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# 胸腔醫學

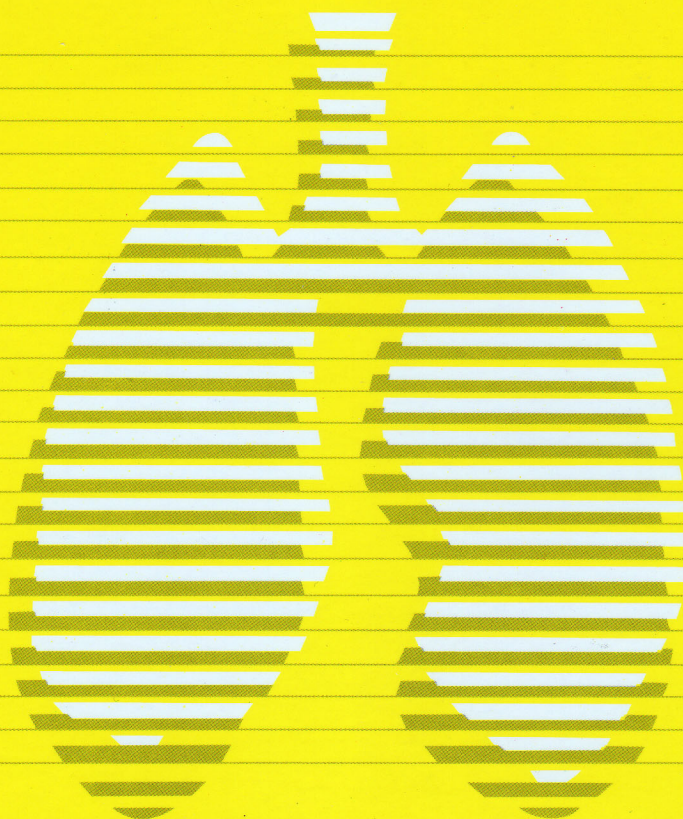
## Thoracic Medicine

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# Differences in Morning and Evening Blood Pressure in Patients with Obstructive Sleep Apnea

Shan-Chieh Huang, Chien-Ming Chu, Yu-Chih Liu, Chung-Chieh Yu

**Introduction:** Obstructive sleep apnea (OSA) is an independent risk factor for hypertension and is associated with increased cardiovascular mortality. Although a diurnal blood pressure (BP) variation is observed in OSA, it is not well documented. This study investigated the morning and evening BP variations in patients with OSA and estimated the effect of continuous positive airway pressure (CPAP) on BP.

**Methods:** This retrospective study enrolled 70 patients with newly-diagnosed OSA who underwent a 1-night CPAP titration. The evening BP before sleeping and the morning BP after waking were measured at 1 time point during polysomnography and CPAP titration. The average heart rate was also recorded during these 2 periods. BP in the evening and morning and the average heart rate were compared pre- and post-CPAP therapy.

**Results:** Systolic and diastolic BP in the morning (systolic,  $140.44 \pm 18.09$  mmHg; diastolic,  $83.49 \pm 12.55$  mmHg) were both significantly higher than in the evening (systolic,  $135.17 \pm 16.51$  mmHg;  $p=0.003$ ; diastolic,  $79.31 \pm 11.84$  mmHg;  $p<0.001$ ) during polysomnography. After 1 night of CPAP, both the apnea-hypopnea index and mean saturation showed marked improvement. Morning and evening BP was similar (systolic:  $131.66 \pm 15.33$  vs.  $130.96 \pm 15.13$  mmHg;  $p=0.618$ ; diastolic:  $78.03 \pm 11.68$  vs.  $78.84 \pm 11.88$  mmHg;  $p=0.467$ ). The average heart rate was reduced significantly after CPAP (pre-CPAP,  $67.09 \pm 8.31$  beats per min; post-CPAP  $63.32 \pm 9.56$  beats per min;  $p=0.001$ ).

**Conclusion:** Patients with OSA have higher waking BP and greater diurnal BP variation. A 1-night CPAP therapy can significantly reduce morning BP, reverse any diurnal BP difference, and significantly reduce the average heart rate. (*Thorac Med* 2015; 30: 61-68)

Key words: obstructive sleep apnea, blood pressure, continuous positive airway pressure

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## 阻塞性睡眠呼吸中止症病患早上與傍晚血壓的差異

黃善結 朱建民 劉育志 于鍾傑

**背景：**阻塞性睡眠呼吸中止症是引發高血壓的獨立危險因子並且會增加心血管疾病的死亡率。雖然有研究顯示睡眠呼吸中止症的病人有日夜血壓變異的情況，但此現象尚未獲得確切的證實。這篇研究探討阻塞性睡眠呼吸中止症病人的日夜血壓變化以及正壓呼吸器治療對血壓的影響。

**方法：**這是一篇回溯性的研究，對象是 70 位初診斷為阻塞性睡眠呼吸中止症並且接受過一夜正壓呼吸器壓力滴定的病人，我們收集了病人接受多項睡眠生理檢查以及正壓呼吸器壓力滴定時晚上睡前和白天醒來時的血壓，以及這兩次檢查時的平均心跳速率。我們再將正壓呼吸器治療前後的血壓和心跳速率做比較。

**結果：**在正壓呼吸器治療前，白天醒來的收縮壓及舒張壓（收縮壓  $140.44 \pm 18.09$  mmHg；舒張壓  $83.49 \pm 12.55$  mmHg）皆明顯高於晚上睡前的血壓（收縮壓  $135.17 \pm 16.51$  mmHg； $p=0.003$ ；舒張壓  $79.31 \pm 11.84$  mmHg； $p<0.001$ ）。經過一個晚上正壓呼吸器治療後，睡眠呼吸暫停低通氣指數以及平均血氧飽和濃度都有顯著的改善。白天醒來和晚上睡前的血壓變得很接近（收縮壓  $131.66 \pm 15.33$  vs.  $130.96 \pm 15.13$  mmHg； $p=0.618$ ；舒張壓  $78.03 \pm 11.68$  vs.  $78.84 \pm 11.88$  mmHg； $p=0.467$ ）。平均心跳速率也明顯下降（正壓呼吸器治療前  $67.09 \pm 8.31$  beats per min；正壓呼吸器治療後  $63.32 \pm 9.56$  beats per min； $p=0.001$ ）。

**結論：**阻塞性睡眠呼吸中止症的病人白天醒來的血壓顯著上升，日夜血壓的差距也較大。一個晚上的正壓呼吸器治療可以明顯降低白天醒來的血壓和平均心跳速率。（*胸腔醫學* 2015; 30: 61-68）

**關鍵詞：**阻塞性睡眠呼吸中止症，血壓，正壓呼吸器

# Management and Outcome of Tracheal Malignancy: Experience in a University-Affiliated Hospital

Shih-Hao Huang, Ping-Chih Hsu, Shih-Hong Li, Chih-Hung Chen, Ning-Hung Chen, Cheng-Ta Yang, Chien-Ying Liu

**Background:** Tracheal tumors are rare. The majority of the tumors in adults are malignant, with about 1/2 to 2/3 being squamous cell carcinomas (SCC). Adenoid cystic carcinomas (ACC) were the second most common of all and the most common for primary tracheal malignancy. Because of the rarity of tracheal tumors and the lack of clarity about their clinical outcome, we retrieved patient information from our cancer registration center and database for analysis.

**Objective:** To investigate the clinical manifestations, management and outcome of tracheal tumors.

**Patients and Methods:** Using tumor location in the trachea as the search term, data on 45 patients with tracheal malignant tumors from July 2002 to December 2013 were retrieved from the database of our cancer center. Histology, primary or metastatic, initial clinical manifestations, therapy and outcome were analyzed.

**Results:** Twenty-three patients (51%) had a primary tumor and 22 (49%) had a metastatic tumor. Among the primary tumors, 12 (52%) were ACC, 6 (26%) were SCC, and 3 (13%) were mucoepidermoid carcinoma. Of those patients with metastatic tumors, 13 (59%) had SCC, and 3 (13%) had adenocarcinoma. The most common manifestation was cough and the second most common was dyspnea. Nineteen patients (42%) underwent surgery, 23 (51%) radiation therapy, and 16 (35%) chemotherapy. Sixteen patients received a single modality of therapy, 17 patients, 2 modalities, and 14 patients, 3 modalities. The median survival of patients with primary tracheal tumor was 2674 days, and for those with metastatic cancer, 125 days. Among the primary tumors, the median survival of those with ACC was 3773 days.

**Conclusions:** Primary ACC patients had a better outcome than those with the other tracheal malignancies, and patients with metastatic tracheal malignancy had a poor survival outcome. (*Thorac Med* 2015; 30: 69-78)

Key words: tracheal tumor, adenoid cystic carcinoma, primary tracheal tumor, secondary tracheal tumor

## 氣管腫瘤的處置與預後－長庚醫院的經驗分享

黃世豪 徐稟智 李適鴻 陳志弘 陳澤宏 楊政達 劉劍英

**前言：**氣管腫瘤發生的機會罕見，大多數氣管腫瘤都是惡性的，其中超過二分之一為鱗狀上皮癌，原發性的氣管腫瘤則大多數為腺樣囊狀癌（adenoid cystic carcinoma），氣管腫瘤相對其他肺部腫瘤發生的機率低，因而這個回溯性研究我們研究長庚醫院氣管腫瘤患者的診斷，治療處置，併發症和預後的分析。

**方法：**這個研究收集了資料庫自西元 2002 年 6 月至西元 2013 年 12 月，45 位氣管腫瘤病人，分析病人基本資料，病理切片結果，原發性和續發性的氣管腫瘤，臨床的症狀，治療，併發症和預後的資料，做變數分析。

**結果：**收集到的氣管腫瘤資料，23 位為原發性（51%），22 位為續發性（49%），原發性的腫瘤中以腺樣囊狀癌為大宗（52%），第二位為鱗狀上皮癌。續發性氣管腫瘤患者占多數為鱗狀上皮癌 13 位（59%），其次為腺癌。臨床上最常表現出來的症狀為咳嗽和喘。共計有 19 位病患（42%）接受手術治療，23 位（51%）接受放射線治療，16 位（35%）接受化學治療。總計有 16 位病患接受單一方式的治療，17 位病患接受兩種以上的方式治療，4 位病患接受 3 種以上的治療。平均存活日在原發性氣管腫瘤是 2674 天，續發性氣管腫瘤是 125 天，在原發性氣管腫瘤中，腺樣囊狀癌的平均存活日是 3773 日。

**結論：**原發性氣管腫瘤中，腺樣囊狀癌不論經由何種治療方式，有比較好的預後，而轉移到氣管的續發性腫瘤平均而言有比較差的預後。這篇研究顯示經由病患的症狀和影像學，若能早期診斷出氣管腫瘤，進而做出適當的處置，氣管腫瘤患者可以有較好的預後和生活品質。（*胸腔醫學* 2015; 30: 69-78）

**關鍵詞：**氣管腫瘤，腺樣囊狀癌，原發性氣管腫瘤，續發性氣管腫瘤

# Disseminated *Mycobacterium avium complex* Disease in an Immunocompetent Patient: A Case Report

Yen-Hsiang Tang, Rong-Luh Lin, Chien-Liang Wu

Disseminated *Mycobacterium avium complex* (MAC) infection rarely occurs in immunocompetent individuals. Besides pulmonary infection, the most common extrapulmonary sites of MAC infection are the bones and joints.

We presented an 80-year-old woman who complained of left flank pain and bilateral lower legs weakness for 2 weeks. Her previous history included the finding of frequent MAC colonization in sputum culture for years. CXR revealed multifocal consolidation in bilateral lung fields. The spinal MRI showed signal change involving the vertebral bodies from T7 to T9 presenting as hypointense on T1-FLAIR, and hyperintense on STIR sequence with strong enhancement. We initially considered the lesion as malignancy and a T8 spinal tumor was resected. The pathology disclosed granulomatous inflammation, and the tissue culture grew MAC. The patient's ileus, ascites, diarrhea and stool culture also grew MAC. Clarithromycin, rifampicin, and ethambutol were prescribed. Follow-up CXR 4 months later showed much resolution of the consolidation. Follow-up spinal X-ray revealed decreased T8 height with metallic device fixation. The patient could walk around with a walker after rehabilitation. Her diarrhea also resolved. (*Thorac Med* 2015; 30: 79-85)

Key words: Disseminated *mycobacterium avium complex*, immunocompetent



## 免疫功能正常的病人感染彌漫性鳥型分枝桿菌疾病： 一病例報告

湯硯翔 林榮祿 吳健樑

彌漫性鳥型分枝桿菌感染罕見於免疫功能正常的病人。除了肺臟之外，最常見的肺外感染病灶是骨頭及關節。

我們報導一位 80 歲女性，在兩星期前開始有左側腰痛以及雙側小腿無力的症狀。此病人多年前即頻繁的在痰液培養出鳥型分枝桿菌。胸部 X 光片顯示在雙肺野多發性的實質化病灶。脊椎核磁共振影顯示第七節胸椎至第九節胸椎的椎體，在 T1-FLAIR 影像上是低顯影，而在 STIR 影像上則是高顯影。起初我們判斷這些病灶是惡性腫瘤造成的，因此施行第八節胸椎腫塊切除手術。病理報告顯示肉芽腫性發炎反應，組織則培養出鳥型分枝桿菌。病人同時併有腸阻塞，腹水，腹瀉且糞便也培養出鳥型分枝桿菌。我們給予 clarithromycin，rifampin，以及 ethambutol 治療。四個月後追蹤的胸部 X 光顯示之前的實質化病灶消散許多。追蹤的脊椎 X 光片則顯示高度縮減的第八節胸椎與金屬板固定。在接受復健後，此病人可以靠著輔具自行行走。而且她的腹瀉亦停止了。( *胸腔醫學* 2015; 30: 79-85)

關鍵詞：彌漫性鳥型分枝桿菌，免疫功能正常

# Syncope Caused by Pulmonary Embolism after Lung Resection – A Case Report

Chien-Kuang Chen, Chih-Yi Chen, Pin-Ru Chen

Pulmonary embolism (PE) after lung resection is a rare occurrence in Taiwan. It is associated with a high mortality rate, but the diagnosis is difficult because the symptoms and signs can be confused with those commonly seen after lung resection. We report a patient who developed PE after lung resection. Syncope was the first presenting symptom. Coagulation screening showed elevated levels of D-dimer. Diagnosis of PE was confirmed by ventilation/perfusion (V/Q) scan and high-resolution computed tomography (HRCT). The patient recovered well with anticoagulant treatment and oxygen support, and was discharged after 19 days. HRCT scan at the 6-month follow-up revealed no filling defect in the pulmonary artery. We reviewed the literature on the risk factors, prophylaxis, treatment and diagnosis of PE. Reports showed that D-dimer seems to be useful in screening. Although the incidence of PE after surgery is lower in ethnic Chinese populations, we should keep this uncommon disease in mind and manage the patients carefully. (*Thorac Med* 2015; 30: 86-91)

Key words: pulmonary embolism, lung resection, D-dimer

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# 肺切除手術術後併發肺栓塞導致暈厥一病例報告

陳建光 陳志毅 陳品儒

肺切除後發生肺栓塞的案例在台灣非常少見。它死亡率很高。因為手術後的常見的症狀與肺栓塞的症狀相似，造成診斷上的困難。在此我們將介紹一名肺切除手術術後併發肺栓塞的病人，暈厥是她的第一個表現症狀。其 D-dimer 的血漿濃度上升。診斷上經由核醫灌注 / 通氣檢查與電腦斷層確認。在接受抗凝血治療與氧氣支持後，她逐漸康復，共住院治療 19 天。六個月後電腦斷層檢查追蹤，無任何肺栓塞情形。在此我們回顧文獻關於肺栓塞的相關資料，包括：危險因子、預防方法、診斷工具與治療方式。D-dimer 似乎適合用來做為篩選的工具。雖然在華人中，肺切除手術術後併發肺栓塞的機會不大，但還是要將此診斷放在心中，並且小心的處理病人。( *胸腔醫學* 2015; 30: 86-91)

關鍵詞：肺栓塞，肺切除，D-dimer

# Desmoplastic Malignant Mediastinal Mesothelioma Presenting as Superior Vena Cava Syndrome: A Case Report and Literature Review

Kah-Mee Law, Yu-Feng Wei, Jiun-Ting Wu

Mediastinal mesothelioma is rare, accounting for less than 5% of all cases of mesothelioma. Primary pericardiac mesothelioma is also a rare type of mesothelioma, with a reported incidence of less than 0.0022% among 500,000 cases in a large necropsy study. Herein, we report the case of a 48-year-old man who presented to our outpatient department due to progressive cough with prominent body weight loss within 2 months. Chest computed tomography showed a right mediastinal mass encasing the superior vena cava with obliterated vessels. The pathology of the mass revealed desmoplastic mesothelioma, which was most likely pericardial in origin, based on the imaging findings. Echocardiography showed tumor thrombus in the superior vena cava, extending to the right atrium. The patient died of sepsis after chemotherapy 5 days later. (*Thorac Med* 2015; 30: 92-98)

Key words: desmoplastic, malignant mediastinal mesothelioma, superior vena cava syndrome

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# 纖維惡性縱膈腔間皮瘤以上腔靜脈症候群為臨床表現： 病例報告及文獻回顧

劉嘉美 魏裕峰 吳俊廷

惡性縱膈腔間皮瘤是一種很稀少的間皮瘤，大約佔了所有間皮瘤的 5% 以下，而心包膜間皮瘤是屬於更稀少的間皮瘤。根據一項驗屍解剖個案統計，在 500,000 個案裡面，其發生率小於 0.0022%。我們報告的病例是一位 48 歲男性病患，第一次出現在門診的主訴是咳嗽合併白色痰液及體重減輕已有 2 個月的時間。胸腔電腦斷層之下表現為右側獨立性縱膈腔腫瘤，且侵犯到上腔靜脈以及氣管。病理報告顯示為纖維性間皮瘤，並從影像學上判斷應是從心包膜長出來的間皮瘤。這病人在進行化學治療後 5 天因敗血症病逝。  
(*胸腔醫學* 2015; 30: 92-98)

關鍵詞：纖維性，惡性縱膈腔間皮瘤，上腔靜脈症候群

# Solitary Peripheral Pulmonary Artery Aneurysm Presenting as an Endobronchial Tumor: A Case Report

Shao-Hao Wu\*, Heng-Sheng Chao\*, Jin-Hwang Liu\*\*, Shi-Chuan Chang\*, \*\*\*

Pulmonary artery aneurysms (PAAs) are rare. Hemoptysis is a common symptom of PAAs, but there are only a few case reports in the literature describing the bronchoscopic findings of PAAs. We report the case of an 18-year-old male with a solitary peripheral PAA, who presented with hemoptysis and an endobronchial tumor at the proximal left posterior basal segmental bronchus. Subsequent pulmonary artery angiography confirmed the diagnosis, and the patient was successfully treated with endovascular coil embolization. This case highlights the importance of including PAAs in the list of differential diagnoses of endobronchial tumors. Endobronchial ultrasound can provide more clues before invasive procedures are initiated. A biopsy should be avoided to prevent fatal hemorrhage. (*Thorac Med* 2015; 30: 99-104)

Key words: pulmonary artery aneurysm, endobronchial tumor, hemoptysis, endobronchial ultrasound, coil embolization

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# 以支氣管內腫瘤表現的孤立性週邊肺動脈瘤：病例報告

吳紹豪\* 趙恆勝\* 劉俊煌\*\* 張西川\*,\*\*\*

肺動脈瘤很少見，咳血為一常見的臨床表現。目前的文獻中，僅有少數的病例報告描述肺動脈瘤在支氣管鏡下的所見。我們報告一位 18 歲患肺動脈瘤的男性，臨床表現為咳血以及位於左下肺支氣管內腫瘤。病人接受肺動脈血管攝影確診後，成功地接受血管內線圈栓塞術治療。此病例凸顯須將肺動脈瘤列入支氣管內腫瘤的鑑別診斷之重要性。另外，在進行侵入性檢查前，支氣管內超音波能提供更多相關的資訊。當懷疑肺動脈瘤時，臨床醫師應該避免施行切片檢查以避免致命性的出血。( *胸腔醫學* 2015; 30: 99-104)

關鍵詞：肺動脈瘤，支氣管內腫瘤，咳血，支氣管內超音波，線圈栓塞術

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# Delayed Pericardial Effusion after the Nuss Procedure for Pectus Excavatum – A Case Report and Literature Review

Chin-Chieh Hsu\*, Yi-Chang Lin\*\*\*, Jian-Bo Cheng\*\*

A 31-year-old male presented to our emergency department with symptoms of chest pain and progressive dyspnea that had persisted for 2 days. A series of examinations revealed massive pericardial effusion that required drainage and appeared to be caused by a flipping bar for a pectus excavatum repair 4 weeks before. An urgent subxiphoid pericardiostomy was done and anti-inflammatory drugs were administered subsequently. We report the present case to illustrate a rare but potentially life-threatening complication after the Nuss procedure and to suggest a treatment strategy. (*Thorac Med* 2015; 30: 105-110)

Key words: pectus excavatum, pericardial effusion, Nuss procedure, subxiphoid pericardiostomy

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# 漏斗胸病患接受納氏矯正手術後併發延遲性心包膜積液： 病例報告及文獻回顧

許晉杰 \* 林宜璋 \*\*\* 程建博 \*\*

一位三十一歲的男性，因為胸痛及漸發性呼吸喘，症狀持續兩天，而至本院就診。一連串檢查發現，病患罹患大量心包膜積液需要引流。我們認為，造成原因與病患四周前接受漏斗胸矯正手術之矯正板移位有關。作者採用經劍突下切口執行心包造口術引流（subxiphoid pericardiostomy），合併使用口服抗發炎藥物而成功治療。此病例為納氏漏斗胸矯正手術後之罕見、卻潛在威脅生命之併發症，我們提供病例報告及與治療策略相關之文獻回顧。（*胸腔醫學* 2015; 30: 105-110）

關鍵詞：漏斗胸，心包膜積液，納氏矯正術，劍突下心包造口術

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# Pulmonary Alveolar Proteinosis Treated with Multiple Selective Lobar Lavage by Fiberoptic Bronchoscopy with Non-Invasive Ventilation under Procedural Sedation: A Case Report

Chang-Wei Lin, Ting-Yu Lin, Yu-Lun Lo

Pulmonary alveolar proteinosis (PAP) is a rare disease. The current standard treatment for PAP is whole-lung lavage (WLL). An alternative treatment is selective lobar lavage via fiberoptic bronchoscopy (FOB). However, some patients still require intubation with sedation for this procedure. Herein, we report a case of multiple selective lobar lavage via FOB with non-invasive positive pressure ventilation (NIPPV) support under procedural sedation for the treatment of a patient with PAP diagnosed by wedged resection via video-assisted thoracoscopic surgery. As the patient refused to undergo WLL and could not tolerate FOB, we performed lobar lavage by FOB for the affected segment, according to chest CT images, with designed NIPPV and procedural sedation. This new technique is safe and effective, improves patients' quality of life, and can possibly be performed at outpatient clinics to decrease treatment cost. (*Thorac Med* 2015; 30: 111-117)

Key words: pulmonary alveolar proteinosis, bronchofiberscopic lobar lavage, non-invasive positive pressure ventilation, procedural sedation

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## 在非侵入性正壓通氣及鎮靜下多次支氣管內視鏡選擇性肺葉沖洗術治療肺泡蛋白質沉著症一病例報告

林倡葦 林定佑 羅友倫

肺泡蛋白質沉著症 (pulmonary alveolar proteinosis, PAP) 是少見的疾病。全肺沖洗術 (whole lung lavage, WLL) 仍是現今標準的治療方式。支氣管內視鏡選擇性肺葉沖洗術是另一個選擇的方式。但仍有些病人需插管及麻醉下進行此方式。我們報告一個蛋白質沉著症患者在非侵入性正壓通氣及鎮靜下，使用支氣管內視鏡作多次肺葉沖洗術的經驗。因為病人拒絕插管及無法忍受支氣管內視鏡所造成的不舒服，病患無法執行全肺沖洗術。我們根據電腦斷層選擇受影響嚴重的肺葉，並在設計過的非侵入性正壓通氣面罩及鎮靜使用下，分別進行左下肺葉及右中下肺葉的支氣管內視鏡肺葉沖洗術。每次以生理食鹽水從支氣管鏡內注入及洗出。病患對執行過程忍受度良好。我們的經驗顯示，支氣管內視鏡肺葉沖洗術在非侵入性正壓通氣及鎮靜使用下，對無法容忍全肺沖洗術的蛋白質沉著症患者或無法忍受支氣管內視鏡所造成的不舒服，是有效，安全的治療方式且可以改善病人生活品質，甚至可在門診執行以減少醫療花費。(胸腔醫學 2015; 30: 111-117)

關鍵詞：肺泡蛋白質沉著症，支氣管內視鏡肺葉沖洗術，非侵入性正壓通氣，處置過程鎮靜

# Recurrent Post-Obstructive Pulmonary Edema Secondary to Compression by a Large Nodular Thyroid Goiter – A Case Report

Sheng-Chieh Huang\*, Kuo-An Wu\*, Chung-Yueh Hsieh\*\*

Post-obstructive pulmonary edema (POPE), also known as negative pressure pulmonary edema, is a potentially life-threatening complication in which pulmonary edema occurs shortly after relieving the patient of an upper airway obstruction. The most common causes are laryngospasm during intubation or extubation and upper airway tumors in adult populations. The incidence of POPE has been reported to be as high as 1 in 1000 general anesthetic cases. We report a patient with recurrent POPE induced by intubation of the airway for external compression by a large nodular thyroid goiter. The patient was weaned successfully after lobular thyroidectomy, without respiratory distress. (*Thorac Med* 2015; 30: 118-124)

Key words: post-obstructive pulmonary edema (POPE), negative pressure pulmonary edema (NPPE), airway obstruction, nodular thyroid goiter

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# 大型結節性甲狀腺腫壓迫氣管造成反覆性阻塞後肺水腫： 病例報告

黃聖傑 \* 吳國安 \* 謝忠岳 \*\*

阻塞後肺水腫 (post-obstructive pulmonary edema)，又稱為負壓性肺水腫 (negative pressure pulmonary edema)，發生在短暫性移除上呼吸道阻塞後造成的潛在性危害生命的併發症。其最常見原因為氣管插管或拔管後所造成的喉部水腫 (laryngoedema) 及上呼吸道腫瘤。已有文獻報告約在接受全身麻醉的案例約有千分之一的發生率。

我們提出一個因大型結節性甲狀腺腫 (nodular thyroid goiter) 壓迫氣管造成的反覆性阻塞後肺水腫，個案於確診後接受甲狀腺切除手術後，成功拔管。( *胸腔醫學* 2015; 30: 118-124)

關鍵詞：阻塞後肺水腫，負壓性肺水腫，呼吸道阻塞，結節性甲狀腺腫