

Scarf Pin Inhalation in Young Girls: Atypical Type of Foreign Body Inhalation

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Abstract

Background: To study the causes and pattern of scarf pin inhalation in young girls

Methods: In this descriptive study patients, with a history of scarf pin inhalation, were included. A detailed history of onset, duration and time between inhalation and presentation to hospital was taken. Comprehensive physical examination was carried out in all patients to recognize any cardio respiratory complications. The precise anatomical location and position of the pin was determined by chest x-ray. All the procedures were performed under general anaesthesia after proper preoperative assessment. Bronchoscope was introduced by classic technique under standard anaesthetic monitoring assisted ventilation. The scarf pin was visualized and retrieved by grasping forceps of appropriate length and design. Repeat rigid bronchoscopy was done, where required. Chest x-ray was repeated in all patients to see any complications. Patients were discharged in stable condition after 24 of surgery.

Results: Total 33 female patients were included in study with history of pin inhalation. Mean age (years) in the study was 16.74±2 ranging in age from 12 to 30 years. The most frequent presenting complaints were cough and foreign body sensation in throat. Out of 33 cases, 12(36.36%) were in left main bronchus, 8 (24.24%) were in right main bronchus and 6 (18.18%) scarf pin were impacted in trachea.

Conclusion: Scarf pin inhalation is a life threatening condition which is more common in muslim females due to hijab. Scarf pin inhalation in females can be prevented by increasing public awareness, prohibiting them from placing pin in their mouth

Key Words: Scarf Pin Inhalation, Foreign body, Hijab

Introduction

Every year thousands of lives are endangered because of foreign body inhalation by children and teenagers. In Muslim nations, a unique group of population has recently been reported. This comprises young girls and women who put headscarf. Before securing these scarfs on their heads, they put safety pin in their mouth which can slip and be inhaled accidentally. The most common presentation in metallic scarf pin inhalation is choking, coughing, pain and rarely respiratory distress. The inhalation of metallic foreign bodies into airway is a serious and life-threatening condition. The inhalation of metallic objects loses many lives every year because they are infrequently coped in due course for intervention.¹ Foreign material ingestion is frequently seen in children and in geriatric population due to primary medical issues.² Toddlers have an inherent tendency to put small substances into their oral cavity. This habit together with undersized molar teeth and weak gag reflex render them at immense hazard of FBA. It is infrequent in adult population; probability factors contain neural weakness, dental injury and trying to ingest bigger bolus of foodstuff. The majority of aspirated objects in adults are natural objects, commonly nuts, seeds and meat bolus. In Muslim nations, a unique group of population has recently been reported. This comprise young girls and women who put headscarf. Before securing these scarfs on their heads, they put safety pin in their mouth which can slip and inhaled accidentally.^{2,3} The risk factors for pin inhalation during scarf fixation are coughing, talking and laughing.⁴ The majority of inhaled foreign bodies lodge into right main bronchus due to its anatomical position, conversely pins mostly lodge in the left main bronchus. Various writers have endorsed the reason this finding to the Bernoulli phenomenon, which manifest that greater negative pressure is produced in the left bronchus than in right bronchus which is wider. As compared to other foreign body aspiration which has variable clinical presentation, it

usually presents with irritation in throat, pain, cough and dyspnea instead of obvious history³. These foreign bodies can easily be diagnosed by x-ray chest as all of these inhaled FBs are radiopaque.^{5,6} The best treatment option is endoscopic rigid and flexible bronchoscopy. It should be done without delay before any complications arise.⁶

Patients and Methods

This observational study was done in the department of ENT Benazir Bhutto hospital, from March 2016 to Feb 2018. The study included all the patients with a history of scarf pin inhalation. In all patients' pre-operative neck and chest X-ray (PA view) was taken. The detailed history of onset, duration and time between inhalation and presentation to hospital was taken. Size and shape of pin was asked from the patients. The comprehensive physical examination was carried out in all patients to recognize any cardio respiratory complications. The precise anatomical location and position of the pin was determined by chest x-ray. After informed consent and counselling, all the procedures were performed under general anaesthesia after proper preoperative assessment and anaesthetic evaluation. Rigid bronchoscope of various sizes and rigid grasping forceps were used for the removals of scarf pins. The patients lying in supine position, Bronchoscope was introduced by classic technique under standard anaesthetic monitoring assisted ventilation. The scarf pin was visualized and retrieved by grasping forceps of appropriate length and design. In some cases repeat rigid bronchoscopy was needed. Chest x-ray was repeated in all patients to see any complications. Patients were discharged in stable condition after 24 of surgery.

Results

A total of 33 female patients with scarf pin inhalation presented over a period of two years. Their age ranged from 12 to 30 years (mean age, 16.74 years). The majority of the patient presented with pain in throat, irritation and cough (Table 1). Every patient with scarf pin inhalation narrated that the incident had occurred by coughing, talking and laughing as the pin was being detained in the mouth between the lips and teeth (Table 2). The average duration of reporting to hospital was 6 hours with delayed presentation ranging from 18 to 36 hours. The precise anatomical location and position of the pin was determined by chest x-ray and finding of rigid bronchoscopy (Tables 3). Rigid bronchoscopy was performed in all 33

patients. 29 Scarf pins were retrieved in first attempt by rigid bronchoscopy. Three repeat endoscopies were done due to impaction and non visualization of scarf pin in tracheobronchial tree and removed successfully. In one patient pin could not be retrieved by multiple attempts due to impaction of pin in left upper lobe of lung. With the help of C arm, pin was localized, grasped with forceps and retrieved successfully (Fig 1 &2). No morbidity and death occurred during rigid bronchoscopy. Post operative chest radiograph was done in all patients to see any complication. All patients were discharged after 24 hours of surgery.

Table1. Common symptoms of pin inhalation

	Number	Percentage
Cough	14	42.4%
Foreign body sensation	08	24.24%
Odynophagia	03	9.09%
Symptoms free	08	24.24%

Table 2: Scarf Pin Inhalation- Inciting Event

Inciting Event	No(%)
Just happened	09 (27.20)
In a hurry multitasking or walking	08 (24.21)
Talking	05 (15.15)
Bout of cough or sneeze	04(12.12)
Playing with pin	03 (9.09)
Chewing gum in mouth	02(6.06)
Holding more than one pin	02 (6.06)

Table 3. Anatomical site of pin

Anatomic Site	Number
Subglottis	0
Trachea	6
Right main bronchus	8
Right Secondary bronchus	4
Left main bronchus	12
Left secondary bronchus	3
Total	33

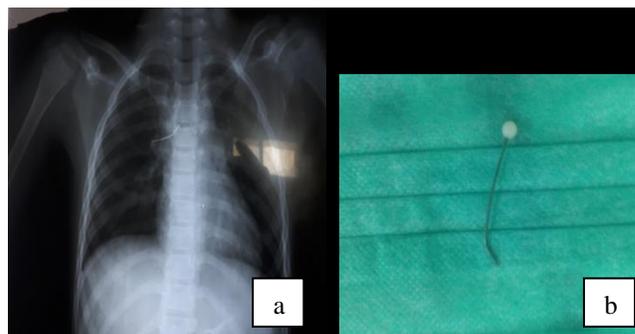


Fig 1: Scarf pin in right bronchus(a), removed by rigid bronchoscope (b)

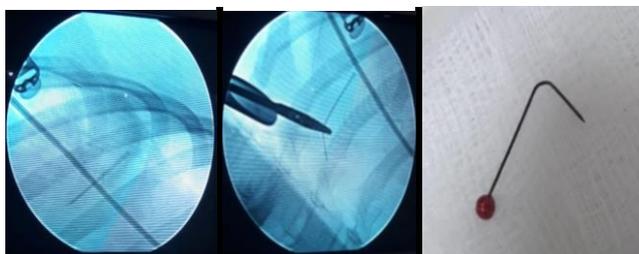


Fig 2: Scarf pin removed from left upper lobe with C arm.

Discussion

Foreign bodies are multidisciplinary emergency between paediatrics, emergency medicine and otolaryngology. Frequently seen in younger children it is a life-threatening condition.⁷ Foreign body aspiration (FBA) can largely be prevented by proper education and care. In the children younger than 4 years of age, the major cause of accidental death is asphyxia that is caused by inhaled foreign body.⁸ Headscarf pins inhalation is atypical and unique condition that is frequently seen in young ladies. Review of literature showed that in community group the mean age is 12 to 22 years.^{9,10} In present study, mean age was 16.74 ± 2 years ranging in age from 12 to 30 years. In contrast with other kind of FBA, the cause of scarf pin inhalation can be explained by the fact that this condition is seen frequently in adolescent muslim females who have recently started practicing the hijabs.¹¹ Many authors have attributed that FBA occurs mostly in males, whereas scarf pin inhalation happen exclusively in young girls; no male patients have been reported.¹² In present case study the results were also constant that exclusively all were female. Cough, dyspnea, wheezing, cyanosis and stridor are mostly frequently seen sign and symptoms of foreign body inhalation in younger children.¹³ Approximately every patient with scarf pin inhalation narrated that the incident had occurred by coughing, talking and laughing as the pin was being detained in the mouth between the lips and teeth.¹⁴ Foreign body headscarf pin can easily be diagnosed by chest radiography as all of these inhaled foreign bodies are radio-opaque.¹⁵ In the recent study, the precise anatomical location and position of the pin was determined by chest x-ray. In infants and young children, right main bronchus is the most common site of impaction of inhaled foreign bodies due to its wide and horizontal location.¹⁶ While in present study, main site of impaction of inhaled scarf pin was the left main bronchus followed by the right main bronchus and trachea.⁶ In the recent study, the scarf pin was located on the left main bronchus in 14 (60.8%) cases, in 06 (26.06%) cases pin was located in right main bronchus and in the trachea in 3 (13.04%)

cases. Greater negative pressure is produced in the left narrowed bronchus than in right bronchus which is wider. It can explain left predominance location of foreign body. Once scarf pin is diagnosed by detailed history, physical examination and radiography, it should be removed as soon as possible before any complications arise. Rigid bronchoscopy is the most common treatment of choice procedure to remove impacted scarf pin in adolescent and young children. During rigid bronchoscopy, the pin should be carefully removed by gripping with forceps. The bronchial mucosa or bronchial wall can be damaged by sharp end of the pin. So care has to be taken to avoid injury to the mucosa. Rigid bronchoscope is very effective and efficient airway, suctioning can be done in case of massive bleeding and is not time consuming.¹⁷ In present study, all 23 patients underwent rigid bronchoscopy and all scarf pins were removed successfully. 1% to 12% mortality rate has been reported in literature due to foreign body inhalation and its complications.¹⁸ In the present study, no mortality and complication occurred in scarf pin aspiration.

Conclusion

Scarf Pin inhalation is a life threatening condition which is more common in Muslim females due to hijab. Scarf pin inhalation in females can be prevented by increasing public awareness, adequate education and prohibiting them from placing pin in their mouth.

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