Bubble Trouble, A Case Report

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INTRODUCTION:
While performing posterior thoracic spine surgery, risk of injury to anterior structures such as lungs, pleura and oesophagus is ever present, and even more alarming when bubbles are seen coming from the anterior intraoperatively. This case report describes an approach to identify causes of the bubbles.

CASE REPORT:
18 year old male, presented with upper back pain for a month with upper thoracic kyphosis and neurological level of T10.
MRI spine showed destruction of T3 vertebra with acute kyphosis, a paravertebral abscesses with subligamentous spread, and spinal canal stenosis at T2/T3 level. CT thorax, showed retrotracheal and paravertebral collection from C7 to T4 with calcification and air pockets within.
A diagnosis of thoracic myelopathy due to tuberculosis (TB) spondylodiscitis was made and Posterior spinal instrumentation and fusion (PSIF) T1-T6, and Pedicle substruction osteotomy (PSO) of T3, and decompression was decided.
Intraoperatively, we noted minimal bubbling from the anterior, independent to the breathing pattern for several minutes. There was no increased bubbling with intraoperative Valsalva maneuver, oxygen saturation was maintained at 100%, and there was no difficulty in ventilation. Post op Contrast enhanced computed tomography thorax showed no evidence of pneumothorax, and no oesophageal injury. There was however, a large multiloculated abscess with air fluid levels noted, which most likely explained the bubbles seen intraoperatively.

IMAGES:
Coronal view CT thorax (above)
Axial view CT thorax (above)

DISCUSSION:
TB abscesses may present with air when there is a fistula to the lung or pleura, or if there is bacterial superinfection, or simply due to TB itself. Incidence of injury to pleura during spinal surgery varies from 0% to 77%. While oesophageal injuries are more commonly associated with anterior approach to the spine, being in close proximity to the abscess in this case, may result in injury as well.

CONCLUSION:
A systematic approach to finding the deadly causes of the bubbles is important.

REFERENCES: