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Accidental Hijab Pin Ingestion: 10 Years Experience from a Tertiary Care Centre

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Abstract

Background and Aim: Hijab pins ingestion is increasing. Some women hold the pin between their teeth while arranging the Hijab and the inadvertent ingestion of the pin can be the result of any careless movements. The aims of our study were to investigate the clinical outcomes of patients who underwent endoscopic pin removal via gastroscopy as opposed to patients who were treated conservatively with clinical observation, and to compare clinical and endoscopic data pertaining to patients who underwent early versus late gastroscopy.

Methods: Muslim women hospitalized in a tertiary hospital from 2005-2015 due to ingestion of Hijab pin ingestion were included. Patients who underwent gastroscopy during 12 hours from the time of admission to Emergency Room (ER) were included in the “early” gastroscopy group, while endoscopy performed at a later time defined the “late” gastroscopy group.

Results: During the study period 37 women were included. Twenty four patients (65%, mean age 20 ± 8.9) underwent gastroscopy; and thirteen (35%, mean age 19.9 ± 1.6) were hospitalized for observation. Six patients (25%) had normal gastroscopy; by 8 patients (33%) the pin was located in the antrum, 6 (25%) body, 2 (8.3%) and 1 (4.1%) in the duodenum.

Fifteen patients underwent early gastroscopy and nine underwent late gastroscopy. The Duration of hospitalization was significantly shorter among patients who underwent early gastroscopy 1-day (1, 1) median, (IQR) compared with 2 days (1, 3) p < 0.02. Severe complications were found in one patient (2.7%) with stomach perforation which required surgery.

Conclusion: Most pins will pass spontaneously, however severe complication may arise inadvertent Hijab pin ingestion. Early gastroscopy shortens the hospital stay.

Keywords: Hijab, Endoscopy, Muslim women, Pin, Foreign body

Background

Ingestion of foreign bodies is a common problem; however most foreign bodies will pass spontaneously [1]. Serious complication and death can be the result of foreign body ingestion [2-4]. Most Foreign body ingestions occur in children [5]. Accidental unintentional or intentional foreign body ingestion may occur in adults. In cases of patients with intentional foreign body ingestion endoscopic intervention was required in 63-76%; where as the need for surgical intervention was 12-16% [6,7]. The timing of endoscopy for ingested foreign body is dependent on the type and localization of the foreign object: Thus, emergency endoscopy is considered
in cases of esophageal obstruction or impaction of disk batteries in the esophagus. Non-urgent endoscopy is usually considered after ingestion of small objects in the stomach [8]. Hijab pins are increasingly popular among Muslim women. The Hijab is a veil, which is worn by Muslim women for covering of the hair and neck. In the last decade the use of pins for fastening the Hijab is increasing. The Hijab pin consists of two parts, a plastic pearl head and a 25-5 mm sharp straight pin. Some women hold the pin between their teeth while arranging the Hijab and the inadvertent ingestion of the pin can be the result of any careless movements. Several reports regarding the aspiration of the Hijab pin was published [9-12], whereas only few reports regarding accidental Hijab pin ingestion have been published [13,14].

The aims of the current study were to describe our experience regarding management of Hijab pin ingestion cases, and to investigate the clinical characteristics, outcomes and complications among patients who underwent gastroscopy and patients who were only kept under observation after ingestion of the pin.

Methods

Muslim women hospitalized in a tertiary hospital from 2005-2015 due to ingestion of Hijab pin ingestion were included in the study. Data regarding symptoms, hospitalization duration, endoscopic findings, anatomic location, method of extraction and endoscopic device use, time from admission to emergency department (ER) to endoscopy and complications were retrospectively analyzed. Patients who underwent gastroscopy during 12 hours elapsed from the time of admission to ER were included in the “early” gastroscopy group, while endoscopy performed at a later time defined the “late” gastroscopy group.

The gastroenterologists who performed the endoscopy used to use a protector to protect the esophageal mucosa. Pins were removed by using snare, grasper or basket.

Statistical analysis

Patient characteristics are presented as mean ± SD for continuous variables with normal distribution, non-parametric variables shown as Median (IQR) and categorical variables presented as percentage. Continuous variables were compared by student t-test or Mann Whitney U test. Categorical variables were compared using the chi-square test.

Data was analyzed using the Statistical Package for Social Sciences (IBM SPSS Chicago, USA, version 23). In all analyses, alpha level was set to 0.05.

Results

During the study period of ten years, a total of 37 Muslim women, who ingested Hijab pin were included in our analysis. Twenty three patients (62%) were symptomatic after the pin ingestion; the most common symptom was abdominal pain.

Imaging

All the included patients underwent abdominal plain x-ray to localize the pins. Four patients underwent Computerized Tomography (CT).

The Hijab pins include a plastic head and a metallic sharp straight pin, as shown in figures 1 and 2. In radiologic figure 3 and 4 the metallic pin can be identified, however the plastic head is non-visible in the x-ray.

Computerized tomography is helpful in providing accurate localization of the foreign body and if any complication is suspected.
Twenty-four patients (65%, mean age 20 ± 8.9) underwent gastroscopy; and thirteen patients (35% mean age 19.9 ± 1.6) were hospitalized for observation without undergoing endoscopic procedure; the data regarding these groups are summarized in table 1. In six patients (25%) the gastroscopy was normal; while in eight patients (33%) the pins were located in the antrum (figure 5 and 6). Seventeen patients (70%) underwent gastroscopy during the evening shift. Five patients (13.5%) ingested more than one pin in the same event; two patients had a recurrent event. Fifteen patients (62%) underwent early gastroscopy during the 12 hours elapsed from admission to emergency room. The duration of hospitalization was significantly shorter among patients who underwent early gastroscopy 1-day (1, 1) median, (IQR) compared with 2 days (1, 4) (p < 0.02). The data regarding patients underwent early and late gastroscopy are compared and summarized in table 2.

Irrespective of whether they underwent gastroscopy or not, conditions of most patients were uneventful without serious complication; however, one case was complicated with superficial laceration of the esophageal mucosa during the removal of the pin, which was treated conservatively. A second case was readmitted to the emergency room after discharge, this patient complained of severe abdominal pain and the computer tomography revealed the edge of the pin protruding into the lesser sac (figure 4). This patient underwent laparoscopic extraction of the Hijab pin and the small perforation was sutured.
Table 1: Characteristics of the Endoscopy and Observations (non-intervention) groups

| p-value | Gastroscopy n=24 (64.9%) | Observation n=13 (35.1%) | Characteristic |
|---------|--------------------------|---------------------------|----------------|
| 0.96    | 20±8.9                   | 19.9±1.6                  | Age            |
| 0.17    | 13 (54.2)                | 10 (76.9)                 | Symptoms       |
| 0.95    | 2 (8.3)                  | 1 (7.7)                   | Complications  |
| 0.59    | 1 (1, 2)                 | 2 (1, 2.5)                | Days of hospitalization median (IQR range) |
| 0.51    | 2 (8.3)                  | 2 (15.4)                  | Computer tomography |
| 0.81    | 3 (12.5)                 | 2 (15.4)                  | Multiple Pins  |
| 0.65    | 1 (4.2)                  | 1 (7.7)                   | Recurrent ingestion |

Table 2: Comparison between early gastroscopy and late gastroscopy.

| p-value | Late Gastroscopy n=9 (37.5) | Early Gastroscopy n=15 (62.5) | Characteristic |
|---------|-------------------------------|--------------------------------|----------------|
| 0.49    | 22±9                          | 19±9                          | Age            |
| 0.07    | 7 (77.8)                      | 6 (40.0)                      | Symptoms       |
| 0.06    | 2 (22.2)                      | 0 (0)                         | Complications  |
| 0.02    | 2 (1.4)                       | 1 (1.1)                       | Days of hospitalization median (IQR) |
| 0.7     | 1 (11.1)                      | 1 (6.7)                       | Computer Tomography |
| 0.87    | 1 (11.1)                      | 2 (13.3)                      | Multiple Pins  |
| 0.37    | 1 (11.1)                      | 0 (0)                         | Multiple ingestions |

Table 3: Comparison of data in our study and previous reports.

| Characteristics | Current study | Study 1 [13] | Study2 [14] | Study3 [15] |
|-----------------|---------------|--------------|-------------|-------------|
| Number of Patients | 37            | 42           | 4           | 203         |
| Endoscopy       | 24 (65%)      | 3 (7%)       | 4 (100%)    | 51 (25.1%)  |
| Localization – antrum | 8 (33%)     | Not available| 1 (25%)     | Stomach (67%) |
| Timing: on-call Endoscopy emergency service | 7 (30%) | Not available | 1 (25%) | Not available |
| Severe Complication | 1 (2.7%)  | 2 (4.7%)     | 0           | 1 (0.5%)    |

Discussion

The use of head covering is part of the Islamic religion and is known since the appearance of Islam; however, the use of Hijab pins is relatively new in the last two decades and is recognized as a new fashion.

An increase in the ingestion and aspiration was reported [9-15], which is probably explained by the lack of experience in Hijab wearing by Muslim girls who recently reached puberty and began to practice wearing the veil.

The needle of pin could cause a small perforation due to the sharp metallic part of pin, actually it is a covered minor perforation and in cases the pin removed usually the perforation closed without any consequence.

Radiologic imaging (abdominal plain x-ray) is still important and useful for pin localization and to decide if the patient should undergo upper endoscopy or not. Incases where the pin is distal to the second part of the duodenum, gastroscopy is not recommended. However, computer tomography should be the next step in specific cases showing undefined pin localization, or if a complication is suspected computer tomography should be the next step.

Our results show that most adult patients underwent gastroscopy with removal of the pin. This finding is in contrast to a previous report, in which the majority of the patients were treated conservatively, with only observation and imaging follow up [13]. (Table 3) summarizes the data of the different published papers.
regarding ingestion of Hijab pins in the literature. In this study we reported our experience in the last years and important findings are summarized. First of all, the most frequent localization of the pin observed during the gastroscopy was in the antrum. Further, our results indicate that a large part of the endoscopy was done out of the normal working hours, in which the on-call gastroenterologist should performed the gastroscopy as an emergency procedure.

In 62.5% of the patients who underwent gastroscopy, the procedure was performed during the first 12 hours of emergency room admission. We noted that early gastroscopy shortens the hospital stay by one day, which was statistically significant, without difference in other parameters. The guidelines of the American Society for Gastrointestinal Endoscopy (ASGE), they differentiate between emergent, urgent and non-urgent endoscopy, depending on the type, localization, size, shape and time since ingestion of the foreign object [8].

An important question to be resolved is whether all patients suspected with Hijab pin in the stomach, should undergo immediate gastroscopy or be kept under observation only, and should a patient undergo gastroscopy, what is the timing of the gastroscopy? Notwithstanding the only few reports and studies were published related to Hijab ingestion, we think that the incidence of Hijab ingestion is high. We propose that when the imaging results show that the pin is proximal to the second part of duodenum, patients should undergo gastroscopy with removal of the pin during twelve hours from emergency room admission, the advantage of early gastroscopy and retrieval of the Hijab pin is shortening of the hospitalization and saving the follow-up, which may require prolonged hospitalization and recurrent abdominal imaging. There are nonsufficient data indicating that early gastroscopy could decrease the complication rate, as in our cohort only one severe complication was found and in the other study two severe complication were reported [13-15], providing and approximate 3.5% complication rate. Important to mention are also the different approaches of management after Hijab pin ingestion outlined in the pertinent reports. Gastroscopy is still a safe procedure and an experienced gastroenterologist can perform Hijab pin retrieval without difficulties, with using forceps and esophageal protector; obviously, it's important to be careful and to avoid laceration of the esophageal mucosa.

Working in prevention is important, and a key aspect of it is to convey awareness and education to Islamic populations regarding the emerging syndrome, focusing on safe pins and high attentiveness during the use of the Hijab pins.

**Conclusion**

Most of the pins will pass spontaneously, however severe complication can be the result of inadvertent Hijab pin ingestion and therefore if the pin is demonstrated proximal to the second part of the duodenum gastroscopy is recommended. Early gastroscopy shortens the hospital stay and the follow up.

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