

Incidental peripheral reticulation in a high-frequency recreational diver

Taylor Britton CCMA, Andres Felipe Yepes Hurtado MD

ABSTRACT

Pulmonary barotrauma is a recognized complication of scuba diving, but the long-term pulmonary effects of repetitive subclinical pressure-related injury remain poorly understood. We report a 60-year-old male never-smoker with extensive recreational diving exposure (150–175 dives annually) who was referred for evaluation of incidentally discovered pulmonary nodules and peripheral reticulation on computed tomography (CT). The patient remained asymptomatic with preserved exercise tolerance and an unremarkable pulmonary examination. CT imaging demonstrated mild bilateral peripheral reticulation with subpleural predominance and stable pulmonary nodules without honeycombing, traction bronchiectasis, pleural effusion, or pneumothorax. Although causality cannot be established, chronic repetitive micro-barotrauma represents a biologically plausible mechanism. This case highlights the need for further investigation into the long-term pulmonary consequences of frequent scuba diving exposure.

Keywords: Scuba diving, pulmonary barotrauma, interstitial lung abnormality, peripheral reticulation, computed tomography

INTRODUCTION

Acute pulmonary barotrauma is a recognized complication of scuba diving and may manifest as pneumothorax, pneumomediastinum, or arterial gas embolism.^{1–4} Alveolar rupture resulting in air dissection along bronchovascular sheaths, commonly referred to as the Macklin effect, has been proposed as a mechanism of pressure-related pulmonary injury.⁶ Chronic radiographic manifestations associated with repetitive pressure exposure remain incompletely characterized.

CASE PRESENTATION

A 60-year-old male lifelong non-smoker was referred for pulmonary evaluation after incidental pulmonary nodules were identified. He reported approximately 150–175 scuba dives annually over many years. The

patient denied dyspnea, chest pain, cough, hemoptysis, weight loss, or exercise limitation. Prior military service included possible asbestos and jet fuel exposure. Physical examination was unremarkable.

IMAGING FINDINGS

CT imaging demonstrated stable pulmonary nodules measuring up to 7 mm and mild bilateral peripheral reticulation with subpleural predominance. No honeycombing, traction bronchiectasis, pleural effusion, or pneumothorax was identified. Interstitial lung abnormalities detected incidentally on CT have emerged as an important area of investigation because of their association with progression to clinically significant fibrotic lung disease.^{7–10}

DISCUSSION

Previous investigations have primarily focused on acute pulmonary complications of diving, including pneumothorax, pneumomediastinum, and arterial gas embolism.^{1–5} While pulmonary function abnormalities

Corresponding author: Taylor Britton
Contact Information: Taylorbritton459@gmail.com
DOI: 10.12746/swjm.v14i61.1683

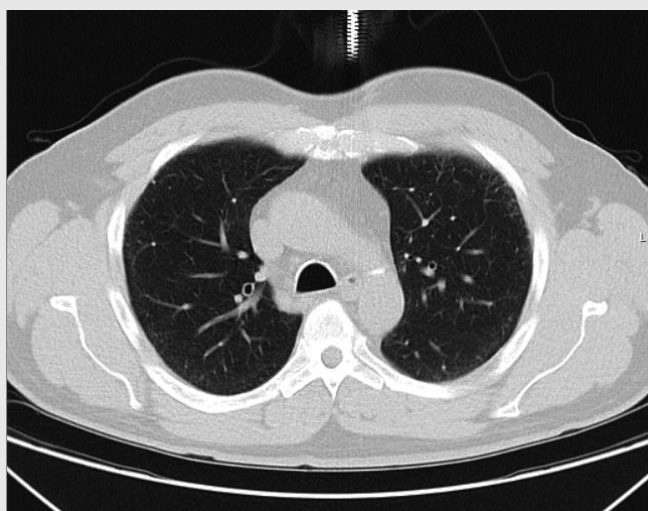


Figure 1. Upper thoracic axial CT image demonstrating mild peripheral reticular interstitial opacities without focal consolidation.

have been reported in some professional divers, radiographic evidence of chronic interstitial remodeling remains poorly characterized.^{11–12}

The patient described in this report participated in approximately 150 to 175 dives annually, representing

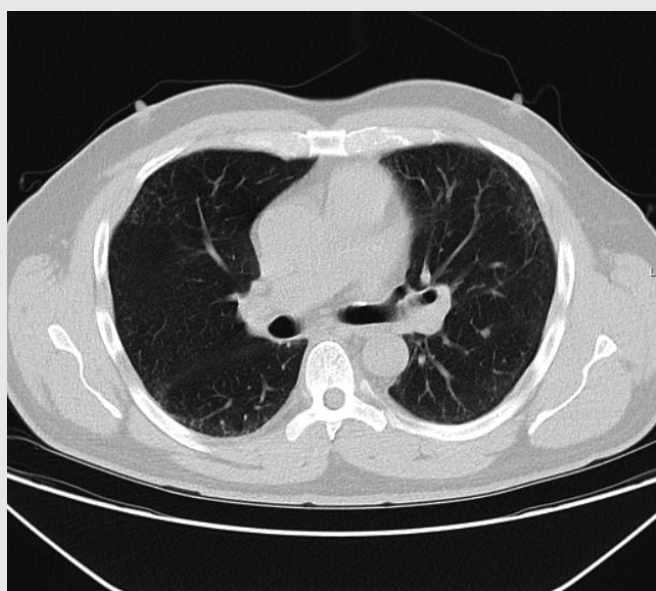


Figure 2. Mid-thoracic axial CT image showing bilateral subpleural reticulation within the peripheral lung fields.

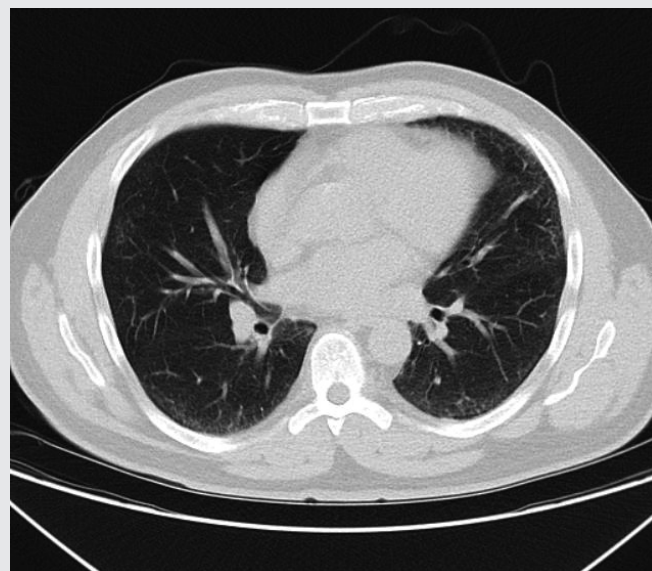


Figure 3. Lower thoracic axial CT image demonstrating persistent bilateral peripheral reticular changes without traction bronchiectasis.

substantially greater exposure than most recreational divers. Although asymptomatic, CT imaging demonstrated mild bilateral peripheral reticulation with a subpleural distribution. These findings raise the possibility that repetitive microscopic alveolar injury may

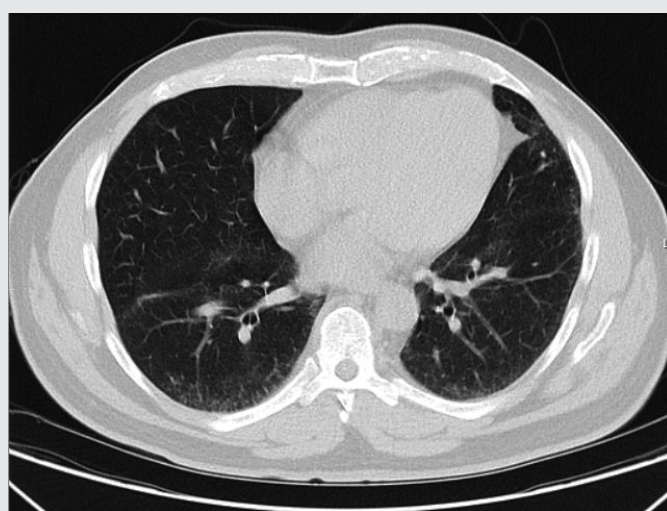


Figure 4. Basilar axial CT image showing mild dependent and subpleural reticulation without honeycombing.

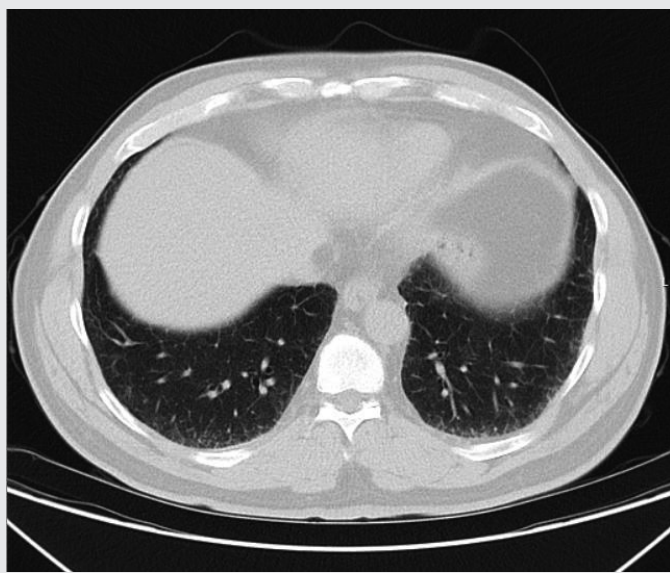


Figure 5. Lung base image demonstrating subtle bilateral peripheral interstitial abnormalities.

contribute to chronic interstitial remodeling in susceptible individuals.

Alternative explanations must also be considered. The patient reported prior military service with possible asbestos and jet fuel exposure. Remote

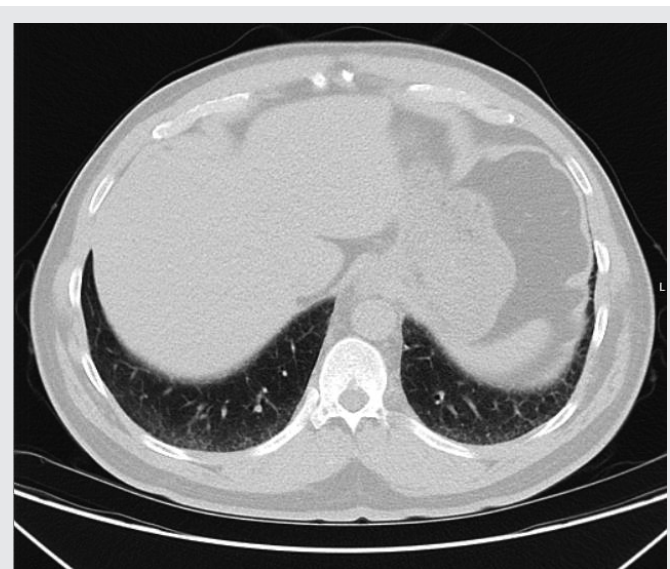


Figure 6. Lowest axial section demonstrating persistence of mild reticular changes at the lung bases.

inflammatory or infectious processes may produce similar radiographic findings. The absence of honeycombing, traction bronchiectasis, or significant pulmonary symptoms argues against advanced fibrotic lung disease. Accordingly, this report does not establish causality but instead highlights a clinical observation deserving further investigation.

Future studies incorporating high-resolution CT, pulmonary function testing, diffusion capacity measurements, and longitudinal follow-up of highly exposed divers may help clarify whether repetitive pressure-related injury contributes to subtle interstitial lung abnormalities.

CONCLUSION

This case describes mild peripheral reticulation identified in an asymptomatic high-frequency recreational diver. Chronic micro-barotrauma remains a plausible explanation, although additional longitudinal imaging and pulmonary function testing are required. Further study is needed to better understand the long-term pulmonary effects of repetitive diving exposure.

Article citation: Britton T, Yepes-Hurtado AF. Incidental peripheral reticulation in a high-frequency recreational diver. *The Southwest Journal of Medicine*. 2026;14(61):94–97

From: Christus Trinity Mother Frances Health System, Tyler, TX (TB, AFYH)

Conflicts of interest: none

This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

REFERENCES

1. Bove AA. Diving medicine. *Am J Respir Crit Care Med*. 2014;189(12):1479–86.
2. Vann RD, Butler FK, Mitchell SJ, Moon RE. Decompression illness. *Lancet*. 2011;377(9760):153–64.
3. Tetzlaff K, Thorsen E. Breathing at depth: physiologic and clinical aspects of diving while breathing compressed gas. *Clin Chest Med*. 2005;26(2):355–80.
4. Moon RE. Pulmonary barotrauma in divers. *Clin Chest Med*. 2005;26(2):307–19.

5. Cialoni D, Pieri M, Balestra C, Marroni A. Dive risk factors, gas bubble formation, and decompression stress. *Front Physiol.* 2017;8:560.
6. Macklin MT, Macklin CC. Malignant interstitial emphysema of the lungs and mediastinum. *Medicine (Baltimore).* 1944;23:281–358.
7. Putman RK, Gudmundsson G, Axelsson GT, et al. Imaging patterns associated with interstitial lung abnormality progression. *Am J Respir Crit Care Med.* 2019;200(2):175–83.
8. Hatabu H, Hunninghake GM, Richeldi L, et al. Interstitial lung abnormalities detected incidentally on CT. *Lancet Respir Med.* 2020;8(7):726–37.
9. Raghu G, Remy-Jardin M, Myers JL, et al. Diagnosis of idiopathic pulmonary fibrosis. *Am J Respir Crit Care Med.* 2018;198(5):e44–e68.
10. Sverzellati N, Lynch DA, Hansell DM, et al. Interstitial lung abnormalities review. *Eur Respir J.* 2018;52(2):1800259.
11. Thorsen E, Segadal K, Kambestad BK. Pulmonary function one year after a major diving accident. *Undersea Hyperb Med.* 1994;21(1):65–74.
12. Thorsen E, Segadal K, Myrseth E, Kambestad BK. Pulmonary mechanical function and diffusion capacity in professional divers. *Undersea Biomed Res.* 1990;17(3):231–6.