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A Retrospective Review of Pattern of Inhalational Foreign Body from A North Indian Centre

Manzoor A Latoo	Assistant professor department of ENT and Head Neck surgery government medical college Srinagar J&K 190010 (corresponding Author)
Zafarullah Beigh	Department of ENT and Head Neck surgery government medical college Srinagar J&K 190010
Aleena Shafi Jallu	Department of ENT and Head Neck surgery government medical college Srinagar J&K 190010

ABSTRACT

Foreign body (FB) inhalation is a worldwide health problem which can result in life threatening complications. Most of the foreign body aspirations occur among children younger than 4 years of age, yet sharp foreign bodies are seen more commonly in adults, growing children and adolescents. However, due to some social and cultural factors, a distinct group of tracheobronchial FB aspiration is increasingly recognized. We sought to assess our experience with such entity. A retrospective review of all cases with scarf pin tracheobronchial FB inhalation in a single center over a period of two years was carried out. There were 18 cases of headscarf tracheobronchial FB inhalation. All were females with mean age of 21 years. All patients experienced cough and had positive chest radiography findings. CT scan of chest was done in a few selected cases. Commonest anatomical location was leftt main bronchus (9) followed by right main bronchus (5), Tracheal pins also occurred in 2 patients. Rigid bronchoscopy was used in all cases to remove the FB. Thoracotomy was required in one patient . There were no complications or hospital deaths. Headscarf pin aspiration is seen in women/girls who inappropriately place the pins between their lips prior to securing their veils. Bronchoscopy is the treatment modality of choice and surgery is rarely required. Preventative educational strategies should be implemented to reduce such an avoidable risk.

KEYWORDS

Introduction

Foreign body (FB) aspiration remains a common but largely preventable problem. It is commonly encountered in children at an young age [1] and in the elderly due to an underlying medical condition [2]. There is a wide range of clinical presentations, especially if there is no reliable witness to supply the clinical history, particularly in children. Maintaining a high index of suspicion is therefore necessary for the diagnosis; unlike adults who present with a straight forward complaint. However, there is a distinct group of patients who are recently being recognized and are at risk. These patients include women wearing headscarves and inappropriately placing the safety pin in their mouth prior to securing the veils leading to an accidental FB aspiration [3–8]. In contrast to other forms of FB aspiration, this group often presents early and the diagnosis is made solely on radiography due to the radio-opaque nature of the pins. The use of bronchoscopy has dramatically reduced the need for thoracotomies. In this paper, we analyze our experience over one year with such entity, together with our short-term outcome.

Materials and methods

All patients with headscarf pin FB aspiration treated in the department of otorhinolaryngology and head neck surgery government medical college Srinagar J&K over a period of two years from december 2011 to November 2013 were retrospectively reviewed.. All of them were females. All patients underwent detailed history and physical examination followed-up with chest radiography (fig 1) and Xray soft tissue neck lateral view (fig 2) .CT scan of chest, (fig 3) was done in selected cases determined by patient symptoms like chest pain or if chest X ray showed peripherally located FB, prior to undergoing bronchoscopy. FB was removed by rigid bronchoscopy (Karl Storz, Tuttlingen, Germany). Bronchoscopy was performed under general anesthesia . The trans-oral route was used for rigid bronchoscopy. The types of instruments used included: optical grasping forceps and alligator type forceps. The patient were normally positioned supine in 25° Trendelenburg position. All cases (with the exception of one patient who had surgery) were treated as day cases. This study was approved by our Institutional Review Board.

Results

There were a total of 18 patients, all were females. Ages ranged from 15 to 35 years with a mean (±S.D.) of 21 (±5) years. A summary of the anatomical distribution, type of extraction method and short-term outcome is depicted in Table 1 . All patients initially experienced cough and had normal physical examination as they were all non-asphyxiating and non-obstructive FB aspiration. Chest pain was complained by one patient. There were no complications and no hospital mortality.One case required surgery in the form of right thoracotomy and bronchotomy for a pin impacted in the right lower lobe.

Discussion

FB aspiration remains a common problem among young children and is commonly divided into organic and inorganic FB aspiration. Organic materials such as nuts and seeds are the most commonly aspirated while the inorganic materials include a wide range of objects such as plastic pieces, toy parts, etc. [8]. Up to 85% of all FB aspiration occurs in children. In adults, most of FB aspirations are seen in the 6th or 7th decade of life when airway protective mechanisms function inadequately e.g. due to central nervous system dysfunction, intubation or facial traumas [10]. The younger age group is more

vulnerable because of the lack of adequate dentition and immature swallowing coordination. In addition, among children of this age, introducing objects into their mouths is their way of exploring the world [2,11]. However, in recent years some traditional or social habits have become a discrete category of FB aspiration. This is seen in women wearing headscarves in Islamic countries because of socio-cultural and religious tradition. Some women tend to hold the headscarf pin (fig 4) between their lips while wearing headscarves using their two hands to secure the veil. Any maneuver, such as laughter, talking and coughing then predispose them to aspiration, especially in the young teenage groups where they lack experience with such maneuver [3–8]. In contrast to other forms of FB aspiration, headscarf pin aspirations tend to be easily diagnosed as all of these inhaled FBs are radio-opaque [3] and, as such, can be picked up easily by chest radiography. Furthermore, in contrast to other forms of FB aspiration, chronic forms are rarely encountered because patients tend to seek medical advice quicker than in organic FB aspiration. Therefore, diagnostic bronchoscopy is rarely needed but rather a therapeutic intervention is required.

Once diagnosed by means of radiography, these inhaled pins should be removed either by rigid or flexible bronchoscopy. During rigid bronchoscopy, the pointed end of the pin should be grasped and taken into the bronchoscope. The pointed end can harm the bronchial mucosa or bronchial wall if the pin is grasped and pulled from the other part of the pin. The need for thoracotomy and bronchotomy is required in only a small number of cases and is mainly related to failed attempts of bronchoscopic extraction and a distal location of inhaled FB. Factors that influence the success of bronchoscopic management include: anatomical location, the experience of clinician performing the procedure and the early intervention [3]. FB inhalation in the present study was accidental while the subjects were trying to secure their veil. Most of these females had FB in left main bronchus,without causing asphyxiating symptoms. These FB were removed by rigid bronchoscopy using optical forceps which has high illumination and good grip ,thereby prevents injury to bronchial mucosa or bronchial wall. Rigid bronchoscopy provides a greater access to the subglottic airways ensuring correct oxygenation and easy passage of the telescope and grasping forceps during FB extraction. In addition, rigid bronchoscopy allows a very efficient airway suctioning in case of massive bleed and is not time consuming. That is why it is preferred in children [11,12]. In adults, flexible bronchoscopy has many advantages including its ease, safety profile and its superiority in cases of distally located FBs [8,11,13]

Our results seem consistent with previously published reports on pin aspiration. One important finding is the general preference of rigid over flexible bronchoscopy in these series. In addition, the condition is preponderant in females of early teenage years due to their lack of experience when securing the headscarves. Furthermore, the use of surgical intervention in the form of bronchotomy or lobectomy has been generally limited due to the success of interventional procedures in extracting the pins. All of these sharp pins are radio-opaque and as such, the diagnosis is generally quicker than in cases of organic FB aspiration and chronic cases are rarely encountered [14]. In our study diagnosis was made on Xray chest P/A view, xray soft tissue neck lateral view and CT scan chest as and when neaded. In our study CT scan chest was done in 2 patients,one patient who complained chest pain and other in which X ray chest shows distally located FB (fig2). In former case,in which patient complains chest pain CT scan chest showed FB migrated into right lower lobe lung parenchyma, FB was then removed by right thoracotomy and bronchotomy. In later case where chest Xray showed distally located FB(fig2),CT scan of chest showed part of FB in left lower main bronchus and partly in adjacent lung parenchyma (fig3). FB in this case was removed by rigid bronchoscopy using optical forceps which catch holds proximal part of FB present in left lower bronchus .

Conclusion

Pin aspiration is a distinct clinical entity that is encountered in countries where headscarves are used because of social, traditional or religious purposes. The lack of experience of these young women on occasions can predispose them to FB aspiration. Rigid bronchoscopy is the treatment modality of choice. Thoracotomy is rarely required. Public awareness is required to prevent such aspiration and adequate education of women wearing headscarves is required to avoid the habit of placing the pins in their mouth prior to securing their headscarves.

Table 1
A summary of the anatomical distribution, type of extraction method and short-term outcome (*n*=18)

Variable	Number
Side	
Left	10
Right	6
Central	02
Anatomical location	
Left main bronchus	9
Left lower lobe	01
Rightmain bronchus	5
Right lower lobe	01
Trachea	02
Variable	**Number**
Pins	18
Extraction method	
Rigid bronchoscopy Thoracotomy	17 01
Status at discharge	
Alive	18
Dead	0

fig 1.Xray chest P/A view showing FB (scarf pin) In left lower lobe of lung

Fig 2.Xray soft tissue neck lateral view showing FB (scarf pin) intrachea

Fig 3. CT scan of chest showing FB in left Lower lobe

fig 4.Foreign body (scarf pin)

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