

Catheter-interventional closure of bronchopleural fistula following pneumonia

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A bronchopleural fistula is a rare complication of pneumonia, lung abscessus or pleural empyema.

Casuistic: We report on an 2 ½ year old female infant who presented with a fever of 40°C, tachydyspnea of 70/min, marked respiratory distress, cough and back pain, in reduced condition on admission.

Clinically and radiologically a right sided pneumonia and pleural effusion were diagnosed. The child was started on antibiotics, noninvasive ventilation and received a pleural drainage. After removal of drainage 3 days after its cessation, a valvular pneumothorax occurred. A new drainage was applied, but the air leak persisted for the next weeks. CT scan displayed collapsed right lung and septate pneumothorax. As surgical thoracoscopic debridement with new drainage remained unsuccessful, bronchoscopy was performed with bronchographic proof of a bronchopleural fistula in right-sided segment 3.

Intervention: After interdisciplinary consultation a bronchoscopy was performed with bronchography displaying the known bronchopleural fistula in segment 3 by application of contrast media. A Glidecath® 4 Fr and subsequent a microcatheter was placed in segment 3right. In the following superselective embolization with the use of Ruby Soft Coils® (2mmx1cm, 3mmx5cm, 4mmx6cm) and Ruby Standard Coil® 3mmx5cm was carried out followed by subsequent bronchographic proof of leak tightness. 2 days later, the drainage could be removed and the child was extubated. On follow-up over 2 months the coil position remained unchanged, and right sided chest x-ray controls normalized.

Discussion: A bronchopleural fistula is a very rare and severe complication of pneumonia or lung abscessus. On literature review, apart from surgical therapy by resection, coverage or peurodesis other interventional procedures like valve implantation, ASD-occluder device implantation, chemical intervention by topic administration of ethanol, silver nitrate, cyanoacrylate, fibrin glue, polyethylenglycol, doxycycline or cellulose have been published. However, in respect to the age and size of the child and very small anatomy, we decided for a to date non published interventional approach and closure by 4 Penumbra® coils. By this, a rapid removal of drainage and discharge was possible with uneventful controls over a 2 months' period. We can well recommend this alternative approach for lung air leakage due to bronchopleural fistula.