: 1.87, 95% CI 1.02–3.42, *P*=0.044) on Day 2tended to be associated with an increased risk of an unfavorable treatment outcome.

**Conclusion:** In this study, we continuously monitored CAP patients using a wearable device and identified Day 2 SpO2 average and variation as potential early treatment outcome predictors. ***(Thorac Med 2024; 39: 13-23)***

Key words: Pneumonia, pulse oximetry, internet of things (IoT), wireless, monitoring

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# Collateral Circulation of Phrenic Venous Pathway in Lung Cancer-Associated Superior Vena Cava Syndrome: A Case Report

Tse-Hsien Lo[1], Jia-Jun Wu[1,2,3], Gee-Chen Chang[1,2,3,4]

Superior vena cava (SVC) syndrome is a common complication of lung cancer, including both non-small cell and small cell lung cancers. The formation of collateral circulation can reduce clinical symptoms, such as shortness of breath, a puffy face, and neck and arm swelling. Here, we report a case of SVC syndrome in a 70-year-old woman, a never-smoker, who presented with right neck and right arm numbness for 1 month. Right upper lobe lung cancer with partial compression of the SVC was diagnosed. Chest computed tomography revealed a rare collateral circulation pathway, i.e., the phrenic venous pathway. Collateral circulation was observed during the follow-up period. ***(Thorac Med 2024; 39: 24-30)***

Key words: Collateral circulation, lung cancer, phrenic collateral circulation, superior vena cava (SVC) syndrome.

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# Patient with Classical Hodgkin's Lymphoma Presenting with Pulmonary Manifestations Mimicking Primary Pulmonary Hodgkin's Lymphoma

Yu-Cheng Lin[1,2], Chuan-Sheng Horng[1], Yao-Tung Wang[1,2], Ren-Tsung Ko[3], Shih-Ming Tsao[1,2]

Superior vena cava (SVC) syndrome is a common complication of lung cancer, including both non-small cell and small cell lung cancers. The formation of collateral circulation can reduce clinical symptoms, such as shortness of breath, a puffy face, and neck and arm swelling. Here, we report a case of SVC syndrome in a 70-year-old woman, a never-smoker, who presented with right neck and right arm numbness for 1 month. Right upper lobe lung cancer with partial compression of the SVC was diagnosed. Chest computed tomography revealed a rare collateral circulation pathway, i.e., the phrenic venous pathway. Collateral circulation was observed during the follow-up period. ***(Thorac Med 2024; 39: 31-35)***

Key words: Primary pulmonary Hodgkin's lymphoma, PPHL, clubbing of the fingers, diffuse nodular lesions.

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# Multifocal Mass-like Pulmonary Consolidation in a Patient with Community-Acquired Pneumonia Caused by *Pseudomonas Aeruginosa*

Chang-Ching Lee[1], Sheng-Wei Pan[1,2]

*Pseudomonas aeruginosa* (*P. aeruginosa*) is a less common pathogen causing community-acquired pneumonia. However, patients with chronic airway disease are vulnerable to *P. aeruginosa* infection. *P. aeruginosa* infection is associated with a poor quality of life, frequent exacerbation, and a high mortality rate in patients with bronchiectasis. Ground-glass attenuation, peribronchial infiltration and consolidation, but not mass-like lesions, are the common radiographic features of *P. aeruginosa* pneumonia. Here, we reported a rare case of *P. aeruginosa* pneumonia with multifocal conglomerate mass-like consolidation. Ultrasound-guided transthoracic aspiration was performed to rule out malignancy, and pus was aspirated, which showed numerous inflammatory cells and yielded *P. aeruginosa*. The early diagnosis of *P. aeruginosa* pneumonia in this case helped in the initiation of appropriate antibiotic treatment and eliminated the need of an investigation for mass-like lesions. The mass-like lesions resolved after antibiotic use. In this case report, we reviewed the clinical presentations and radiographic patterns of *P. aeruginosa* pneumonia and the diagnostic value of sono-guided needle aspiration. ***(Thorac Med 2024; 39: 36-42)***

Key words: multifocal consolidation, bronchiectasis, community-acquired pneumonia, *Pseudomonas aeruginosa*, sono-guided needle aspiration.

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# Case Report: Metastatic Choriocarcinoma with Choriocarcinoma Syndrome Presenting as Massive Pulmonary Hemorrhage

Chiung-Hsin Chang[1], Chen-Yiu Hung[1,3], Ting-Chang Chang[2,3]

Diffuse alveolar hemorrhage (DAH) is a life-threatening disorder that may develop into respiratory failure. One of the various differential diagnoses of DAH is metastatic choriocarcinoma. We report the rare case of a 32-year-old woman who presented with pulmonary hemorrhage, liver and thoracic spine metastases of choriocarcinoma immediately after a normal delivery. Multiple hypervascular masses at the posterior wall of the uterus were found. She was then treated with cisplatin-etoposide chemotherapy. Hemothorax, hemoperitonium, and progressive pulmonary hemorrhage with a rapidly increasing choriogonadotropin level were noted soon after chemotherapy, and was diagnosed as choriocarcinoma syndrome. Thus, the patient was diagnosed as having metastatic choriocarcinoma with the initial presentation of massive pulmonary hemorrhage, and choriocarcinoma syndrome that presented during chemotherapy. ***(Thorac Med 2024; 39: 43-50)***

Key words: diffuse alveolar hemorrhage, gestational trophoblastic neoplasm, choriocarcinoma, choriocarcinoma syndrome.

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# What to Expect When You're Not Expecting it: Reexpansion Pulmonary Edema Following Tube Thoracostomy for Pneumothorax

Yu-Lin Hsieh[1]

Symptomatic reexpansion pulmonary edema (RPE) is an extremely rare complication following tube thoracostomy for pneumothorax, with a mortality rate up to 20% [1]. It can occur in chronic pneumothorax with rapid decompressive treatment or pleural effusion with excessive tapping. Ultimately, the risk factors remain unclear.

A 61-year-old man suffered from chest tightness and shortness of breath for about a week. Chest X-ray showed significant right-side pneumothorax. Coughing and desaturation developed 20 minutes after tube thoracostomy. Follow-up X-ray revealed a partial reexpanded right lung. The patient was given diuretics and hydrocortisone, along with CPAP support. The pulmonary edema resolved gradually over 4 days, and the patient underwent VATS bullectomy successfully. ***(Thorac Med 2024; 39: 51-54)***

Key words: Pneumothorax, tube thoracostomy, reexpansion pulmonary edema (RPE).

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# Typical carcinoid Neuroendocrine Tumors of the Lung, a Rare Type of Lung Neoplasm: A Case Report and Literature Review

Yi-Fang Chen[1], Chiao-Hung Wang[1], Hsiu-Ling Cheng[2], Yih-Yiing Wu[3]

Lung neuroendocrine tumors (NETs) are a rare type of tumor that affects the lungs. These tumors tend to occur more frequently in women and in white populations, with incidence rates ranging from 0.2-2 cases per 100,000 people per year. It is important for doctors to distinguish between low-grade (typical and atypical carcinoids) and high-grade (large cell neuroendocrine and small cell carcinoma) NETs in the lung, as the prognosis and treatment for these tumors can differ significantly. We reported the case of a patient who was incidentally found to have a lung nodule that was diagnosed as a lung NET. The patient underwent surgery and had a successful recovery thereafter. ***(Thorac Med 2024; 39: 55-63)***

Key words: lung neuroendocrine tumor, typical lung carcinoid tumor, atypical carcinoid tumor, carcinoid syndrome

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# Treatment Experience with Inhaled Amikacin in Mycobacterium Abscessus-Pulmonary Disease: A Case Report

Yen-Jung Li[1], Sheng-Wei Pan[2,3]

*Mycobacterium abscessus* is one of the major etiologic pathogens causing nontuberculous mycobacterial pulmonary disease in susceptible patients. We reported a 57-year-old woman with connective tissue disease, structural lung disease, and *M. abscessus*-pulmonary disease. After 1 month of initial macrolide-based combination antibiotic therapy, the patient started inhaled amikacin (parenteral formulation) during the continuous phase of treatment and maintained sputum culture conversion. Without any complications, she was able to tolerate 12 months of inhaled amikacin and had a successful treatment outcome for *M. abscessus*-pulmonary disease. In addition to presenting the case, we reviewed the efficacy and potential side effects of using inhaled amikacin for the treatment of *M. abscessus*-pulmonary disease. ***(Thorac Med 2024; 39: 64-71)***

Key words: *Mycobacterium abscessus*-pulmonary disease; nontuberculous mycobacteria (NTM)-pulmonary disease; inhaled amikacin

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# *Klebsiella Pneumoniae* Invasive Liver Abscess Syndrome with Metastatic Septic Embolism in a Patient with Newly Diagnosed Diabetes: A Case Report

Jung-Fu Tzeng[1], Jiunn-Min Shieh[1], Shyh-Ren Chiang[1]

*Klebsiella pneumoniae* can produce a variety of infectious disease and is also the most common cause of septic emboli. *K. pneumoniae* invasive liver abscess syndrome (KPIS), characterized by primary liver abscess associated with metastatic infections, including metastatic septic emboli, is a life-threatening condition without appropriate management. We reported a young male patient with KPIS, whose symptoms and chest plain films mimicked pneumonia initially. The diagnosis of diabetes was established during this hospitalization. Liver abscess and thrombosis of the right common femoral vein were found. *K pneumoniae* was isolated from the liver abscess. The clinical manifestations, radiologic features, and management were reviewed. ***(Thorac Med 2024; 39: 72-77)***

Key words: *Klebsiella pneumoniae* invasive liver abscess syndrome (KPIS), septic emboli, diabetes mellitus

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# Diagnosis of Pulmonary Sequestration in Adult Patient Using 3D- Image Vascular Reconstruction: A Case Report and Literature Review

Felisbela Gomes[1], Shih-Lung Cheng[1,2], Cheng-Hung How[3]

We reported the case of a 51-year-old male who had suffered from chronic cough for decades. He was a non-smoker and lived independently in his daily life. He was prescribed antitussive agents for years to treat the chronic cough. This time, he experienced fever and productive cough with purulent sputum, and then visited the outpatient department. A retrocardiac mass-like lesion was noted on chest radiograph. Computed tomography (CT) angiography revealed an aberrant systemic artery from the descending thoracic aorta toward the basal segment of the left lower lung lobe, with increased attenuation of the corresponding territory, and compression of the segmental bronchioles by the engorged vasculature. CT angiography 3D–image vascular reconstruction disclosed an accessory artery rising from the descending thoracic aorta, and then dividing toward the left lower lung lobe. Intra-lobar pulmonary sequestration was diagnosed. Then, video-assisted thoracoscopic left lower lobe lobectomy was performed. The pathology of the specimen was compatible with pulmonary sequestration.

3D–image vascular reconstruction is non-invasive. The image study showed the anomalous feeding artery and the draining vein, which helped reach the diagnosis of pulmonary sequestration. In addition, the image was useful in surgical planning. ***(Thorac Med 2024; 39: 78-83)***

Key words: pulmonary sequestration, 3D-image vascular reconstruction, computed tomography angiography, video-assisted thoracoscopic lobectomy

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# Disseminated *Mycobacterium kansasii* Infection Presenting as Multiple Osteolytic Lesions and Prominent Mediastinal Lymphadenopathy in an Immunocompetent Woman: A Case Report

Yi-Ting Chen[1], Ya-Ting Chang[2], Chih-Jen Yang[1,3]

*Mycobacterium kansasii* (*M. kansasii*) is a nontuberculous mycobacterium that causes various infections in humans, including pulmonary disease, lymphadenitis, and skin and soft tissue infections. Disseminated *M. kansasii* infection, although rare, can occur in individuals with weakened immune systems or chronic lung diseases. This case report presents a 65-year-old woman with no immunocompromising conditions who experienced fever, chest pain, dyspnea, and respiratory tract infection symptoms for several weeks. Medical imaging revealed enlarged lymph nodes in the upper mediastinum and subcarinal region. Despite inconclusive results from a biopsy, a positron emission tomography (PET) scan showed increased metabolic activity in multiple lymph nodes and bones. The patient underwent a chest wall tumor excision, which showed no signs of malignancy but eventually led to the identification of *M. kansasii* through tissue culture. The patient responded well to treatment with a combination of rifampin, ethambutol, and clarithromycin, as confirmed by a follow-up chest CT scan showing significant improvement in lymphadenopathy and bony lesions after 3 months. ***(Thorac Med 2024; 39: 84-90)***

Key words: Disseminated *M. kansasii* infection, osteolytic bone destruction, mediastinal lymphadenopathy, immunocompetent patient

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# Rapid Progression of Diffuse Parenchymal Lung Disease in a Woman with Dual Positives of Anti-MDA-5 and Anti-RO-52 Amyopathic Dermatomyositis, Resulting in Refractory Hypoxemia and Death Following Surgical Lung Biopsy: A Case Report and Literature Review

Chi-En Chen[1], Chih-Hsin Lee[1], Lung-Fang Chen[2], Yin-Chun Chang[3]

A 55-year-old female presented with Gottron's papule, mechanic's hands, and periungual erythematous change. She was diagnosed with amyopathic dermatomyositis with positive anti-MDA-5 and anti-RO52 antibodies. Despite aggressive immune-modifying therapy and comprehensive antimicrobial treatment, she developed rapidly progressive diffuse parenchymal lung disease following a surgical biopsy that resulted in refractory hypoxemia and death. We performed a literature review and scrutinized the clinical course for possible etiologies of the devastating complications following surgical biopsy in our patient. We found that transbronchial lung cryobiopsy, an emerging novel technique, could be a potential diagnostic alternative to surgical lung biopsy to avoid postoperative morbidities and mortalities in patients with amyopathic dermatomyositis with diffuse parenchymal lung disease. ***(Thorac Med 2024; 39: 91-98)***

Key words: Amyopathic dermatomyositis, anti-MDA-5 antibodies, diffuse parenchymal lung disease, video-assisted thoracoscopic surgical lung biopsy, transbronchial lung cryobiopsy, organizing pneumonia

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# Barotrauma in Patients with COVID-19-Related Severe Pneumonia with Respiratory Failure – Case Series Report From a Medical Center

Mei-Hsueh Chiang[1,*], Pin-Jui Chen[1,*], Chen-Yiu Hung[3], Ching-Tzu Huang[1,3], Hsiu-Feng Hsiao[1,3], Han-Chung Hu[1,2,3]

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), has been recognized as a global pandemic since March 2020. The disease can lead to COVID-19-related pneumonia, and the clinical condition of patients may deteriorate. Respiratory failure could develop, and most patients with severe disease require mechanical ventilator (MV) use. One of the main complications of MV is barotrauma, and an increased incidence of barotrauma was found in COVID-19 patients under ventilator support. Application of a lung protective ventilation strategy is the standard management of COVID-19-associated respiratory failure. We reported 3 patients with COVID-19 pneumonia requiring invasive MV. Using data from electronic medical record systems and ventilator parameters, we discussed the occurrence of barotrauma in COVID-19 patients with respiratory failure and its correlation with MV. ***(Thorac Med 2024; 39: 99-105)***

Key words: COVID-19, hypoxic respiratory failure, mechanical ventilator, barotrauma

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