

**00127 Primary Spontaneous Pneumothorax (PSP) in Paediatric Patients: Factors Predicting Recurrence and Need for Surgery**

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**Aims:** Primary spontaneous pneumothorax (PSP) is relatively uncommon in children and usually managed using adult protocols, despite differing aetiology and treatment effectiveness. Our study examines clinical and radiological characteristics predicting recurrence and need for surgery.

**Methodology:** We conducted a retrospective ethically approved study on children admitted to our institution for PSP from 2008–2017. We excluded those with malignancies. All pneumothoraces were sized by measuring chest x-rays using the Collins and Lights criteria (2 different radiological criteria used to estimate pneumothorax volume). Data collected included demographics, pneumothorax laterality, chest tube insertion duration, number of recurrences, and types of treatment. We performed logistic regression analyses to determine variables predicting surgical referral and recurrence risk, with  $p$ -value  $< 0.05$  considered significant.

**Result:** Sixty-three patients with 96 incidences were included. The median (interquartile range, IQR) age was 15.4 (14.9 – 15.9) years, and median BMI was 16.8 (IQR 15.6 – 18.7). Twenty-one (33.3%) patients had surgery once, 10 (15.9%) had surgery twice.

Sixteen (25.4%) had surgery at initial occurrence with 13 preoperative chest tubes inserted. Multivariate regression analysis revealed that chest tube insertion, and pneumothorax size were not predictive of surgery (Odds ratio (OR) [95% confidence interval]; Collins – size OR=1.016 [0.991–1.042],  $p=0.216$ , tube insertion OR=0.252 [0.040–1.571],  $p=0.140$ ; Lights – size OR=1.021 [0.992–1.051],  $p=0.155$ , tube insertion OR=0.317 [0.045–2.208],  $p=0.246$ ).

Forty-seven (74.6%) were managed conservatively at first presentation, with 16 chest tubes inserted.

Neither size of pneumothorax (Collins – OR=1.017 [0.994–1.040],  $p=0.149$ ; Lights – OR=1.012 [0.990–1.035],  $p=0.296$ ) nor leak duration (OR=0.824 [0.550–1.236],  $p=0.350$ ) predicted recurrence. However, size of pneumothorax at first presentation using Collins criteria predicted eventual need for surgery (13 ipsilateral recurrences, 2 contralateral), (OR=1.025 [1.000–1.050],  $p=0.046$ )

**Conclusion:** Larger pneumothorax size using radiological criteria was associated with surgical intervention at recurrence but not at first presentation.