



Management of pediatric primary spontaneous pneumothorax: when should surgery be considered?

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INTRODUCTION

- Primary spontaneous pneumothorax (PSP) is an uncommon condition in the pediatric population, with significant variability in its management due to the **absence of standardized guidelines**.
- Surgical intervention is often considered in cases of persistent air leak.
 - The optimal timing remains controversial.
 - Emerging evidence suggests that early surgical management, particularly within 48 hours of persistent air leak or non-resolving pneumothorax following chest tube drainage, may be beneficial.

AIM

Determine if persistent pneumothorax over a timeframe of drainage is associated with increased need for surgical intervention or ipsilateral recurrence.

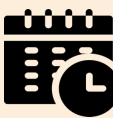
METHODS



Observational retrospective cohort study.



All first episodes of PSP treated with chest tube drainage by our department



January 2018 to August 2024.



Data collection included:

- Demographics;
- Duration of thoracic drainage;
- Need for surgical intervention;
- Recurrence.

Fisher’s Exact Test and Phi Coefficient were used for statistical analysis through IBM SPSS Statistics 27.0.

RESULTS



29 patients were included



Median age at the first PSP: **16 years**
(Range: 12-17 years)



89.7% (N=26) ♂



Mean body mass index: 18.6kg/m² (Range: 14.9-24.5 kg/m²)



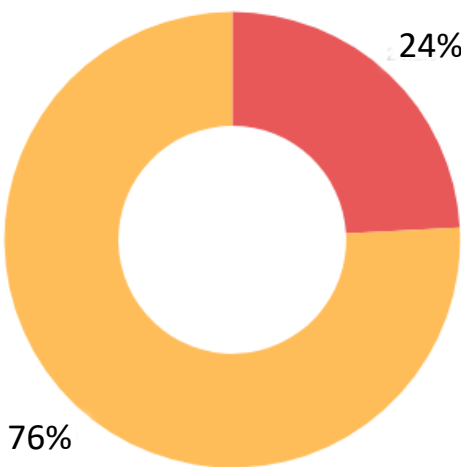
52.7% (N=15) involved the left lung

PNEUMOTHORAX MANAGEMENT



Median chest drainage time until resolution/decision for surgery

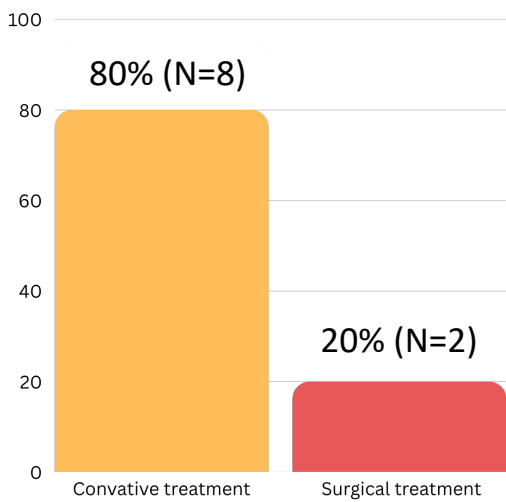
71 hours
(Range: 28-248 hours)



Treatment approach

- Apicectomy with mechanical pleurodesis
- Conservative treatment (pleural drainage)

Ipsilateral recurrence rate after 1st episode’s management

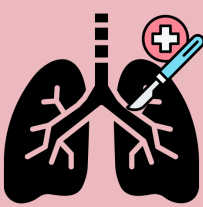


Overall rate: 34%(N=10)

Association period drainage and PSP outcomes[§]

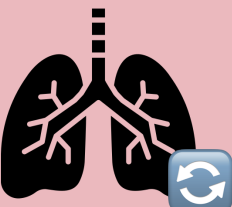
>48 hours cut-off

Indication for surgery in the 1st episode



$p = 0.14$ ❌

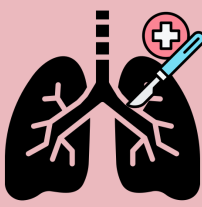
Recurrence



$p = 0.43$ ❌

>72 hours cut-off

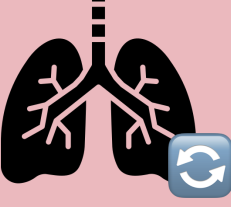
Indication for surgery in the 1st episode



$p = 0.02^*$ ✅

(Phi coefficient = 0.58)

Recurrence



$p = 0.71$ ❌

§ - Fischer’s Exact Test | * - Statistical Significant

CONCLUSION

- Our results suggest that a **72-hour drainage period** may be a useful clinical threshold for determining the need for **surgical intervention in PSP**.
- Further research is warranted** to validate these findings and refine management guidelines.

BIBLIOGRAPHY

