

Foreign Bodies in Aerodigestive Tract - A Clinical Profile of 37 Patients

P.T. Deshmukh, S. Prasanth Kumar, C.Y. Patil, N. Baisakhiya, Rashmi Patil, Vinod Pawar

Department of Otolaryngology, Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha, Maharashtra, India

Abstract: Clinical profile of 37 patients who presented with foreign bodies at different levels of the aerodigestive tract is being discussed. Relevant factors contributing to inhalation/ ingestion and impaction of foreign bodies, their nature as well as investigative and treatment modalities adopted, are also discussed.

INTRODUCTION

Foreign bodies (F.B) in aerodigestive tract is a common concern for all ENT surgeons. While FBs in air passage are commonly seen in younger children, FB in food passage are encountered in children and adults alike. Both sites share a common feature of increased morbidity and mortality, but FBs in tracheo- bronchial area poses additional diagnostic problem which is all the more so in radiolucent FBs. Testing diagnostic acumen and endoscopic skills apart, delayed diagnosis is a lurking danger when patient's parents underestimate symptoms and physician glosses over the clinical and radiological findings.

The present study of FB in aerodigestive tract was undertaken to study of various parameters like age, sex, duration, site, nature of FB, mode of removal and complications.

MATERIAL AND METHOD

A retrospective analysis was done to critically look at the foreign bodies which were either ingested or inhaled; 37 such patients coming to AVBRH Sawangi (M), from Jan 2004 to Jan 2007 were studied. Patients were subjected to detailed history and clinical examination. In order to confirm the presence of FB, its nature and site, radiological investigations and endoscopic assessment were done. In cases of suspected radiolucent FB in oesophagus, small thin barium was given to patient .X ray chest AP and lateral view were resorted to for confirming FB in air passage, and X-ray neck AP and lateral view were done in all patients of FB in food passage. In no patient CT scan was required to be done. Faucial (oropharyngeal) FBs were removed as office procedures while depending on the site of FB ,we resorted to various procedures like direct laryngoscopy, hypopharyngo-scopy, oesophagoscopy and bronchoscopy for retrieval of F.B. Patients were observed for 24 hours post operatively for any complications.

RESULTS

A total number of 37 patients were studied. The youngest patient was 1 year old while the oldest was of 65 years. 28 (75.67%) were males and 9 (24.32%) were females. F.B. in food passage in 29 (78.37%) and F.B. in air passage in 8 (21.62%) were found. Table I and II summarises the profile of patients with FBs in food and air passages respectively.

FB in food passage: Out of 37, 29 (78.37%) patients had FB in food passage. Youngest patient was 1 year old while oldest was of 65 years. 18 (62.06%) were observed in cricopharynx followed by upper oesophagus 3 (10.34%), mid oesophagus 2 (6.80%), lower oesophagus 2(6.80%), tonsils 2 (6.80%), pyriform fossa 1 (3.44%), post cricoid area 1 (3.44%) (Table 1).

A coin seen in 12 cases (41.37%) was the commonest foreign body followed by meat bone in 7 (24.13%); stapler pin, betelnut, metallic spring, metal piece, food bolus, seed and common pin (Fig. 1,2,3).

FB was radio opaque in all except 3cases (89.66%); in the remaining 3 cases, barium was given to confirm their presence. Removal of the FB was done by hypopharyngoscopy in 20 (68.96%), rigid oesophagoscopy in 7 (24.13%), flexible oesphagoscopy 1 (3.44%) and OPD removal in 2 (6.89%). None of our patients had any complications.

FB in air passage: Out of 37 patients, 8 (21.62%) had FB in air passage. Youngest patient was 1 year old while oldest was of 40 years. In 4 of 8 patients (50%) FB was in the right bronchus and in 2 patients (25%), it was in the left bronchus, while in one each (12.5%) in the trachea and larynx (Table 1). Seed was the commonest FB seen in 6 out of 8, (75%) while in the other two patients it was whistle and thorn. In none of 8 patients, FBs were radiopaque; neither was it associated with any chest x-ray findings. Bronchoscopy in 7 patients (87.5%) and direct laryngoscopy in 1 patient(12.5%) were the procedures employed to remove FBs. No complications encountered.

Table 1: Site wise distribution of patients

| FB in food passage | | FB air passage | |
|------------------------|-----------------|----------------|-----------------|
| Site | No. of patients | Site | No. of patients |
| Cricopharynx | 18 | Right bronchus | 4 |
| Mid oesophagus | 3 | Left bronchus | 2 |
| Upper oesophagus | 2 | Trachea | 1 |
| Lower oesophagus | 2 | Glottis | 1 |
| Post cricoid area | 1 | Tonsil | 2 |
| Pyriform fossa (right) | 1 | Total | 8 |
| Total | 29 | | |

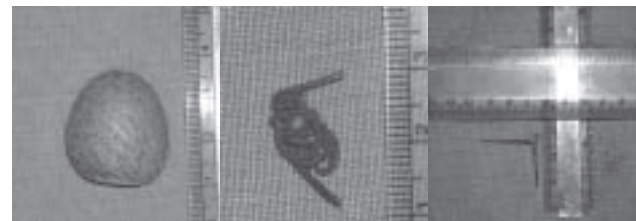


Fig 1: Betelnut removed from cricopharynx. **Fig 2:** Metallic spring retrieved from cricopharynx. **Fig 3:** Thorn removed from glottis

DISCUSSION

It was the revolutionary work of Chevalier Jackson & Chevalier L Jackson in 1949 through 1957 that broncho-oesophogscopy got its individuality as a medical science. Regarding FBs in airway and bronchus, the endoscope was first utilized for removal of FB in 1897; prior to this bronchotomy was the procedure used. Management of such patients was revolutionized by the technique and instruments developed by Chevalier Jackson in 1904. The mortality decreased from more than 20% to 2%¹.

Out of 37 patients of FB in aerodigestive tract 29 (78.37%) were in the food passage while 8 (21.62%) were in air way. In their study,

Hung W and Lin P² found, 76% and 24.7% FBs in food passage and air passage respectively while Brooks et al³ found it 80% and 20% respectively. In another large study 86.2% of FBs were in the pharyngo oesophageal region, while 13.7% in tracheobronchial region¹.

Amongst the cases of FB in the food passage, age ranged from 1 year to 65 years; however FB has also been reported⁴. In the literature, amongst infants oesophageal FBs are common especially in children. Most are ingested by children younger than 5 year with the peak incidence between 6 months to 3 years as a sequel to natural proclivity to put things in their mouth^{5,6,7}. We found our cases evenly spread over all age groups though they are marginally more below 5 years. 18 (62.06%) out of 29 FBs in food passage were found in cricopharynx; This was due to poor peristalsis, sphincteric action and narrow diameter. In one large series¹, 50.5% FBs in food passage were also seen in cricopharynx, thus supporting our observation. Similarly, in yet another study⁸, 83.5% of FBs were located at the cricopharynx.

We observed coin 12 (41.37%) followed by meat bone 7 (24.13%) to be the commonest type of FB in food passage. In a study of 152 cases (104 children and 48 adults), 91 FBs (69%) were coin; Kamat et al¹ found fish bone (39%) as the commonest FB. Geographical factors involved in the study (coastal area) may account for this difference in findings.

All our patients except 3 (10.34%) had radiological evidence of FBs. In these three patients FBs being radiolucent, thin barium was given and diagnosis were made after the Ba swallow. Kamat et al¹ observed that 81.2% had either direct or indirect evidence of FB. None of our patients developed complications; in one case stricture, aoesophagy, flexible oesphagoscopy was resorted and FB was partly removed and was partly pushed into the stomach.

FB in air passage:

Youngest patient was 1 year old while oldest was 40 years. Relatively smaller number of patients limit our ability to comprehensively compare it with other studies.

In 4 (50%) patients FBs were encountered in the right bronchus, whereas in 2 (25%) patients they were in the left bronchus. In a study where 42 patients were studied, 25 FBs were in the right main bronchus and 17 in left main bronchus, thus supporting the

conventional observation that right bronchus being larger and straighter, invite FB more frequently. In 6 patients (75%) nature of FB was seed. Bhalodia et al⁹ found vegetable FB, mostly seed (ground nut) in 38 out of 42 patients, which is in keeping with our observation. None of our patients with FB in airway had evidence of FB (direct or indirect) and only after bronchoscopy FBs were revealed and removed.

Cases with suspected FB in tracheo bronchial tree can present with normal auscultatory and/or X-ray chest findings. A definitive or suspicious history of FB inhalation should be the most important factor in deciding for bronchoscopy in these patients. Performing an X-ray chest in these patients at the time of presentation has only a limited value in diagnosis and should never influence the decision for a timely bronchoscopy. Bhalodiya et al found normal X-ray finding in 32 out of 42 patients. They also observed that the time elapsed since inhalation was significantly related to normalcy of X-ray chest findings. None of our patients including one who had ASD, congenital heart disease developed any complications.

REFERENCES

1. *Panduranga Kamat, Kiran M Bhojwani, Thomas Prasannaraj, K Abhijith. Foreign bodies in aerodigestive tract – A clinical study of cases in the coastal area. American Journal of Otolaryngology, head and neck medicine and surgery. 2006; 27: 373-377.*
2. *Hung W, Lin P. Foreign bodies in the air and food passages. Arch otolaryngol 1953; 67: 603-12.*
3. *Brooks JW. Foreign bodies in the air and food passages. Ann Surg 1972; 175 (5) : 720 – 32.*
4. *SPS Yadav, Asruddin, Rohtas K Yadav, Jagat Singh, Geeta Gathwala. Oesophageal foreign body in four month old infant. Indian Journal of Otolaryngology and Head and Neck Surgery. 2003 Oct-Dec. 55 (4): 288-209.*
5. *Bizakis JG, Prokopakis EP, Papadakis CE et al. The challenge of oesophagoscopy in infants with open safety pin in the oesophagus - Report of two cases. American Journal of Otolaryngol 2000; 21: 255-258.*
6. *Karaman A, Cavusoglu YH, Karaman I et al. Magill forceps technique for removal of safety pins in upper oesophagus- A preliminary report. Int. Journal of Paediatric Otorhinolaryngology 2004; 68: 1189-91.*
7. *Sarihan H, Kaklikkaya I, Ozcan F. Paediatric safety pin ingestion. Journal of Cardiovascular Surgery (Torino) 1998; 39:515-18.*
8. *AM Shivkumar, Ashok S. Naik, K.B. Prashanth, Girish F Hongal, Gaurav Chaturvedi. FB in upper digestive tract. Indian Journal of Otolaryngology and Head & Neck Surgery. 2006 Jan –Mar; 58: 163-68.*
9. *Neena Bhalodiya, Mrinal Supriya and Satish Patel. Foreign body inhalation in children: Decisive factors in carrying out bronchoscopy. Indian Journal of otolaryngology and Head and Neck Surgery. 2006 Oct- Dec.50 (4) :337-339.*

JIMSA TRAVEL GRANT

(Approved by the CEC / BOT in the Meeting held on 26-1-2010)

Guidelines for the award

1. No of Grants – Two (2); starting at IMSACON 2011 at Delhi.
2. Original Research work by a young researcher (age < 45 years) for presentation at IMSACON and subsequent publication in JIMSA every alternate year for travel with in the country.
3. Research work should clearly project the objectives, selection of material, methodology adopted, results analysis with statistic, discussion and conclusions. A summary in 350 words highlighting why the paper should be considered for the award must be enclosed.
4. Travel Grant Award not exceeding Rs.8000/- per awardee, to cover the travel expenses with in the country; CEC also recommend complementary registration for the awardee if funds are available.
5. The abstract of the paper should be sent to the Chairman, Scientific Committee, IMSACON (for acceptance and presentation at the conference) bearing a label “JIMSA Travel Grant.”
6. Full manuscript (8 copies) prepared as per the format of JIMSA (Check list on page—) by post / email to Editor, JIMSA at office address bearing label “JIMSA Travel Grant”. The paper will be scrutinized by the JIMSA Award Committee. The Travel Grant will be reimbursed to the awardee after the presentation at the IMSACON.
7. The selected articles will be accepted for publication in JIMSA only after the proper peer review by the referee.

P. D. Gulati
Editor JIMSA