



Pneumomediastinum “through the shoulder”: report of a rare case

Catarina Cascais-Costa¹, Carla Valente¹, Pedro Gonçalo Ferreira^{2,3}

TO THE EDITOR:

Pneumomediastinum occurs when alveolar rupture resulting from a sudden increase in intra-alveolar pressure causes air to leak into the mediastinal space, although it can also occur with air escaping from the airways, lungs, or esophagus.^(1,2) Alveolar rupture allows free air to dissect the cervical subcutaneous tissues, epidural space, pericardium, and peritoneal cavity toward and into the mediastinum.⁽²⁾ Common presenting symptoms include chest pain, dyspnea, soft tissue emphysema, and crackles.⁽¹⁾ However, some patients are asymptomatic.⁽³⁾ Pneumomediastinum is usually classified as spontaneous or secondary; the latter is also known as traumatic pneumomediastinum, the causes of which include iatrogenic causes.

Here, we report the case of a healthy, 57-year-old nonsmoking man who underwent arthroscopic surgery to repair tears of the left supraspinatus and infraspinatus tendons under general anesthesia. After the procedure, the patient developed palpable subcutaneous emphysema in the left shoulder, cervical, and infraclavicular regions. He presented with no pain, dyspnea, or hemodynamic instability. A chest CT scan revealed extensive subcutaneous emphysema of the left chest wall, extending to the upper left arm and along the entire neck, reaching the left side of the face (Figure 1).

The patient was placed on bed rest and oxygen supplementation to improve resorption of air in the mediastinum and was closely monitored. He did not undergo bronchoscopy. Nevertheless, the absence of CT findings of airway injury, the absence of previous lung disease, and the fact that the subcutaneous emphysema was clearly left-sided led us to believe that the pneumomediastinum had been caused by the arthroscopic procedure.

Arthroscopic shoulder surgery is a common procedure, with a complication rate of up to 7.9%.⁽⁴⁾ Pneumomediastinum has been reported as a rare complication of arthroscopic shoulder surgery,^(5,6) with only 8 cases reported in the literature.⁽⁶⁾

The exact pathogenic mechanism remains uncertain. Possible causes include general/locoregional anesthesia, endotracheal intubation, the procedure itself,⁽⁵⁻⁷⁾ early mobilization,⁽⁵⁾ and infectious complications following the procedure.⁽⁸⁾

In the case reported here, as in other similar cases, pneumomediastinum was probably procedure-related. During shoulder arthroscopy, the subacromial space is dilated by fluid pressure through the arthroscopy infusion pump. This allows good visualization of the joint while maintaining regular intra-articular pressure.⁽⁷⁾ When the power shaver applies suction, the pressure in the subacromial space transiently decreases and becomes negative. Under this negative pressure, air can become trapped in the subacromial space. When the infusion pump generates positive pressure, it allows air to dissect into the surrounding tissues if the power shaver is momentarily turned off, causing subcutaneous emphysema.^(5,7) In this context, other possible causes of pneumomediastinum include a loose junction between the solution bag and the valve, and an inflow of air through the ports.⁽⁵⁾ The air can travel through the axillary sheath and into the prevertebral space of the neck, surrounding the trachea and esophagus.^(5,7)

After exclusion of concomitant disease and after a diagnosis of pneumomediastinum is made, a conservative treatment approach is appropriate because the air in the mediastinal cavity is gradually reabsorbed by the surrounding tissue.^(2,9) However, short-term patient

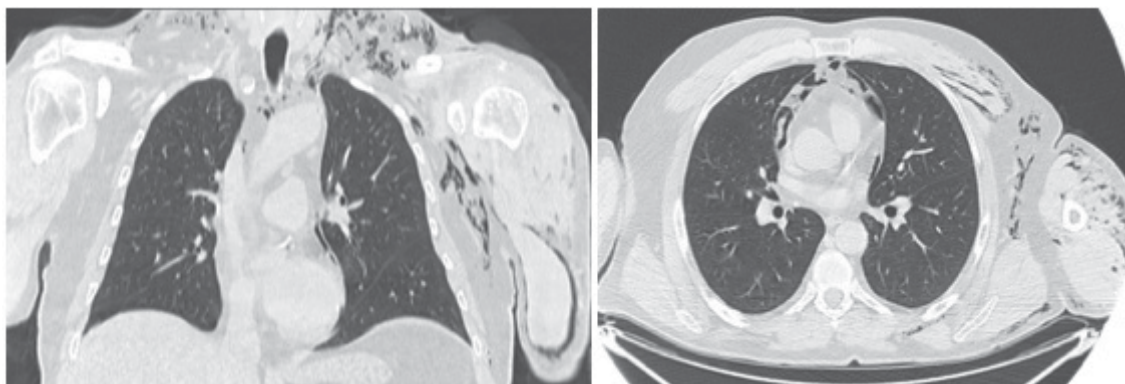


Figure 1. CT scans of the chest.

1. Centro Hospitalar do Baixo Vouga, Aveiro, Portugal.
2. Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal.
3. Faculdade de Medicina, Universidade de Coimbra, Coimbra, Portugal.

monitoring is recommended,⁽¹⁰⁾ with bed rest and cough suppression to avoid the Valsalva maneuver. The case reported here is relevant because other similar cases have been reported and because arthroscopy is a common surgical procedure.

AUTHOR CONTRIBUTIONS

CCC: drafting of the manuscript; PGF: data collection; CV and PGF: critical revision of the manuscript for important intellectual content; CCC, CV, and PGF: final approval of the version to be published.

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