related to tumor progression, possibly due to various mechanisms, including disruption of apoptosis and DNA repair.[3] After lung transplant, managing immunosuppressive therapy was the most challenging approach. It was decided to discontinue MMF and remain with tacrolimus and prednisone at the lowest limit of the desired range.

This case offers some noteworthy learning points. The increased risk of primary lung cancer in lung transplant candidates must be acknowledged. Certain imaging features, including pulmonary nodules or masses, should be followed or biopsied, depending on how advanced the ILD is and the urgency for transplant. Patients with ILD should undergo bronchoscopy lavage for cytological samples. It is important to have a high level of suspicion for neoplastic disease since the clinical scenario does not always point to this differential diagnosis. This is reflected in the present case, as the patient had only a remote smoking history and had no on-going weight loss or other signs that would suggest a concurrent malignant disease. This case also reinforces the need for research for noninvasive blood tests that could identify neoplasms. These tests would be extremely useful in such challenging clinical situations, once the invasive alternative diagnostic approaches they have are highly risky.

Conflicts of interest

The authors have no conflicts of interest to declare.

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S.C. Silva*, N. Murinello, S. Alfarroba, A.S. Santos, P. Calvinho, L. Semedo

Centro Hospitalar Universitário de Lisboa Central, Lisboa, Portugal

* Corresponding author.
E-mail address: saracamposilva@gmail.com (S.C. Silva).

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Risky diving

Dear Editor,

The mediastinum is an anatomic compartment in the thoracic cavity located between both pleural cavities.[1] Pneumomediastinum is a rare clinical condition in which air leaks into the mediastinum[2,3] resulting from physical trauma or other situations that lead to air escaping from the lungs, airways or bowel into chest cavity.

It has an incidence of 1: 44,500 patients admitted to the emergency room[3] and it may also be spontaneous[4] or secondary to other clinical situations (iatrogenic or non-traumatic).[2,3] The majority of patients are males accounting for 76% of reported cases. Many authors believe that it is an underdiagnosed condition as symptoms may be easily attributed to other causes.[3] One of the possible etiologies is an abnormal increase of intra-mediastinal pressures,[3] which forces the air into the intra-thoracic tissues to balance pressures.[5,6]

Diving associated pneumomediastinum has been progressively increasing and occurs mainly during the decompression phase.[7] Patients may have cervical pain or swelling,[2] dyspnea, cough, thoracalgia[2,6] and less frequently anxiety, dysphagia, sialorrhea and fever.[2]

Although the diagnosis is usually confirmed by thoracic radiography,[3] this exam may be normal in about 30% of the patients[2] and for these, a computed scan tomography (CT) is mandatory.[3] Laboratory findings are frequently inconclu-

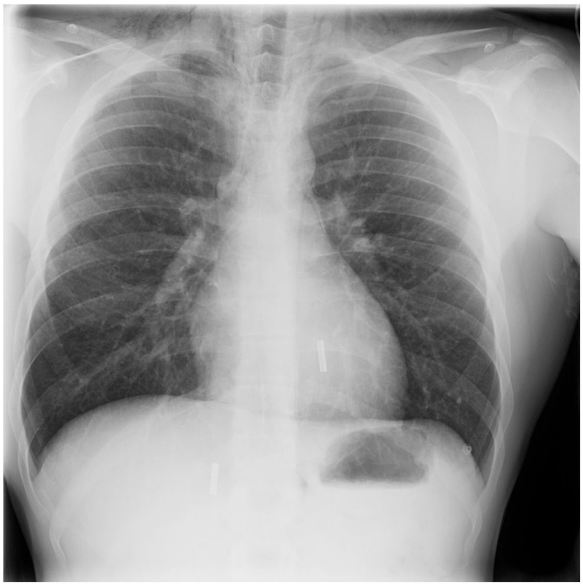

Figure 1 Chest radiography with evidence of pneumomediastinum.

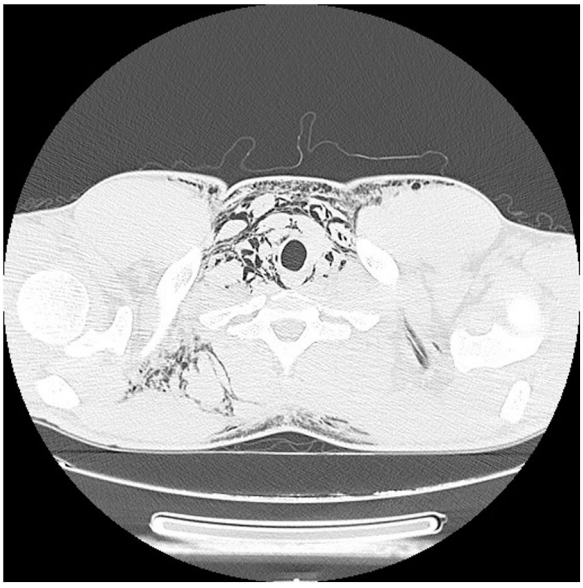

Figure 2 CT scan of the patient.

sive but some may reveal minor elevation of inflammatory parameters.[3]

The authors present the case of a 21-year-old male professional fisherman, who, after 90 min of surface diving, increased dive depth to seven meters with compressed air bottle. At this point he emerged rapidly after feeling an unusual thoracic discomfort, which become worse as he ascended. Immediately after the emersion he developed complaints of cervical swelling and dysphonia, and was admitted to our hospital emergency department. Physical examination revealed a subcutaneous cervical and supraclavicular emphysema in chest radiography (Fig. 1), which later extended to the abdominal region. The patient remained hemodynamically stable, with peripheral oximetry between 98 and 100% breathing room air.

Besides a smoking habit (seven smoking pack year) his previous medical history was unremarkable. No relevant alterations in peripheral blood analysis were observed but thoracic CT confirmed the presence of pneumomediastinum with subcutaneous emphysema (Fig. 2). The Hyperbaric Medicine Service decided that the patient did not need be exposed to hyperbaric treatment as there were no neurological symptoms. Nasal canula oxygen treatment was initiated to increase gas reabsorption and he was closely monitored for potential esophagic or tracheal rupture in the following 24 h.

After that period, patient was discharged as there was total subcutaneous and mediastinal emphysema reabsorption without evident sequelae. The subsequent follow-up appointment showed no clinical or imagiological evidence of relapses. He followed a respiratory functional study as an outpatient which was normal.

Pneumomediastinum is usually a benign medical situation[3] and although there is no consensus regarding treatment, most studies support a conservative approach with rest and analgesia.[6] Oxygen administration can increase gas reabsorption up to six-times and should be considered as an alternative treatment.[3] Relapses are rare, so a short-term medical surveillance is recommended.[3] This condition may be responsible for a high incidence of morbimortality such as facial or cervical lesions and esophagic or tracheal rupture,[2] which justifies a complementary study carried out after the acute onset. Although spirometry is not recommended in the acute setting, however, it must be performed to exclude pulmonary fragility that may worsen the overall pneumomediastinum prognosis.

With this case, the authors aim to alert to a rare and otherwise underdiagnosed situation which, although benign, requires a prompt diagnosis and acknowledgement of the risks that may be associated.

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Author contributions

- Catarina Cascais-Costa wrote the paper.
- Gilberto Teixeira contributed to data collection.
- Gilberto Teixeira and Lília Andrade contributed to the revision of the manuscript.
- All the authors read and approved the final manuscript.

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C. Cascais-Costa*, G. Teixeira, L. Andrade

Pulmonology Department, Centro Hospitalar Baixo Vouga – Hospital Infante D. Pedro, Aveiro, Portugal

* Corresponding author.
E-mail address: catarinacascaisc@gmail.com
(C. Cascais-Costa).

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Community-acquired *Klebsiella pneumoniae* liver abscess: a case complicated by metastatic lung abscesses

To the Editor,

A 74-year-old caucasian male, presented with a two-week history of fever, shivering, right scapular pain and dry cough. His medical history recorded high blood pressure, smoking and alcohol drinking. He had no recent history of antibiotic use, hospitalization or travelling to foreign countries. On admission he was sweaty and febrile, without any other significant alterations on physical examination. Laboratory analyses detected hypocapnia, elevated white blood count, C-reactive protein level as well as elevated liver enzymes. Chest X-ray revealed faded round densities on both lungs while abdominal ultrasound showed an hyperreflective liver with an oval, hypoechoic and heterogenic lesion (7.3×3.9 cm). Patient was hospitalized and started on doxicicline. Abominal MRI confirmed the nodular lesion in the the IV/VIII segments of the liver, with fluid and internal septae (Fig. 1). Simultaneously, the patient was diagnosed with diabetes mellitus and Kp resistant only to ampicillin was isolated in 2 blood cultures. The antibiotic was changed to amoxicillin-clavulanic acid plus metronidazole and the patient became afebrile and without pain. Percutaneous drainage was not executed due to high risk related to subphrenic location. Subsequent contrast CT-scan also revealed multiple nodules on both lungs, mostly peripheral, the bigger ones being cavitated and were considered as septic pulmonary emboli (Fig. 2). The patient was discharged after 2 weeks, antibiotics were continued until 8 weeks and no recurrence has been reported after 2 years .

We believe that this patient had a distinctive form of community acquired *Klebsiella pneumoniae* (Kp) infection causing liver abscess and complicated with septic metastatic pulmonary emboli, forming abscesses.

Liver abscess due to *Klebsiella pneumoniae* (KLA) is a distinct syndrome characterized by monomicrobial liver abscess, almost exclusively acquired in the community and in the absence of hepatobiliary disease. It is strongly associated with diabetes mellitus and Asian ethnicity and has a higher probability of complicating with metastatic infection sites than liver abscesses of other etiologies.[2] Some particularly virulent strains expressing hypermucoviscous phenotype are responsible for this invasive syndrome, despite not being naturally resistant to antibiotics.[3] It was geographically confined to Southeast Asia until the past decade, when other reported cases indicate the emergence of this syndrome worldwide.[3] In up to 11–12% of cases, KLA can be complicated with other septic metastatic lesions.[3]

Our patient was Caucasian and a 74-year-old male, consistent with published demographic data.[3] He fulfilled the requested diagnosis criteria for KLA[2,5,6]; 1. Clinical symptoms and laboratory findings of liver abscess: fever, chills, referred scapular pain, elevation of white-blood cell count and C-reactive protein, abnormal liver function tests; 2. Compatible imaging: as in this case, KLA has distinctive imaging features, being more often single, solid in appearance and septated, comprising multiple non-communicating locules; 3. Isolation of Kp in blood culture/abscess aspiration culture: although serotyping was not conducted, antimicrobial susceptibility of Kp isolated in blood culture meets the characteristic pattern of virulent KLA, described to be resistant to ampicillin and ticarcillin/carbenicillin but susceptible to all other antibiotics.[2,3,5]

That this patient had no underlying hepatobiliary disease, no previous hospitalizations or antibiotic use having acquired Kp in the community, also favored this diagnosis. Furthermore, he was simultaneously diagnosed with diabetes mellitus, the most common host risk factor for KLA.[3] Metastatic complications are more frequent in KLA than liver abscesses of other etiologies[2]; They can occur in up