

Effect of tracheobronchial foreign body removal using flexible bronchoscopy in adult

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I. Background

- Although tracheobronchial foreign body (FB) aspiration is life-threatening condition, there are a few studies on the effectiveness of bronchoscopic treatment in adults.
- The aim of this study was to evaluate the clinical characteristics, outcomes of flexible bronchoscopic FBs removal in adults.

II. Methods

- In this retrospective study, we collected medical records of patients diagnosed airway FB aspiration at Asan Medical Center, South Korea, from January 2003 to December 2020.

III. Result

- A total number of enrolled patients who underwent flexible bronchoscopic FB was 82.
- The median age of the patients was 66.5 years, 82.9% was males.
- All of the patients received flexible bronchoscopy and 93.9% of patients successfully removed FB (77/82).
- 5 patients who failed FB removal by flexible bronchoscopy were rescued by rigid bronchoscopy.
- Neurologic disease with dysphagia was the most common underlying comorbidities (39%); artificial teeth and dental device were the most common aspirated FB (36.6%).
- The success rate of FB removal within 4 weeks was higher than those after 4 weeks (P=0.041).

Table 1. Baseline characteristics of patients

Characteristics	N=82
Age, median [range], yr	66.5 [55-74]
Male, N (%)	68 (82.9)
Comorbidities, N (%)	
None	17 (20.7)
Hypertension	4 (4.9)
Chronic lung disease	10 (12.2)
Neurological disease	32 (39)
Malignancy	5 (6.1)
Ischemic heart disease	2 (2.4)
Anodontia	1 (1.2)
Combined	31(37.8)
Symptoms, N (%)	
None	18(22.0)
Cough	11(13.4)
Sputum	1(1.2)
Dyspnea	9(11.0)
Fever	2(2.4)
Wheezing	1(1.2)
Hemoptysis	2(2.4)
Chest discomfort	2(2.4)
Acute choking	1(1.2)
Combined	35(42.7)
Onset from FB aspiration to 1st bronchoscopy at AMC, N (%)	
<1 weeks	47(57.3)
1 weeks ~1 months	4(4.8)
>1 months	28(34.1)
Unknown	3(3.7)

Table 2. Baseline characteristics of foreign body

Characteristics	N(%)
Type of airway foreign body N (%)	
Food material	
Bones	23(28.0)
Food	9(11.0)
Pills	8(9.8)
Teeth, artificial teeth, and dental instruments	30(36.6)
Others	
Metallic materials	3(3.7)
Non-metallic materials	4(4.9)
Unidentifiable materials	5(6.1)
Location of foreign body	
Central airway (above the lobar bronchus)	19(23.2)
Carina	7(8.6)
Right main	4(4.9)
Left main	8(9.8)
Peripheral airway (lobar or segmental bronchus)	63(76.8)
Bronchus intermedius	22(26.8)
Right upper	2(2.4)
Right middle	2(2.4)
Right lower	20(24.4)
Left upper	4(4.8)
Left lower	13(15.9)

Table 3. Broncoscopic outcomes of aspirated foreign bodies

Variables	N(%)
ScopeType	
Rigid	0
Flexible	82(100)
Tool	
Forcep	77(93.9)
Snare	1(1.2)
Cryotherapy	4(4.9)
Outcome of FB removal	
Failure	5(6.1)
Success	77(93.9)

IV. Conclusion

- Flexible bronchoscopy is useful procedure to remove tracheobronchial FB and bronchoscopic removal delayed more than 4 weeks after aspiration had a high possibility of technical failure.
- Furthermore, aspiration of FB in tracheobronchial tree appeared to be prevalent in the patients who had neurologic disease or underwent dental procedure.