CHIRURGIE THORACIQUE / THORACIC SURGERY

OESOPHAGOTOMY FOR REMOVAL OF IMPACTED OESOPHAGEAL FOREIGN BODIES

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Abstract

Aim of the Study: This study was undertaken to ascertain the indication, outcome and usefulness of open surgery (oesophagotomy) for impacted oesophageal foreign bodies as seen in our practice.

Materials and Method: This is a retrospective study spanning from June 2005 to June 2010. The clinical data were retrieved and analysed.

Results: A total of 8 cases were seen within the period under review. 3 had right posterior-lateral thoracotomy to gain access to the foreign body within the mid thoracic region of the oesophagus; the other 5 had cervical oesophagotomy through the left side. All had associated oesophageal suppuration, 2 had frank perforation. The 3 thoracotomy cases had the impacted foreign body within the middle third around the bronchial bifurcation. The 5 cervical oesophagotomies were impacted foreign bodies above the bronchial bifurcations within the upper third of the thoracic oesophagus. All the patients had unsuccessful oesophagoscopy prior to surgeries for removal. The age range was 5months to 79years. Three of the cases were children who swallowed either crown cork or a rusty nail. All the adults had inadvertent ingestion of loose fitting dentures. The mean age of the sampled population of the adults was 65.6yrs and for the children was 5.2yrs. Recovery was uneventful in all patients and follow up did not reveal any need for subsequent oesophageal dilatation.

Conclusion: Open retrieval remains the last option when oesophagoscopy fails, with attendant significant morbidity.

Key Words: Oesophagotomy, impacted oesophageal foreign body

Résumé

But de l'étude: Cette étude a été réalisée pour vérifier l'indication, les résultats et l'utilité de la chirurgie ouverte (oesophagotomy) pour impacté oesophagien corps étrangers comme vu dans notre pratique.

Matériel et Méthode: Il s'agit d'une étude rétrospective allant de Juin 2005 à Juin 2010. Les données cliniques ont été extraites et analysées.

Résultats: Un total de 8 cas ont été vus dans la période sous revue. 3 avait postérieure droite-latérale thoracotomie pour avoir accès à un corps étranger dans la région mi thoracique de l'œsophage; les 5 autres avaient oesophagotomy cervicales par le côté gauche. Tous avaient associé la suppuration œsophage, deux avaient franche perforation. Les 3 cas thoracotomie avait touché le corps étranger dans le tiers médian autour de la bifurcation des bronches. Les 5 oesophagotomies cervicale ont été touchés au-dessus des corps étrangers bifurcations bronchiques dans le tiers supérieur de l'œsophage thoracique. Tous les patients avaient échoué avant oesophagoscopy chirurgies pour l'enlèvement. La tranche d'âge a été 5 mois à 79 années. Trois de ces cas étaient des enfants qui ont avalé de liège de la Couronne ou un clou rouillé. Tous les adultes avaient l'ingestion accidentelle de perdre prothèses raccord. La moyenne d'âge de la population échantillonnée des adultes a été 65.6yrs et pour les enfants a été 5.2yrs. Récupération ont été simples dans tous les patients et le suivi n'a pas révélé nécessaire pour la dilatation oesophagienne ultérieures.

Conclusion: la récupération Ouvrez reste la dernière option lors oesophagoscopy échoue, à une morbidité importante préposé.

Mots clés: Oesophagotomy, impacté corps étranger oesophagien

Introduction

Oesophageal foreign body ingestion occurs in all age groups but commonly in early childhood and the elderly.[1] In early childhood the main items ingested are pieces of toys, household items and crown corks; whereas in the elderly, dentures predominate.[1,2-5]
Specific groups affected include, children, prisoners, the mentally retarded, psychiatric patients and the elderly.[6,7] Poor neurological status and dementia appear as risks factors. Prompt identification should be the rule, but with many of the foreign bodies being radiolucent, delay in diagnosis may result.[7] While most foreign bodies would pass uneventfully through the gastrointestinal tract, a few would get arrested at specific sites.[3] These sites are; namely the cricoids, point of bifurcation of the bronchus and lower oesophageal sphincter. Risk factors involved in incarceration of foreign bodies include, the nature of the foreign body, irregular shape with ragged edges,[7] and the presence of a stricture.[7] Prior strictures invariable lead to non distensibility of the oesophagus and consequent incarceration.
Aim of the Study: This study was undertaken to ascertain the indication, outcome and usefulness of open surgery (oesophagotomy) for impacted oesophageal foreign bodies as seen in our practice.
Key Words: Oesophagotomy, impacted oesophageal foreign body

Methodology

Study Area: This is a retrospective study spanning the period from June 2005 to June 2010. It was carried out in the University of Benin Teaching Hospital Benin City. Which is a tertiary health institution located in the South West of Nigeria that covers Edo, Delta and Ondo states.
Method: The clinical records of patients who had oesophagotomy for impacted oesophageal foreign bodies during the 5years under review (June 2005 to June 2010) were retrieved from the theatre register and clinical case notes. Information extracted included were demographic characteristics, results of investigations and clinical tests, treatment given and clinical outcome. Only patients whose clinical data were retrieved were included in the study. All data collated were analyzed using SPSS 16 and the results presented.

Results

A total of eight cases were seen within the period under review. Four were children and four adults. All the patients had unsuccessful oesophagoscopy prior to surgeries for removal. The age range was 5months to 79years. The mean age of the sampled population of the adults was 65.6±8.2yrs and for the children was 5.2±6.0yrs. The male:female ratio was 1:1.Table 1 shows the clinical patterns of presentation of the patients.

Pre Operative Diagnosis by means of Chest and Cervical X-rays was adequate in all patients with radiopaque foreign bodies (crown cork-1case, rusty nail-2 cases) All the patients had soft tissue x-ray of the neck and chest x-ray as initial assessment.

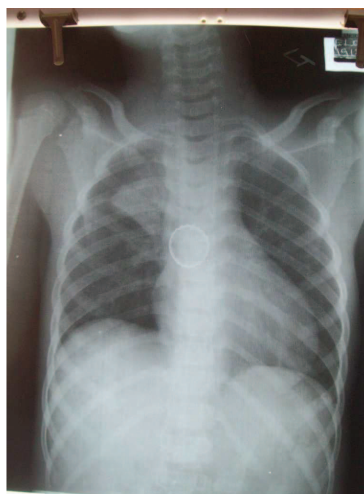

Figure 1: Crown cork within the oesophagus

Rigid oesophagoscopy was done for all patients under general anaesthesia. Only following failure of removal by oesophagoscopy, was open surgery-oesophagotomy done. The choice of either thoracotomy or cervical oesophagotomy was dependent on the accessibility of the foreign body via the cervical route. All foreign bodies that were accessible via the cervical route were preferentially approached that way and thoracotomy was only done where the foreign body was well within the thoracic cavity.

Table 1: Clinical patterns of presentation

Symptom	Frequency	Percentage
Dysphagia	7	87.5
Odynophagia	7	87.5
Chest Pain/cervical pain	4	50
Fever	4	50
Cough	4	50

Definitive Treatment (**Tableau 2**)
A. Cervical Oesophagotomy: Essentially this was done through the left side via a hockey stick incision along the border of the left sternocleidomastoid muscle without dividing any of the strap muscles of the neck. The foreign body was subsequently identified and retrieved and the incision closed with a corrugated rubber drain in situ. Five patients had cervical oesophagotomy.
B. Right Posterior lateral thoracotomy: Essentially this was done through a standard right posterior lateral thoracotomy incision through the fifth intercostal space. The azygos vein ligated and the mediastinum opened. The oesophagus was subsequently identified with the impacted or extruded foreign body and suppuration. The foreign body was retrieved and mediastinal debridement done. The wound was subsequently closed in layers with a chest tube left in situ and connected to an underwater seal drainage bottle. Three patients had right posterior lateral thoracotomy.

Table 2: Age statistic of the patients according to surgery done

Type of surgery	Mean Age	Standard Deviation	Standard Error of Mean
Cervical Oesophagotomy	50.9	34.6	17.3
Thoracotomy	35.0	32.1	16.0
Total	42.9	3.2	1.1

The thoracotomy was done because in those patients there was suspected oesophageal perforation and the foreign body appeared at oesophagoscopy to be impacted around the bronchial bifurcation. The cervical oesophagotomy cases were those whose foreign body was evidently above the bronchial bifurcation at oesophagoscopy. Two were evidently within the thoracic inlet and the other three palpable within the neck.

All had associated local sepsis; two had frank perforation and mediastinitis.

Foreign body ingested

Four of the cases were children who swallowed either crown cork or pieces of toys or rusty nails.

All the adults had inadvertent ingestion of loose fitting dentures.

All the patients who underwent thoracotomy routinely had chest tube insertion and underwater seal drainage. They were admitted into the High Dependency Unit (HDU) for observation.

The two cases of oesophageal perforation were admitted into the Intensive Care Unit following surgery. There was no need for ventilation and recovery was uneventful. There were no cases of empyema or wound sepsis. Enteral feeding was commenced at day 6 without incident. The patients were discharged at day 14 following removal of skin stitches.

All the cases who had cervical oesophagotomy were routinely admitted into the wards post operatively. All had wound drain which was removed at day 3. Enteral feeding was recommenced at day 5 and skin stitches removed at day7. Patients were discharged at day 7 or 8. There was no reported case of dysphagia. Barium studies and repeat oesophagoscopy was not routine due to cost and patient default. Follow up continued for one year in all patients though compliance was haphazard.

Recovery was uneventful in all patients following oesophagotomy and follow up did not reveal any need for subsequent oesophageal dilatation.

Barium studies were done for all patients with swallowed dentures. In all the adults two were suspected cases of malignancies with their appearance on barium studies.

The cervical oesophagotomy patients' length of stay in hospital was 5-8days average 7days

The length of stay for the thoracotomy patients was 10-16days. Follow up for all patients continued for 3months to one year with the patients demonstrating no residual dysphagia.

Discussion

There was an even distribution between children and adults in our study which does represent the two peaks of impacted oesophageal foreign bodies.[1,8,9] For children, toys and crown corks were the main foreign bodies seen.[1,8,9] In one infant, the presence of a rusted nail was an interesting find. All the foreign bodies had ragged irregular edges that made further passage down the oesophagus impossible.[9]

The main indication for surgery in these patients was failed endoscopic retrieval of the oesophageal foreign body. The means for oesophagoscopy was rigid though flexible oesophagoscopy was attempted in two adult patients. Failed endoscopic retrieval usually is associated with complications including oesophageal tears and perforation. Various other means exist to aide endoscopic retrieval, including the use of snares, retrieval baskets. The cost of endoscopy is same as open surgery and failure leads to increased cost to the patients.

The presence of oesophageal foreign bodies invariably leads to obstruction to luminal flow. Dysphagia and regurgitation results in consequent repeated aspiration leading to aspiration pneumonitis and suppurative lung disease.[7,9,10] Odynophagia and chest pain usually herald perforation and sepsis with dire consequences.[10] Delayed diagnosis and treatment may result in pressure necrosis and sepsis as well as pulmonary sepsis.[9] Thus complicated impacted foreign body poses a dire risk if not identified early.[7] Delay seemed due to the absence of notable symptoms in these patients.

Foreign body removal usually is via oesophagoscopy either flexible or rigid; where rigid is the preferred modality.[1,3,11] Once diagnosed and symptomatic, removal should be done immediately.[1] The success of retrieval of oesophageal foreign bodies by endoscopy depends on the type of foreign body ingested.[12] Foreign bodies with ragged and sharp edges may be impacted in the oesophagus may be embedded within the oesophageal wall and their removal could result in extensive tearing of the oesophageal mucosa and wall.[13,14,15] Thus they would require removal by open technique, requiring either a cervical incision or a thoracotomy.[10] The use of retrieval baskets for ragged edge foreign body has been advocated. Over 80% of oesophageal foreign bodies would pass uneventfully through the oesophagus. About 20% would require oesophagoscopy for removal and only about 1% would require open surgery.[1,3,4] We are in the process of pooling our data to observe our statistics in this regard.

In adults, the only impacted foreign bodies were partial dentures. All were delayed cases or late presentations. This correlates well with other studies done in other centers.[5] The irregular edges and shapes of the partial dentures made oesophageal arrests and incarceration possible.[5] Only two cases needed thoracotomy as most were accessible via the cervical route. Even at arrests around the point of bifurcation of the bronchus, it was still accessible via the cervical route.[16]

Main reasons for failure of retrieval by oesophagoscopy was embedment within the oesophageal walls.[5] This is not surprising, in the face of late presentation. Local sepsis was present in all the cases but irrigation and debridement avoided Mediastinal sepsis or cervical cellulitis. All the dentures in the series were radiolucent and thus led to delayed diagnosis and referral by attending physicians.
Recovery and long term sequelae appeared quite good following the procedure. This correlates well with other studies. [16]
Presentation was mainly pulmonary symptoms. Dysphagia and odynophagia appeared late in all the cases.
Conclusion: Open retrieval remains the last option when oesophagoscopy fails. Its practice is safe in trained hands.

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