



## Flexible bronchoscopy for foreign bodies is a safe procedure?

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### Abstract:

When a foreign body is evident because of history, examination and radiologic findings and especially when a tracheal foreign body is suspected, rigid bronchoscopy is indicated rather than flexible bronchoscopy.

Subject and material: During 101 2015-2018 flexible bronchoscopies are performed in UHC M Teresa, 51 of them because a foreign body in children airways are suspected, revealing 15 foreign bodies. 10% of all cases are performed under conscious sedation (midazolam 0,05mg/kg) and 90% are performed under deep sedation with spontaneous breathing, (midazolam 0,03mg/kg propofol+sevofluoran), O<sub>2</sub> supplementation was provided in all cases.

85% of cases had O<sub>2</sub> saturation over 90% during procedure, 10% of them had a O<sub>2</sub> saturation 80-90% lasting less than 5 minutes, 5% of cases had important desaturation at less than 80%

3% of all bronchoscopies had important desaturation (3 cases, one with severe malacia of trachea) and one a foreign body in in trachea near carina complying 13% of all bronchoscopies and 6% of bronchoscopies where foreign bodies are found.

Isolated and important desaturations in children are found to 1.1% and 1,8%in other studies about FBS in children (1). There is no data for complications related to desaturation in cases of foreign bodies.

Conclusion: FBS in children is a safe procedure even when a foreign body is suspected. Isolated and important desaturations were transient and none arrest during procedure was happen.

Preoperative assessment should determine where aspirated foreign body is lodged, what was aspirated and when aspiration occurred (2)

**Keywords:** bronchoscopy, children, hypoxia

## **Background**

Complications in FBS are physiological, mechanical, infectious, from anesthesia , post BAL infections.

Complications in FBS in foreign bodies are physiological (partial or total obstruction of the airways by the bronchoscope, depression of the drive by sedation, laryngospasm and bronchospasm (inadequate topical anesthesia, reactive airways disease)(3)

Anesthetic complications are from overdose, inadequate monitoring and inappropriate sedation.

Mechanical and bacteriological complications are minor.

## **Population**

Diagnostic procedures 101. 98 children underwent to flexible bronchoscopies.

Mean age of all children who underwent to FBS-38 months

Mean age of children who underwent to FBS as a suspect FB -19 months

Mean age of confirmed FB through FBS -26months

## Type of Sedation

As for conscious sedation was used midazolam 0,05mg/kg, for deep sedation with spontaneous breathing, (midazolam 0,03mg/kg propofol+sevofluoran)

10% of procedures were performed under in conscious sedation and 90% under deep sedation

Supplementary oxygen 100%, was delivered to all cases. Facial mask 90% (under deep sedation) were used,nasal prongs 10%(conscious sedation).

## Minor complications

Epistaxis, moderate and transient episodes of desaturation, transient laryngospasm moderate cough and nausea.

## Major complications

All events that affected the procedure and required vigourous intervention, termination of procedure in particular.

Decrease of SPO2 it to below 80%, associated or not to laryngospasm, bronchospasm, coughing.

## Results:

Hypoxia was the the major concern during the procedure

On the tables below we have shown distribution depending the type of sedation, purpose of procedure (suspicion of a foreign body or other purposis) of hypoxia and the grade.

Total bronchoscopies	Bronchoscopies Topic anesthesia	Bronchoscopies General anesthesia	Total of bronchoscopies	Total of bronchoscopies for foreign bodies	Total of brochoscopies for <i>nonforeign bodies suspected</i>
				51 (BFBS)	50 (BNFB)

Nr BR saturation over 90%	8	75	83	47	46
Nr BR saturation 80%-90%	2	10	12	8	4
Nr bronchoscopies Sat O2 < 80%	0	4	4	1	3
Isolated desat	1	3	4	1	1
Laryngospasm	0	0	0	0	0
Bronchospasm	0	4	0	0	4

51 patients of having FBS for suspected foreign body in airways(BFBS) (receiving supplementation of O2)	
patients non FB/susp FB	36
Desat 80 90%	5
<b>15 patient with confirmed foreign body in airways through FBS</b>	
No desat	<b>12</b>
Desaturation	<b>3</b>
80-90% more than 1min less than 2 min	2
<80% more than 1 min	<b>1</b>

50 patients having FBS for other indications (despite Foreign body suspicion ) BNFB	
No desaturation	46
Desaturation	4
Desaturation 80-90%	<b>2</b>
Desaturation <80% for more than 1 min	<b>2</b>

## **Discussions**

Half of total bronchoscopies are performed because a foreign body is suspected on airways. Other countries report a very small number of flexible bronchoscopies performed as a foreign body is suspected on airways.

FBS performed under general anesthesia had 12%% rate of mild desaturation compared to local anesthesia that had 20% rate of mild desaturation.

Mild desaturation was more noticed (8 cases) when bronchoscopies for foreign bodies compared with non foreign bodies bronchoscopies were performed (4 cases)

Moderate desaturation was more present in group of bronchoscopies for non foreign bodies purposes (3 cases), compared to 1 case of bronchoscopies because of suspicion of foreign bodies in airways.

Bronchospasm were more frequent in no suspicion cases for foreign body bronchoscopies (4), compared to bronchoscopies for suspect of foreign body (0 cases)

Rate of moderate to severe desaturations were the same in both groups. According to our study flexible bronchoscopy has no hypoxia complications neither in suspicion of a foreign body in airways and neither in confirmed cases with foreign bodies in airways.

## **Conclusions:**

1. Rate of important desaturation during bronchoscopies for foreign bodies was quite the same compared to desaturations during bronchoscopies for other diagnostic purposes.
2. Bronchospasmes were present in bronchoscopies for other purposes rather than when foreign body was present.
3. Preoperative assessment should determine where aspirated foreign body is lodged, what was aspirated and when aspiration occurred (2)

## **Bibliography**

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