

## Research Article

# Management of Foreign Body Bronchus in Sudanese Patients Introduction of New Technique (Sharfi's Technique)

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Submitted: 23 June 2016

Accepted: 23 March 2017

Published: 23 March 2017

ISSN: 2475-9473

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## Keywords

- Foreign bodies inhalation (FBs)
- Bronchoscopy
- Rigid bronchoscopy

## Abstract

**Background:** Inhalation of foreign bodies (FBs) is a common problem in Sudanese children. Its incidence has not changed significantly but the safety of removal has improved dramatically.

**Methodology:** This is a Prospective study conducted in Africa specialized ENT, Ibn Sina and Al Doha hospitals from Jun 2010 to Oct 2015 using rigid bronchoscopy in Sudanese children who had inhaled foreign bodies (FBs).

**Result:** A total of 50 bronchoscopies was performed: 28 cases (56%) were below 2 years of age; 15 cases(30%) were between 2-5 years ;and 7 cases (14%) were over 5 years of age.

In 29 cases (58%) the foreign bodies inhalations (F.Bs) were rounded smooth plastic objects (soksokah) and in 9 cases (18%) were rounded smooth metallic(Jolah) , and most of the FBs were found in children under 5 years of age. Most of the FBs (82.7%) were radioactive showing clear X-ray findings. Most of the bronchoscopy (80%) was done as an elective procedure. All the FBs were successfully removed (100%). Overall the mortality was 0%.

**Conclusion:** This new technique (**Sharfi's technique**) is effective, safe, has no complication and is time preserving for removal of this kind of inhaled foreign bodies. It was started by introducing the rigid bronchoscope and identifying the F.B and focusing the hole of the F.B, the forceps was inserted in the channel of the rigid bronchoscope then directly and its tip inserted into the hole of the F.B. After the tip (leavers) of the forceps had passed completely through the hole, the forceps tip then will be opened and pulled out together with the F.B and the bronchoscope.

## INTRODUCTION

## Background

Inhalation of foreign bodies (FBs) is a common problem in Sudanese children. Its incidence has not changed significantly but the safety of removal has improved dramatically [1,2]. Most of the airway FBs was in patients younger than 15 years of age. The highest incidence occurs between one and three years of age [3]. There are three clinical phases with children presenting with FBs inhalation, which consist of choking, gagging and paroxysms of coughing or airway obstruction [3,4]. Plain X-rays of the chest were not helpful in the diagnosis, except in few cases (9.5%) where the FBs were radio-opaque [5,6]. FBs bronchus are usually removed successfully by rigid bronchoscopy [1,2,5,6].

Bronchoscopy need not be done as an emergency if the child is not in acute respiratory distress because it is much safer to perform bronchoscopy under safe condition with proper instruments and experienced hands [6-8].

## Patients and methods

**Study design:** This is a prospective study conducted during the period from Jun 2010 to Oct 2015 in Africa specialized ENT, Aldoha ENT and Ibn Sina hospitals, Khartoum, Sudan.

**Inclusion criteria:** All children who presented with smooth rounded FB (that has a centre hole) in the trachea or a bronchus.

**Exclusion criteria:** All other types of FBs in the trachea or a bronchus.

## Tools for New method for removal

Two endo-urological micro forceps (Figure 1) produced by KARLSTORZ No (Flexible 27071Z), Rigid 10338X) were used for this new technique.

## The new technique (Sharfi's technique)

Ethical clearance from the authorities was obtained before starting this new procedure. Written consents were taken from

the parents of each child after through explanation of the new technique.

The routine preparation for similar procedures and adequate sedation (general anesthesia) were adopted.

### Sharfi's technique How I do it?

After introducing the rigid bronchoscope and identifying the F.B then I focusing on the hole of the F.B in a good visualized field, the forceps was inserted in the channel of the rigid bronchoscope (in different sizes) then the forceps inserted directly into the hole of the F.B. After the tip (leavers) of the forceps had passed completely through the hole, the forceps tip then will be opened and pulled out together with the F.B and the bronchoscope (Figure 2).

It was only a 5 minutes procedure.

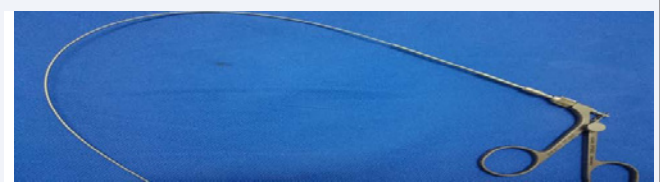
**Data collection and management:** The data were collected using a carefully designed questionnaire. The children were examined thoroughly and bronchoscopy performed under general anesthesia. The patients were seen pre-and postoperatively and assessed clinically.

## RESULTS

Fifty children fulfilling inclusion criteria were included in this study. The commonest presenting symptom was cough (100%) while the commonest sign was wheezes 92.7% (Table1). The commonest age group affected was that of less than two years of age (28 cases (56%); 15 cases (30%) were between 2-5 years; and 7 cases (14%) were over 5 years of age. Male gender predominated 57.0%. A total of 50 bronchoscopies were performed and the F.Bs was retrieved. In 29 cases (58%) the inhaled F.Bs were rounded smooth plastic objects (soksokah), 12 cases (24%) were different types of central holey smooth rounded F.Bs and 9 cases (18%) were rounded smooth metallic (Jolah) (Figure 3).

Most of the FBs were found in children less than 5 years of age.

Patients presented with many symptoms but all patients 50 (100%) had cough (Table 1). Wheezes and crepitations were



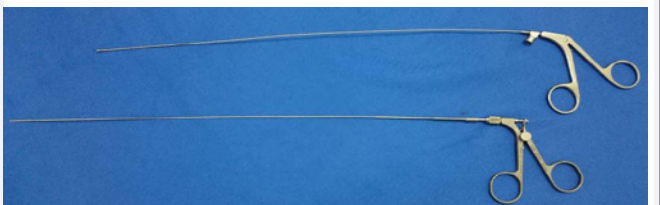
A. Flexible forceps (27071ZJ)



B. Rigid forceps (10338X)



A. Flexible forceps



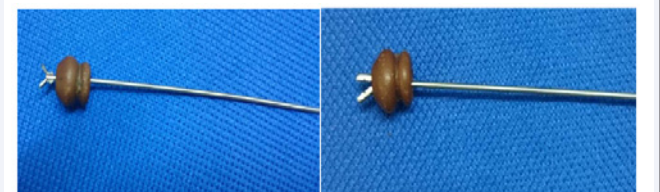
B. Rigid forceps



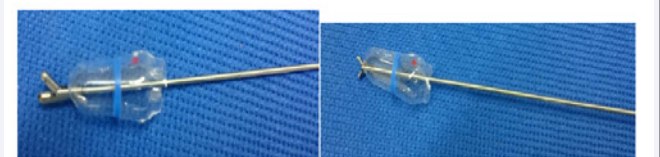
A. Flexible forceps tip



A. Flexible forceps tip



B. Rigid forceps tip

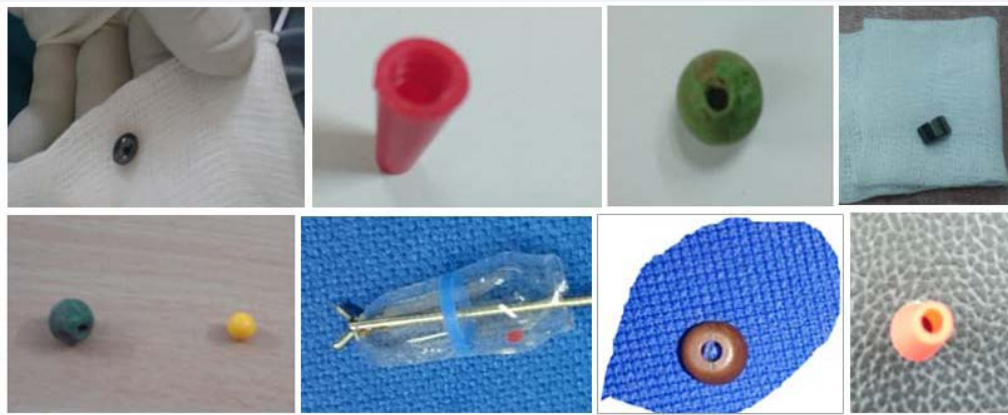


B. Rigid forceps tip

**Figure 2** The leavers of the forceps opened after passing through the hole of the FBs.



**Figure 1** The forceps used in the new technique.



**Figure 3** Different types of FBs with central hole that were retrieved by the new technique.



**Figure 4** CXRs and CT localizing the FBs.

**Table 1:** Clinical symptoms and signs (n=50).

Symptoms /signs	%
Cough	100%
Wheezes	92.7%
Crepitations	87.5%
Others	59.9%

the commonest signs, they accounted for 92.7% and 87.5% respectively.

CXR was done to all patients with two views (PA and lateral). Most of the FBs (82.7%) were radiopaque and detected clearly on the X-ray. Only few patients had CT scan of the chest (Figure 4). All FBs were seen by rigid bronchoscopy and they were removed successfully (100%) without any complications.

## DISCUSSION

Inhalation of a FB into a bronchus is a common problem in children below five years especially those with low socioeconomic status [2].

Reports in the literature showed that elective rigid bronchoscopy is a preferable procedure for removal of F.Bs, because of its increased safety when performed in the appropriate conditions with proper special instruments and experienced hands [6]. Nevertheless, removal of these F.Bs is very difficult with a routine regular forceps; it may need many trials before success and probably more time in the operation room [1,2,6]. On the other hand by reviewing English literature in the Internet

I could not come through a study or a special technique dealing specifically with FBs that have central holes. For this reason I adopted this new technique and named it “**Sharfi’s technique**”.

In this study it was found that children less than two years of age were the most (56%) affected group and this agrees with others [1,2,4,8].

Cough is the commonest (100%) presenting symptom and this goes with some reports [1,2].

In this study wheezes (92.7%) and crepitation (87.5%) were the commonest signs.

The commonest types of F.B were the rounded smooth plastic objects (soksokah) 29 cases (58%) this contrasts the published literatures [6].

Elective bronchoscopy was done to the all patients successfully (100%) without any complications this gives better result than that of Blacke-RE who reported that F.Bs are successfully identified and removed by bronchoscopy with minor complications in 5% of patients [9] and also better than Elmustafa O M, who said F.Bs were successfully removed except two cases who died during surgery (0.5%) [2].

In this new technique the operation time was quite short. All these operations were successfully done in less than 10 minutes each and in only one trial.

## CONCLUSIONS

This new technique (**Sharfi’s technique**) is effective, safe, has no complication and is time preserving for removal of this

kind of inhaled foreign bodies. As these forceps for urology use a proper modifications will be done for successful removal of these types of F. B Bronchus.

## ACKNOWLEDGEMENT

I would like to thanks Prof Mohamed O Elhassan Gadour and Prof. Kareem M. Ali for their great help.

## ETHICAL CLEARANCE

I explained verbally to the parents the aim of the study, data collection, and the need of investigations and regular follow up. Privacy of patients represents top priority to us.

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### Cite this article

Sharfi Ahmed (2017) Management of Foreign Body Bronchus in Sudanese Patients Introduction of New Technique (Sharfi's Technique). *J Ear Nose Throat Disord* 2(1): 1019.