Turban Pin Aspiration in Egyptian Muslim Females: Management and Recommendations

Hany Mohamed El-Rakhawy MD
Department of Cardiothoracic Surgery, Faculty of Medicine, Benha University

ABSTRACT

Turban pin aspiration is a health problem facing Egyptian Muslim females, this study shows how to manage these cases and offer recommendations for community to avoid this problem with recommendations to doctors faced by this condition, the study included 34 female patients with aspirated turban pins, the study conducted at department of cardiothoracic surgery, Benha University Hospital since Dec. 2008 till Dec. 2011. All patients underwent routine laboratory investigations, radiological work-up. Patients were prepared for pin retrieval by bronchoscope, and if failed, another bronchoscopic trial was done few days later and thoracotomy was done on failure of the second trial. All studied patients were females with age ranging from 10 to 29 years and mean of 15.4 years, 70.6% of patients were from rural areas and 29.4% were from urban areas. In 52.9% of patients the pin was located in the right bronchial tree (Rt. BT), 23.5% located in the left bronchial tree (Lt. BT) and 23.5% located in the trachea. In 67.6% of patients pins were retrieved by rigid bronchoscope, in 11.8% by fiber-optic bronchoscope, in 8.8% by bronchotomy, and in one patient right lower lobectomy was done. Turban pin aspiration can be easily avoided. Heavy percussion on the back of the chest while the patient is in kneeling position is a simple maneuver that could be tried with patients who can tolerate it. Bronchoscopy either rigid or fiber-optic is the treatment of choice which if failed thoracotomy and bronchotomy or even pulmonary resection may be needed.

Keywords: Turban pin, Bronchoscopy, Thoracotomy, Bronchotomy, Benha.

INTRODUCTION

Accidental aspiration of a foreign body (FB) into the tracheobronchial tree in both adults and children can result in significant morbidity and mortality. (1) Turban pin aspiration is a form of non-asphyxiating tracheobronchial foreign body aspiration in young Muslim women. (2) A turban or Hijab, is the headscarf that covers a woman’s head, hair, neck, and ears leaving only the face showing. Many, but not all Muslims consider wearing hijab theologically mandated. In Islamic countries, girls start to wear a turban with the onset of puberty. Turban pins (headscarf needles) are used for attaching the layers of turban to each other in order to keep it in a steady position around the head. (3,4) During the fixation of the turban, the neck is extended and the pins are held between the lips. Meanwhile speech or laughter can cause the deep aspiration of the pin into the tracheo-bronchial system. (5) Choking and respiratory insufficiency may be observed immediately after foreign body aspiration. Symptoms of foreign-body aspiration range from coughing, wheezing and dyspnea to hemoptyisis and diagnosis is confirmed by chest radiography as turban pins are radio-opaque and easily diagnosed by plain chest X-ray. (6,7,8) Uncommonly pins are spontaneously expectorated, and the definitive treatment of foreign body aspiration is removal as soon as possible. Aspirated turban pins can be removed by rigid or fiber-optic bronchoscopy, if both flexible and rigid bronchoscopies are unsuccessful, thoracotomy with bronchotomy and/or resection of the affected lung segment or lobe is required. (9,10,11,12)

PATIENTS & METHODS

In this study, the amended Helsinki guidelines for patient treatment were followed and each patient provided a written informed consent. It is a prospective study conducted at department of cardiothoracic surgery, Benha University Hospital since Dec. 2008 till Dec. 2011. The study involved only the patients dealt with by the author of this study. The study included females with history of sudden inhalation of the turban pins used to fix the
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RESULTS

The study included 34 female patients; with mean (SD) age of 15.4 (4.3) years, the age ranged from 10 to 29 years. Different age groups are shown in Table1, all patients had the same history, that while holding the pin between teeth or lips for fixing Hijab, and at that time a sudden episode of deep inspiration due to laughing, crying or hiccup followed by choking due to pin inhalation. 61.8% (n=21) of patients were asymptomatic when arrived to the hospital, 23.5% (n=8) of patients presented by dry cough, 5.9% (n=2) of patients presented by cough with blood tinged sputum (BTS) and 8.8% (n=3) of patients presented by chest pain. The presentation symptoms are summarized in Table(2). 24 (70.6%) patients were from rural areas and 10 (29.4%) patients were from urban areas. The position of the pin is identified by the plain chest x-ray figure(1), in most patients, the pin was located in the right bronchial tree, and pin location was as follow, in 52.9% (n=18) of patients (Rt. BT), in 23.5% (n=8) the pin was located in the left bronchial tree (Lt. BT) and in 23.5% (n=8) the pin was located in the trachea. The pin retrieval widely ranged from coughing ended by spontaneous retrieval of the pin which occurred in 2 (5.9%) patients, to surgical resection in the form of right lower lobectomy for one (2.9%) patient figure(2). In 67.6% (23) of patients pin was retrieved by rigid bronchoscope, in 11.8% (n=4) the pin retrieved by fiber-optic bronchoscope, in 8.8% (n=3) bronchotomy was done and in one (2.9%) patient the pin was coughed after heavy percussion to the back of the chest. Figure(3) shows the way of pin retrieval. Hospital stay ranged from 6 hours to 16 days with a mean (SD) of 2.71 (3.27) days. The complications noted only in 2 patients of those managed by thoracotomy (one case of bronchotomy and one case of right lower lobectomy) and the complication was in the form of prolonged air-leak (more than one week), that spontaneously resolved.
Table (1): Age groups

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Table (2): Presentation

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Fig.1: CXR PA-view showing the pin distally located in Rt. BT

Fig.2: Resected Rt. lower lobe
Fig.3: Method of pin retrieval

DISCUSSION

More than 90 percent of Egypt’s citizens are Sunni Muslims. (13) Benha city is located in Egypt, and the capital of Qalyubia governorate. It’s a small city 35 km north of Cairo. It is a semi-urban area. It has the characteristics typical of a lower Egyptian community: a mixture of urban and rural areas, with significant influence of Egyptian traditions and attitudes. This study was done at Benha university hospital, Benha University Hospital is one of the largest hospitals in Benha city. This hospital accepts patients from Benha city and the nearby rural areas. (14) 70.6% of patients included in this study are from rural areas and 29.4% are from urban areas and this distribution is almost opposite to that reported by Cobanoglu et al. (15) in a similar study done on 21 cases, 38.1% of cases lived in a rural area and 61.9% were urban.

All patients included in this study are females, because Muslim females only wear Hijab Kaptanoglu et al. (16) in a study included 414 patients for turban pins aspiration, 56% of the patients were females and 44% were males. However, most of patients included in that study were young children.

The age of patients included in this study ranged from 10 to 29 years with a mean of 15.4 years and this result is close to that obtained by Cobanoglu et al. (15) as the mean age of patients included in that study was 13.47 years.

The same history was typical in all patients, that while holding the pin between her teeth or lips for fixing Hijab, and at that time she had a sudden episode of deep breathing due to laughing, crying or hiccup followed by choking due to pin inhalation, this history was the same that reported by Al-Halfawy (17) in a similar study that included 32 patients.

On arrival to hospital 61.8% of patients were asymptomatic, 23.5% of patients presented by dry cough, 5.9% of patients presented by cough with blood tinged sputum and 8.8% of patients presented by chest pain, Al-Sarraf et al. (18) in a similar study included 35 patients reported that all patients initially experienced coughing and all had normal physical examination as they were all non-asphyxiating and non-obstructive FB aspiration. Hemoptysis was only observed in four cases (11%).

In this study, pin location was as follow, 52.9% in the Rt. BT, 23.5% in the Lt. BT and 23.5% in the trachea. Regarding the predominance of the location of the pin in the Rt. BT Hasdiraz et al. (12) in a similar study that included 105 patients reported that in 52% of patients the pin was located in the right bronchial system which is exactly the same percent in our study. However, right sided predominance is not a rule as in a similar study that was done by Hamad et al. (19) on 73 patients , pins were seen in the left bronchial system in 50.7% of cases.

In all patients, a trial of heavy percussion on the back of the chest while the patient is in kneeling position was done however, in only one out of the thirty-four patients this method led to retrieval of the pin. One patient coughed the pin the night before going to OR, and another patient coughed the pin while on the OR table just before receiving the anesthesia. So, in two patients the pin was spontaneously retrieved.

In 67.6% (n=23) of patients pin was retrieved by rigid bronchoscope, of these 21 patients the pins retrieved from the first time, and in the other two patients the pins were retrieved in the second trial that was done three days after the first attempt. In four patients pins were retrieved by fiber-optic bronchoscopy.

Thoracotomy was done in 11.76% (n=4) of patients and in these patients the pins were distally located and kinked, in three of these patients the pins were retrieved by bronchotomy, in the fourth patient right lower lobectomy done. Regarding bronchotomy and thoracotomy Cobanoglu et al. (15) in a study that included 21 patients with turban pin aspiration, reported close results to this study as in that study, the method of pin retrieval was rigid bronchoscopy in 15 (71.4%) cases rigid bronchoscopy, fiber-optic
bronchoscopy in two (9.6%), thoracotomy in three (14.3%) cases.

Regarding the patient for whom right lobectomy was done, she was 11 years old female patient where the pin was distally located in the right bronchial tree, heavy percussion, rigid bronchoscopy failed to retrieve the pin. A second bronchoscopic attempt was tried three days later, both rigid and fiber-optic bronchoscopies were tried and the pin could not be retrieved, thoracotomy done followed by bronchotomy and the pin could not be retrieved. Chest x-ray was done with the patient under anesthesia for two times and after each time new bronchotomy was done without retrieving the pin which was deeply located, the lobe became edematous and there were multiple bleeding sites, and right lower lobectomy was decided.

After that case, the second attempt and if there is possibility of thoracotomy, pin retrieval was done on C-arm table. Although pulmonary resection is not common for foreign body retrieval, Athanassiadi et al.,\(^{20}\) reported 4 cases of pulmonary resection in a series of 25 patients with foreign body aspiration and Çevik et al.,\(^{12}\) reported a case of twenty-seven year old female patient who was admitted after aspiration of a scarf pin and underwent thoracotomy and inferior lobe resection after an unsuccessful bronchoscopic attempt.

Hospital stay ranged from 6 hours to 16 days with a mean of 2.71 days, in one case who stayed for only 6 hours the pin was self-ejected by coughing on night while preparing the patient for bronchoscopy on the next day, in most cases in whom bronchoscopy was the way of pin retrieval hospital stay ranged from one to three days.

In cases with bronchotomy hospital stay ranged from 7 to 10 days and the case of right lower lobectomy stayed for 16 days because there was prolonged air-leak. Air-leak was the only noted complication which happened in two cases.

There was no mortality as turban pin is non-asphyxiating, and regarding this point the result of this study was better than that reported by Elmustafa and Osman\(^{21}\) in a study that included 14 patients they reported death of one patient (7.1 %) who aspirated a syringe needle that died immediate postoperatively after failure of removal due to severe uncontrolled intra-bronchial hemorrhage.

So, management of patients with turban pin aspiration in this study was algorithmic and included, heavy percussion on the back of the chest while the patient in kneeling position, if failed rigid bronchoscopy under general anesthesia, if failed another trial of rigid bronchoscopy, if failed fiber-optic bronchoscopy, if failed thoracotomy and bronchotomy and if bronchotomy failed pulmonary resection was done.

**Recommendations:**

To community:

1. Warning people in Islamic communities about this problem through mosques, schools and media.

2. Designing newly fashioned turbans that do not need pins for fixation

To doctors faced by these patients:

1. Trying heavy percussion for the back of the chest, while the patient’s head is down in kneeling position, although the success rate of this procedure is low but, it is a simple maneuver and may retrieve the pin.

2. Use of C-arm in the second attempt of pin retrieval if thoracotomy is expected.

**CONCLUSION**

Turban pin aspiration is a true health problem in Egyptian Muslim females who wear Hijab. It can be easily avoided by health education and/or newly fashioned turbans that do not need pins for fixation but use press studs or something else. Although, heavy percussion on the back of the chest while the patient is in kneeling position not commonly ends in pin retrieval, yet it is a simple maneuver that could be tried with patients who can tolerate it. Bronchoscopy either rigid or fiber-optic is the treatment of choice, if bronchoscopic retrieval of the pin fails, thoracotomy and bronchotomy or even pulmonary resection may be needed. If thoracotomy is expected, it should be done on C-arm table for intra-operative radiological guidance.

**REFERENCES**


