

# REMOVAL OF COINS FROM UPPER OESOPHAGUS UNDER LOCAL ANESTHESIA

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## ABSTRACT

**Objective:** To know the safety of coin extraction from upper esophagus by using Magill forceps and laryngoscope, under local anesthesia.

**Material and Methods:** This prospective study includes four hundreds patients with coin stuck at the upper end of esophagus, referred to us from emergency department from Jan 2004 to Dec. 2004. We used both Magill forceps and Mackintosh Laryngoscope for coin extraction.

**Result:** A total of 400 patients were treated in one year, majority were children between 2-5 years of age. Males were 202 (50.5%) and females were 198 (49.5%). Three hundred and forty patients (85%) presented within 24 hours while 60 patients (15%) presented after 24 hours. At presentation, 360 (90%) had difficulty in swallowing and excessive salivation while remaining 10% had vomiting and cough. Out of 400 coins, 296 (74%) were of two rupees while remaining 105 (26.3%) included one and five rupees coins. Three hundred and twenty (80%) coins were removed in first attempt while 65 (16.2%) require more than one attempt. We failed in 15 (3.75%) cases. Minor complications occurred with this method in 19 (4.75%) while one child developed neck abscess (0.25%).

**Conclusion:** Coin extraction from upper esophagus, using Magill forceps and laryngoscope under local anesthesia is a safe and effective method.

**Key words:** Coin Extraction, Foreign Body, Esophagus, Magill Forceps.

## INTRODUCTION

Children have the habit of putting objects into their mouth to determine their texture and taste.<sup>1</sup> Coins are almost irresistible objects of early childhood curiosity.<sup>2</sup> Therefore the most common ingested object is coin among the pediatric age group<sup>3,4</sup> while it is rarely seen in adults.<sup>5</sup> Most common site in the esophagus is just below the cricopharyngeous muscle.<sup>6,7</sup> Children usually present with history of coin ingestion, foreign body sensation, dysphagia, odynophagia, vomiting and cough.<sup>8</sup> Diagnosis is confirmed by plain X-ray of neck, chest and abdomen.<sup>9,10</sup> Most of the foreign bodies pass into the lower esophagus and do not require any intervention but those impacted must be removed<sup>11</sup>, as delay can cause complications<sup>7,8,12</sup>. There are different types of management strategies for coin removal, *observation*<sup>8,13</sup>, *rigid esophagoscopy*<sup>5,7,11</sup>, *penny pincher method*<sup>2</sup>, *foley balloon extraction*<sup>14</sup>, *magill forceps removal*.<sup>6,15</sup>

The purpose of the study was to assess the safety of coin extraction from upper esophagus by using magill forceps and laryngoscope, under local anesthesia.

## MATERIAL AND METHODS

We carried out this study in the department of ENT and Head & Neck surgery Lady Reading Hospital from January 2004 to December 2004. A total of 400 cases were included. Patients presenting to emergency department with history of coin ingestion, difficulty in swallowing, excessive salivation and vomiting were included in study once X-ray, neck and chest confirmed the presence of coin. We did not include in our study (i) those cases that presented late i.e. more than two weeks duration, (ii) patients with unsuccessful previous attempts in other centers, (iii) patients above sixteen years of age, (iv) those patients who were mentally retarded and also patients having maxillo facial pathologies.

**AGE OF PATIENTS**

Age range in years	Frequency (n=400)	% age
2-5	380	95
6-10	15	3.75
11-16	5	1.25

Table 1

Our protocol for such cases was to take the child to examination room where facilities for coin extractions are available such as Magill forceps (various sizes) Mackintosh laryngoscope (with various size blades), couch, suction machine, oxygen cylinder, endotracheal tubes (various sizes), local anesthesia in the form four percent xylocaine topical (gargles) and ten percent xylocaine spray were available. Parents were reassured regarding coin extraction under local anesthesia. Their help was taken in restraining the child on the couch. The blade of the laryngoscope was introduced gently into the mouth of the patients up to the valleculae, to elevate the base of tongue and epiglottis so that the opening of the cricopharynx could be seen where coins were stuck, these were removed easily with the help of Magill forceps. In some children coins were stuck below the cricopharyngeal sphincter and in these cases the forcep was blindly passed up to one or two cm to hold the coins in its prongs.

**RESULTS**

A total of four hundred patients were treated from January 2004 to December 2004. Age range was from 1-16 years, while majority were in between 2-5 years.

Duration of coin lying in the esophagus was from 1-10 days, 340 patients (85%) presented within 24 hours, 35 (8.75%) patients within 48-72 hours, and 20 (5%) patients after one week, while 5 (1.25%) patients presented within 10-14 days of coin ingestion. 360 patients (90%) presented with difficulty in swallowing, & excessive salivation, 35 (8.75%) patients with vomiting and difficulty in swallowing and 5 (1.25%) patients with respiratory symptoms. Among 400 coins, 296 (74%) were of two rupees coins, 75 (18.75%) of one rupee small while 9 (2.25%) cases were one rupee big coins

**TYPE OF COIN REMOVED**

Type of coin		Frequency (n=400)	% age
1 rupee coin	Small coin	75	18.75
	Large coin	9	2.25
2 rupee coin		296	74
5 rupee coin		20	5

Table 3

**TIME SINCE COIN INGESTION**

Duration	Frequency (n=400)	% age
Less than 24 hours	340	85
After 24 hours	60	15

Table 2

and 20 (5%) were five rupees coins. we extracted 320 (80%) coins in the first attempt, 40 (10%) in the second attempt and 25 (6.25%) coins were removed in third attempt while we failed in 15 (3.75%) cases even on third attempt. These patients were given general anesthesia but without intubations and coins were removed again with magill forceps. Minor complication i.e. mucosal injury and bleeding occurred in 19 (4.75%) cases while one (0.25%) child developed neck abscess after five days of extraction which was drained and patient recovered fully with antibiotic.

**DISCUSSION**

Coin ingestion in children is a common problem and there are various techniques to remove those impacted in the esophagus. One simple method is observation described by Sharieff GQ et al<sup>16</sup>. They observed that children presenting with short history of coin ingestion and those coins lying below thoracic inlet will pass spontaneously, but coins lying for more than 24 hours must be removed<sup>2</sup> as these will result in the production of granulation tissue and mucosal injury at the site of impaction.<sup>17</sup> Rigid esophagoscopy is the mainstay of treatment for all foreign bodies impacted in the esophagus as stated by Wai Pak M, et al<sup>10</sup> because of direct visualization and full control over the foreign bodies during extraction, also one can remove irregular shaped and impacted foreign bodies. We did not use this procedure because patients need hospitalization, general anesthesia, investigations, although the success rate is ninety nine percent but the procedure has also documented complication rate of 5-10 %.<sup>11</sup>

Foley balloon extractions technique is a popular method, also used by Aquil Somro et al<sup>14</sup> in their study which was carried out at the National Institute of Child Health Karachi. They

**SUCCESS RATE**

No. of Attempts	Frequency (n=400)	% age
First	320	80
Second	40	10
Third	25	6.25
Failure	15	3.75

Table 4

## COMPLICATIONS

Nature of Complication	Frequency (n=400)	% age
Mucosal injury	19	4.75
Neck abscess	1	0.25

Table 5

proved it to be safe and cost effective procedure but the procedure is not indicated in patients having esophageal stricture, history of previous esophageal surgery or coins lying for more than 24 hours or when patients have marked esophageal obstruction or stridor and respiratory difficulties. The success rate shown by these authors is less than eighty two percent. Because of the above disadvantages we did not use the technique of Foley Balloon extraction. Esophageal bougienage described by Suprano JV, et al<sup>13</sup> was shown to be highly successful and with low complication rate but due to lack of control over coins we did not use this procedure either. Penny Pincher techniques described by Gauderer MW et al<sup>2</sup> is simple, quick and does not need general anesthesia or sedation. It is under direct control, but needs the assistance of radiologists, it is expensive and of course the patients are exposed to hazards of radiation, although success rate is hundred percent with no complications but it needs a special instrument which is not available with us. Janik JE et al<sup>6</sup> used magill forceps extraction with controlled intubation. They found the procedure safe in children having respiratory distress because the airway is secure and it can be used when the duration of coin impaction is indeterminate and there has been previous esophageal surgery. Mahafza<sup>15</sup> also used Magill forceps extraction technique for coin removal under mask inhalation anesthesia, although the procedure is quick, vomiting and laryngospasm with an unprotected airway can be a problem. The above two techniques of Magill forceps extraction of coins are done under general anesthesia. We extracted ninety seven percent coins successfully with Magill forceps and laryngoscope under local anesthesia in the form of local spray and gargles. The procedure is quick, effective and easy with no cost and with only minor complications if first attempt is successful. We extracted 80 % coins in first attempt while remaining 16.25 % in subsequent attempts. This is the same as reported by Janik JE et al.<sup>6</sup> All our patients were young (3-10 years) and majority (95%) was in between 2-5 years. Similar age wise frequency has been reported by Lin MT et al<sup>8</sup>. Coins in adults are infrequently seen.<sup>18</sup> Eighty five percent children presented within 24 hours. Aziz M et al<sup>11</sup> have reported similar finding. Our failure rate was 3.75%. Five percent patients developed

complications, 4.75% mucosal injuries and 0.25% neck abscess.

## CONCLUSION

Magill forcep extraction technique minimizes instrumentation of esophagus and is highly successful at removing coins lodged at or immediately below the level of the cricopharyngeous muscle.

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