

Hijab Syndrome; a neglected but serious health problem in Muslim communities: A systematic review

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ABSTRACT

Introduction: Hijab syndrome is a serious health problem specified to Muslim nations. The aim of this study is to review the current literature systematically regarding the epidemiology, presentation, diagnosis, management and outcome of Hijab syndrome. **Methods:** PubMed, Web of Science, Scopus, Google scholar and MEDLINE on OVID were explored for studies published before September 1, 2017. **Inclusion criterion** is any paper talking about scarf pin inhalation. Various data were taken from the included articles. Those data were sociodemographic features of the cases, history, clinical presentations, duration of the complaint, diagnosis, treatment and intervention,

complications and outcome (short and long term). **Result:** The search revealed 1081 patients in 31 studies. From all patients, 85% of them were reported from Muslim living countries. From the total number of patients, 1070 (99%) cases were females, and 11 (1%) patients were males. Mean age of affection was 14.5 years ranging from 4 months to 62 years old. The most common mode of extraction was through rigid bronchoscopy followed by flexible fiberoptic bronchoscopy (FOB) and thoracotomy. **Conclusion:** Hijab syndrome is diagnosed by history and chest X-ray, management includes FOB, rigid bronchoscopy and thoracotomy.

Keywords: Foreign body, Hijab syndrome, Inhalation, Pin, Swallowing

How to cite this article

Othman S, Kakamad FH, Salih RQ, Essa RA, Mohammed SH, Hussein DA, Hassan HA, Rahim HM. Hijab Syndrome; a neglected but serious health problem in Muslim communities: A systematic review. Edorium J Public Health 2018;5:100021P16SO2018.

Article ID: 100021P16SO2018

doi: 10.5348/100021P16SO2018RA

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Received: 18 October 2017

Accepted: 21 August 2018

Published: 20 September 2018

INTRODUCTION

Childhood is the usual age group affected by foreign body aspiration (FBA). The etiology might be explained by the natural tendency to explore surroundings through oral route, The immaturity of swallowing mechanism

and the absence of teeth [1, 2]. However, in some geographical regions, cultures, nutritional habits and religious trends may be the etiology of FBA in adulthood [3]. The presentation is variable according to the types of foreign bodies (FBs), size and site of impaction. It ranges from suffocation and immediate death to unnoticed inhalation and late presentation with complications like bronchiectasis and recurrent pneumonia [1, 4–6]. The most common aspirated FBs are nuts, toy parts, carrot and buttons [5, 6]. Aspiration of scarf pins has been increased in Muslim nations. Authors reported that 9.5% of all FBA undergoing bronchoscopy were pin inhalation [3]. For the first time, Baram and his students called it Hijab syndrome as it encompasses the entire story from inhalation to outcome [2]. The aim of this study was to review the current literature systematically regarding epidemiology, presentation, diagnosis, management and outcome of Hijab syndrome. This helps physicians to practice in an evidence based way and shows the size of the problem to the communities and governmental personnel to ban the pin from an entrance to the Muslim countries.

Methods

Study design and setting: This is a systematic review of the published literature lasted for three month duration.

Information sources and search

PubMed, Web of Science, Scopus, Google Scholar and MEDLINE on OVID were explored for English-language studies (text and/or abstracts) published before September 1, 2017. The key words used were Hijab syndrome, scarf pin, head pin, turban pin, straight pin and common pin. The collection of data was supplemented by the references of the articles cited in the current paper.

Eligibility criteria

For an article to be included in this review, it should highlight inhalation of scarf pin or pins used to tighten turban. Figure 1 shows the flow process of the search results.

Data collection process

Data were collected directly from the included articles by two authors independently (author number 2 and 4). No data were taken or confirmed by contacting the authors.

Data items: Various data were taken from the included articles. Those data were sociodemographic features of the cases, history, clinical presentations, duration of the complaint, diagnosis, treatment and intervention, complications and outcome (short and long term).

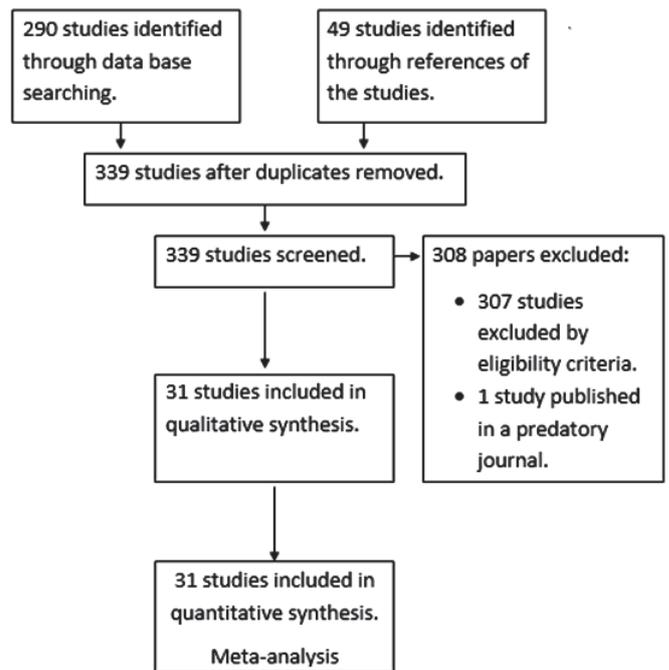


Figure 1: Flow chart of the searching results.

Summary measures and synthesis of results

For some variables like age of presentation and sex of the patients extracted data were reanalyzed and calculated as the total. The articles with bigger sample size were reviewed a little bit more in details.

RESULTS

The search revealed 31 papers reporting cases of Hijab syndrome which included 1081 patients. From all patients, 85% of them were reported from Muslim living countries. The condition was most commonly reported in Egypt (408 cases, 37.7%) followed by Turkey (317, 29.3%), Table 1 shows the frequency at which the condition was reported worldwide. From the total number of patients, 1070 (99%) cases were females, and 11 (1%) patients were males. Mean age of affection was 14.5 years ranging from 4 months to 62 years.

The most common mode of extraction was through rigid bronchoscopy under general anesthesia (85.2%) followed by FOB in 86/1039 (8.3%) patients and thoracotomy in 67/1039 (6.5%).

DISCUSSION

Hijab syndrome is a health problem in Muslim living countries. Baram’s team credited with the first use of the term (Hijab Syndrome), by which they referred to the story of Muslim teenagers who were habitually holding

Table 1: Distribution of Hijab Syndrome according to the countries

Country	Number of case	Author
Egypt	408 (37.7%)	[1, 7, 8]
Turkey	317 (29.3%)	[3, 9–15]
Morocco	108 (10%)	[10, 16–19]
Canada	90 (8.3%)	[4, 5]
Philadelphia	42 (3.9%)	[6]
Kuwait	35 (3.2%)	[21]
Iraq	27 (2.5%)	[2]
Israel	26 (2.4%)	[22]
Jordan	16 (1.5%)	[23]
Lebanon	5 (0.5%)	[24]
China	1 (0.09%)	[25]
Emirate	1 (0.09%)	[26]
Oman	1 (0.09%)/	[27]
Germany	1 (0.09%)	[28]
UK	1(0.09%)	[29]
Australia	1 (0.09%)	[30]
Switzerland	1 (0.09%)	[31]

pins in their mouths during wearing scarfs, meanwhile a sudden cough, talk, or laughing induce pin inhalation [2]. Although scientific reporting and publications are scanty in these regions, according to these meta-data, 85% of the patients originated in the countries in which Islam is the religion of the majority [1–3, 7, 8, 14, 16–27, 29]. The article with the largest sample size has been reported in Egypt by Elsayed and his associates in which they reported 315 patients with Hijab syndrome during 11 years of the study period [28]. This is followed by a study conducted by Hasdiraz et al in Turkey, in which they analyzed and discussed 105 patients during 15 years of the study period [3]. Hijab syndrome is an exclusive disease of young female, mostly occurring in teenage. Hamad and his colleagues reported 73 cases with inhaled scarf pins, all of the patients were females with a mean age of 13.4 ranging from 11 to 19 years [1]. Among 63 patients analyzed by Kaptanoglu and his associates, none of them were males with a mean age of 14 years [13]. According to these metadata 99% of the cases were females with a mean age of 14.5 years ranging between 4 months to 62 years. This might be explained by the fact that Hijab syndrome is related to the turban worn by Muslim ladies as a religious obligation and teenage ladies have no enough experience to use the pins which are usually used to tighten the layers of the scarf and make them remain steady [6, 13, 28]. The patients usually report inhalation of the pins when they wear the scarf and speak, cough or take a deep breath while the needle been held in the mouths [2]. In most of the conditions, the patients reported positive history of pin inhalation and examination of the chest was negative. The latter may be explained by

the fact that the pin is too small to cause air conduction problem [5, 9, 10]. Chest X-ray is the most sensitive and diagnostic image of choice which shows linear metallic shadow (Figure 2) [2]. The therapeutic options for Hijab syndrome include FOB under local anesthesia, rigid bronchoscopy under general anesthesia and thoracotomy [1, 2, 5, 28]. According to these metadata, in the majority of cases (85.2%) the pins were successfully extracted using rigid bronchoscopy under general anesthesia [1] [6]. Authors prefer a trial of FOB before going to the next step if the patient tolerates and consents to the procedure [7, 11, 21, 25]. Shaab and associates successfully extracted scarf pin in 5 patients with Hijab syndrome using FOB [20]. Elsayed et al recommend using magnetic grasper to increase the possibility of extraction by mean of FOB [28]. The advantages of using FOB for extraction of aspirated Hijab pins are shortening hospital stay and avoiding complications of general anesthesia.

Rigid bronchoscopy under general anesthesia within a prepared operating room for thoracotomy is preferred if the former failed to solve the problem. Classical posterolateral thoracotomy is the ideal management strategy when bronchoscopy (rigid and flexible) failed to extract the needle [1, 5, 7, 28]. The outcome of Hijab syndrome is usually good. According to the literature, only one case (0.09%) died when the surgeon tried to

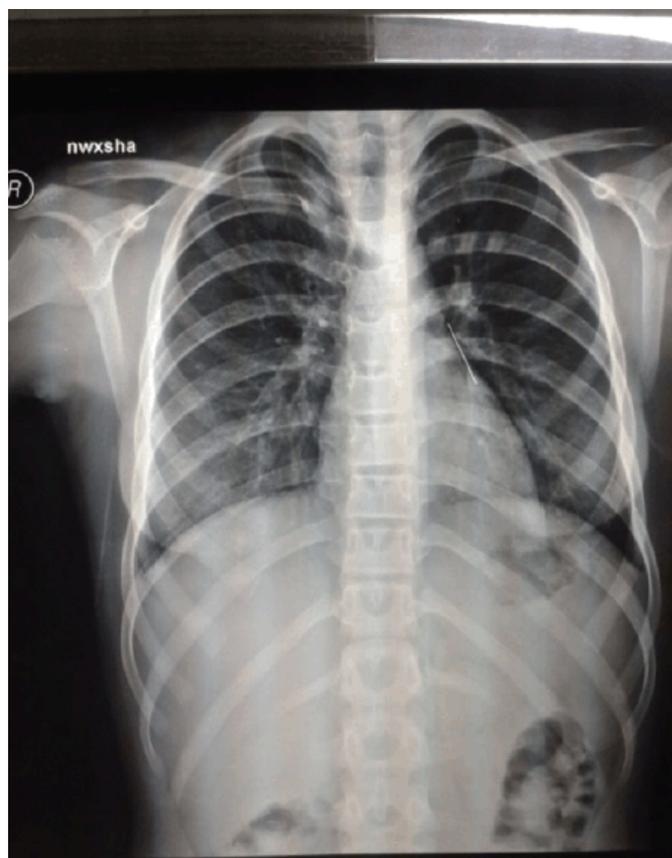


Figure 2: Posteroanterior view of chest radiograph showing scarf pin in the left middle zone. Taken with permission from Baram et al. [2].

retrieve the pin, the patient's trachea was torn causing diffuse surgical emphysema. The patient remained in the intensive care unit for a few days later on passed away [2]. The main method of managing this problem is the prevention of the disease which can be done through educating teenage girls and banning the scarf pin [2].

CONCLUSION

Hijab syndrome is a serious health problem in Muslim nations. Diagnosis is by history and chest x-ray, management includes FOB, rigid bronchoscopy and thoracotomy. Reporting new cases by the professionals is highly recommended to determine the real incidence of the condition. Education of the teenage girls and banning of the needle are recommended to prevent this disease.

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Hawbash M. Rahim – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission

The corresponding author is the guarantor of submission.

Source of Support

None.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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