

Original paper

For Unknown Reasons, Accidentally Inhaled Pins Have Tendency for Left Sided Bronchial Lodgment

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Abstract

B **background:** the higher incidence of right sided bronchial impaction as compared to left sided one is a very old medical fact regarding inhaled foreign bodies, in recently published literatures, and in our expanding experience, we were hardly accept that there might be something different, it looks like that this fact is a (type of foreign body) dependent type.

objectives: The ensuing problem in the last decade of inhaled pins had it's certain clinical characteristics, one of them, which is discussed at our literature, is the strange tendency of the pins to be lodged in the left sided bronchi, contrary to the well known tendency of the inhaled foreign bodies to be lodged in the right sided bronchi due to well-known tracheobronchial anatomical factors.

Methods: A retrospective study of 24 patients positive with pin inhalation presented during the period from 15/9/2009 to 4/7/2014 at Hilla General Teaching Hospital, site of lodgment was analyzed to be either tracheal, right or left bronchial. Site of lodgment was decided depending on CXR, bronchoscopic and sometimes operative findings.

Results: Total number of patients was 24, In 15(62.50%) of them the pins were settled at left bronchi, In 5(20.83%) patients, the pins were at trachea, and 4(16.66%) patients were with right bronchial pins.

Conclusion: Metallic pins have strange tendency for left sided bronchial impaction

Keywords: foreign body inhalation, pins, tracheobronchial, aspiration

Introduction

The first systematic or elaborate study of foreign bodies in airway was attempted by Gross in 1854⁽¹⁾. Tracheobronchial foreign body is one of the most serious life threatening emergency, in USA, 90% of patients are less than four years, the maximum prevalence is between one and two years, it is the fourth leading cause of accidental death in children under five years of age, accounting for about 8% of such deaths^(2,3). In the middle east, the prevalence of foreign body aspiration is high, and the puzzles involved in the diagnosis and the problems in their management are many⁽⁴⁻⁷⁾.

Foreign bodies can be classified as either inorganic or organic. Inorganic materials

are typically plastic or metal, common examples include beads and small parts from toys. These materials are often asymptomatic and may be discovered incidentally. Organic foreign bodies, including food, rubber, wood, and sponge, tend to be more irritating to the nasal mucosa and thus may produce earlier symptoms⁽⁸⁾.

The right main bronchus has a predilection for foreign body impaction because it is wider than the left, the carina is slightly to the left of the midline and the right main bronchus has more direct extension of the trachea than the left main bronchus⁽⁹⁾.

In the last 2 decades, a new and distinct group of tracheobronchial FB aspirations has increasingly been recognized in older

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patients⁽¹⁰⁾. Turban pin aspiration syndrome is a new clinical entity afflicting young Islamic girls wearing a turban (hijab, or traditional headscarf)⁽¹¹⁾.

Materials and Methods

From 15/9/2008 to 4/7/2014, we were involved in the management of 24 cases with accidental pin inhalation at the tracheobronchial tree. All these cases were retrospectively studied for the site of impaction of the pins in the tracheobronchial tree

All these cases were with positive recent history of inhalation (except one with 8 months history of choking). Most of the cases were stable at presentation but the patient and relatives were very conscious because of the nature of inhaled material. Basic investigation with chest X ray in frontal view were taken to all cases and lateral view for only centrally located pins to exclude possible esophageal impaction. All cases were managed with rigid bronchoscopy (except the one with late presentation for whom thoracotomy was decided from the start due to very peripherally located pin) under general anesthesia as emergency cases. All pins were extracted successfully during bronchoscopy, except one case who needed left sided thoracotomy and pin extraction after failed bronchoscopy because of distally located pin. The bronchoscopically documented site of impaction was the same as that in the radiological study in all cases because the pins were not free in the tracheobronchial tree with some degree of invasion to the bronchial wall.

Study design

Retrospective (descriptive study).

Results

Total number of the patients was 24, 20(83.33%) of them were female, 4(16.66%) were male. Of the 20 female, 19(95%) were holding the pin at the mouth while wearing the Hijab, and 1(5%) was toddler holding the pin for playing.

The 4 male were holding the pin for nonspecific purposes.

Age of the patients was 3-23 years (mean 13. 62), only one patient belong to children age group (3 years and below).

All the cases were with positive chest X Ray findings that demonstrated the presence of the pin

CT scan needed in only one case (late presentation)

All pins extracted by rigid bronchoscopy, except in 2 cases when the pin was extracted with thoracotomy (first case because of late presentation and distal impaction and the other because of failed bronchoscopy).

Regarding site of impaction, 15(62.50%) of the pins were settled at left bronchi (figure 1), while 5(20.83%) pins at trachea, and 4(16.66%) at right bronchi (table 1).

Discussion

In the last 2 decades, a new and distinct group of tracheobronchial foreign bodies has increasingly been recognized in older patients⁽¹⁰⁾. Turban pin aspiration syndrome is a new clinical entity afflicting young Islamic girls wearing a turban (hijab, or traditional headscarf)⁽¹¹⁾. This is completely true at Iraq after 2003, when huge sociocultural changes had occurred in two directions, first more females wearing the hijab and second younger the female wearing the hijab who used to be careless while arranging the hijab, the pins are frequently held between the lips and thus may be accidentally aspirated or swallowed specially during talking or laughing while pin in the mouth.



Figure 1. left sided pin

Table 1. site of impaction of the pins

Type of foreign body	Right bronchi No., %	Left bronchi No., %	Trachea No., %	total
pin	4(16.66)	15(62.50)	5(20.83)	24(100%)

In order to show the expanding nature of the problem, It is beneficial to mention that, at Baghdad study there was only 50 cases with (metallic) tracheobronchial foreign bodies (including pins) among 2170 patients of 10 years' experience from 1977-1986 while at our study we have 24 positive cases in less period of experience in much smaller city⁽¹²⁾.

This problem had been studied thoroughly with its different clinical aspects, but the predilection for left sided lodgment was

only surprising to some authors and the peculiar behavior of the pins was not recognized to others that they study pins as a same group with safety pins and clips^(13,14).

In order to discuss such peculiar behavior of the pins we need to know the characteristics of the studied (pins). These pins are metallic with pointed tip and blunt, plastic covered other head, about 2-4 cm length⁹ (figure 2).

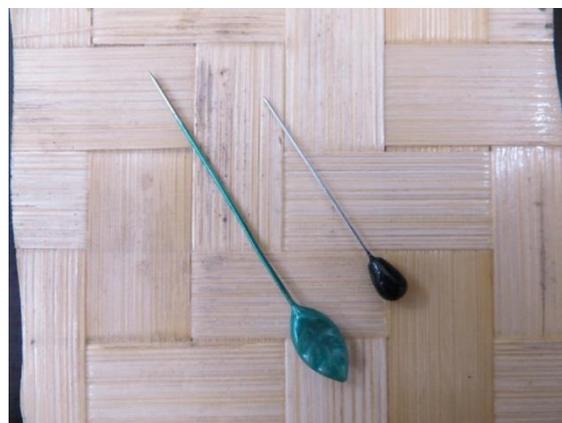


figure 2: pin

Females used to put the pin in the mouth with the blunt end inside and the pointed end outside. During bronchoscopy, all the pins were extracted with the pointed tip facing the operator and the blunt head being away, but we could not understand why pins go left, this means that there are some factors related to the pins themselves (length, the plastic head, other unknown factors) that determine the final destiny to be in the left, not the right bronchi as the other inhaled objects which were used to do so because of the tracheobronchial anatomic factors.

Conclusions

Accidentally inhaled tracheobronchial pins had tendency for left sided lodgment contrary to other types of inhaled objects with right sided tendency.

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