Original Research Paper



OESOPHAGEAL FOREIGN BODY RETRIEVAL BY OPEN APPROACH: A CLINICAL AUDIT

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ABSTRACT AIM: A cli	nical audit and justification of open Cervical Oesophagotomy for the retrieval of					

large, sharp or impacted foreign bodies in upper oesophagus.

Material & Method: A retrospective analysis of 6 complicated cases with upper oesophageal foreign bodies retrieved by means of open approach (Cervical Oesophagotomy) at a tertiary health care centre over a period of two years.

Result: out of the 6 cases, two had oesophageal perforation and one had cervical abscess at presentation. After successful oesophagotomy and FB removal, one patient had oesophageal wound dehiscence

leading to leak, which was managed conservatively.

Conclusion: Although foreign body oesophagus is a common occurrence, large, sharp or impacted ones poses serious threat to the patient. Endoscopic removal is the first choice of treatment but open approach should be considered to deal with unsuccessful endoscopic attempts. In this era of minimal access and endoscopic procedures, the role of open approach should not be written off, as it turns out to be lifesaving.

KEYWORDS: Oesophageal Foreign Body (FB), Endoscopy, Cervical Oesophagotomy.

INTRODUCTION:

Foreign body (FB) ingestion or food bolus impaction in oesophagus are usually seen in children, person with mental retardation, psychiatry disorders, prisoners, alcoholic or in normal adults. About 80–90% of foreign bodies passout naturally through gastrointestinal tract, but a significant percentage gets impacted in the upper cricopharyngeal part. [1,2] Clinical situations are varied and the risk to the patient ranges from negligible to life-threatening. Diagnosis, treatment, and management strategies depend on the patient and ingested object related factors like size, shape, time since ingestion and area of impaction. Initial failure to treat this important emergency can cause serious complications like ulcers, lacerations, erosions, perforation, fistulisation, mediastinitis. [4,5] Here we have analysed six cases, which came to the Department of ENT and Head & Neck surgery of a tertiary health care centre. In all the cases, oesophagoscopic removal of foreign bodies as first option of management failed and cervical oesophagotomy was done.

Case 1:

A 60 years old male presented to ENT emergency department with symptom of dysphagia, odynophagia and pain in the neck after he accidentally ingested artificial denture. On examination, the patient had low but stable general condition. Local examination revealed tenderness over the neck. Indirect laryngoscopy showed pooling of saliva in pyriform sinus. Other examinations were normal. On x-ray soft tissue neck lateral view showed widening of prevertebral space along with a radio opaque shadow of wire of denture at the level of C7 cervical vertebra.

With the provisional diagnosis of FB (denture with wire) in oesophagus based on history and X ray report, rigid oesophagoscopy under general anaesthesia was tried but it failed. The wire of the denture got impacted on lateral wall of oesophagus and denture could not be removed. oesophagotomy was done through cervical approach and FB was removed. Oesophageal evaluation was done through oesophagotomy opening and site of puncture due to wire was examined. Ryles tube was inserted and oesophagus closure done in three layers. Skin closure was done after putting closed drain.



Figure. (A) showing oesophageal perforation due to piercing of denture wire. (B) operative photograph showing denture being removed. (C) Artificial denture with pin after removal.



Post operatively patient was kept on intravenous antibiotics and Ryles tube feeding. On sixth post op day patient took around 100 ml of liquid per orally without advice and developed small lump in the left lower neck. Next day he had gastrograffin study which confirmed spillage. Ryles tube feeding continued for two more weeks and the leak was managed conservatively. After 14 days repeat gastrograffin study was done which showed no signs of spillage, so oral feed was started and Ryles tube and drain were removed. The patient was discharged without any problem.

Case 2:

A 22 years old male with psychiatric disorder presented with complains of dysphagia and odynophagia after swallowing a foreign body (Lock) which was lodged in upper cervical oesophagus. The patient presented with stable general conditions breathing spontaneously. X ray neck was done, which showed a radiopaque shadow at the level of T1-2 vertebrae.



Figure. (A) x ray showing radio opaque shadow (lock) at level of T1-2 vertebrae. (B) photo of lock after removal.

Under general anaesthesia after failed attempts of oesophagoscopic removal of FB due to its shape and position, an open approach applied by doing oesophagotomy and FB was removed through lateral side of oesophagus. The oesophageal evaluation through the oesophagotomy opening was done and it showed no signs of perforation or injuries. Ryles tube was inserted and oesophagotomy wound was closed in three layers. A closed drain of 14 Fr. size was placed in paraoesophageal area and skin closure was done. Postoperatively the Ryles tube was left in place for feeding and the patient was put on parenteral antibiotics. On the 10th postoperative day, contrast study was done which showed no signs of spillage. Patient was allowed to take oral feeds without any complications and was discharged after removing Ryles tube and drain on the 14th day.



Figure (C) showing removal of FB intraoperatively. (D) Oesophagus closed in three layers after removal of FB. (E) radiological study done after 10 days postoperatively showing no spillage.

Case 3:

A 6-year-old male child presented to emergency with dysphagia, odynophagia, pain in neck and fever with history of swallowing some metallic object. There were no associated symptoms of difficulty in breathing. The patient underwent complete physical, laboratory and radiological examination. X ray neck showed radio opaque shadow (shaped like a belt buckle) at the level of C6-7 vertebrae. Examination of the oropharynx and chest was unremarkable.



Figure. A. Showing removal of metallic FB. (B) Child after successful removal of FB (belt buckle) through oesophagotomy.

A rigid oesophagoscopy was performed under general anaesthesia to remove FB distal to the cricopharynx. Owing to its size, shape and the surrounding mucosal oedema, the foreign body could not be removed. So the decision was taken to convert to a cervical oesophagotomy. Left transverse skin incision given and the abscess was drained, dissection was performed down to the prevertebral fascia and the proximal oesophagus containing the FB was identified. An incision was made in oesophagus at the site of the impacted FB and it was removed. Following removal, the oesophagotomy was repaired in two layers after inserting Ryles tube which was secured in position. A closed drain was secured and skin closure was performed. Postoperatively, Ryles tube was kept for 3 weeks, and after 2 weeks gastrograffin study was done which showed no leakage.

Case 4:

A 35-year female presented with history of ingestion of artificial denture with pin accidently with complains of dysphagia, odynophagia, dysphonia, and neck pain. On indirect laryngoscopy pooling of saliva in bilateral pyriform sinuses was seen. X ray neck showed artificial denture at the level of C6 C7 vertebrae.

Oesophagoscopic removal of FB was attempted, but failed due to impaction in the oesophageal wall. Only edge of foreign body was visible through oesophagoscope. Pin was not seen inside the lumen so the procedure was abandoned and converted into oesophagotomy through transcervical approach. Oesophagotomy was performed and foreign body was removed. Mucosa over cricopharynx and oesophagus was closed in layers and drain was put. Gastrograffin study was done after 10 days and showed no leaks. Patient was kept on Ryles tube feeding for 2 weeks. Oral feeds were resumed and patient was discharged after removing drain and Ryles tube.

Case 5:

A 48-year male reported with history of ingestion of a piece of meat bolus accidently while eating, had symptoms of dysphagia and odynophagia. But due to persistence of symptoms, he came to the emergency with fever, erythema, dysphonia and crepitus in neck. His neck and chest x rays was done which showed widening of prevertebral space with radio opaque shadow at the level of C6 C7 vertebrae.

Oesophageal endoscopy showed a foreign body which occupied the lumen and was impacted to the wall. Attempts at recovery and mobilization of FB endoscopically were unsuccessful because of failure to get a good grip over FB. Moreover, the bony component of the meat bolus had caused injury to the wall of oesophagus causing perforation. So open surgery was done. After isolation of the cervical oesophagus, a longitudinal oesophagotomy was performed, resulting in extraction of the foreign body. Double-layer suturing of the oesophageal opening was done after inserting Ryles tube, with drain positioning and closure of skin. Gastrograffin study done after 2 weeks showing no spillage Postoperatively drain and Ryles tube removed after 3 weeks and patient was discharged.

Case 6:

A 28-year female came to emergency with complains of severe neck pain and dysphagia. She had a history of ingestion of chicken bone accidently 3 days back but as symptom was increasing she came to hospital. A lateral X ray soft tissue neck was done which detected FB at the level of C6 vertebra and also showed widening of prevertebral space. Rigid oesophagoscopy was attempted but was unsuccessful due to position of FB and its impaction in oesophageal wall. So open surgery was planned and oesophagotomy was done for removal of FB. After putting Ryles tube oesophagus was closed in three layers, drain was given and skin closure was done. After 10 days gastrograffin study showed no leaks. Patient discharged after removal of drain and Ryles tube after 2 weeks.

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Case	Āge/Sex	Type of FB	Level of impaction in oesophagus	Time to presentations (days)	Other pathology	Approach for removal	Post op complications	Duration of hospital stay
1	60/male	Artificial denture with wire	Cervical oesophagus (C7)	3	perforation	Cervical oesophagotomy and retrieval	Perioesophageal leak, conservatively managed	3 weeks
2	22/male	lock	Cervical oesophagus (T1- T2)	1		Cervical oesophagotomy and retrieval	Nil. No leak on gastrograffin study after 10 days.	2 weeks
3	6/male	Belt buckle	Cervical oesophagus (C6 -7)		Neck abscess	Cervical oesophagotomy and retrieval	Nil. No leak on gastrograffin study after 2 weeks.	3 weeks
4	35/ female	Denture	Cervical oesophagus (C6 -7)	1		Cervical oesophagotomy and retrieval	Nil. No leak on gastrograffin study after 10 days.	2 weeks
5	48/male	Meat bolus	Cervical oesophagus (C6 7)	8	perforation	Cervical oesophagotomy and retrieval	Nil. No leak on gastrograffin study after 2 weeks.	3 weeks
6	28/ female	Chicken bone	Cervical oesophagus (C6)	3		Cervical oesophagotomy and retrieval	Nil. No leak on gastrograffin study after 10 days.	2 weeks

DISCUSSION:

Accidental ingestion of foreign bodies is frequently encountered. While 80–90% of these, comes out without any active intervention, about 10–20% require endoscopic extraction, and only 1% of cases need surgery [1,2]. The most common locations of FB lodgement are the three areas of normal physiologic oesophageal narrowing. The first and most common location is upper oesophagus at the pharyngoesophageal junction, the second location is the mid esophagus at the level of aortic arch and the third location is the distal esophagus, slightly proximal to gastroesophageal junction [2]. The risk of complication is 25% higher in the upper esophagus than in other sites, and the proximity of vital organs around the esophagus makes many complications life-threatening [3].

Common symptoms of foreign body ingestion includes dysphagia, odynophagia, low cervical or chest strain, hypersalivation, vomiting and even dyspnea if there is tracheal compression. Few cases, mostly children, remain asymptomatic for days or even months and seek medical advice only after the symptom appears, some come with complication at the time of presentation. Related risk factors for complications includes time interval of over 24 hrs between ingestion and presenting to the emergency department, age > 50 years, positive radiographic findings, involvement of the upper third of the esophagus, symptoms of complete digestive or respiratory obstruction, and high-risk objects due their shape, size, and composition [6]. Complications occur in the late stage like erosion, infection, mucosal ischemia and necrosis resulting from prolonged impaction of foreign body. There are many serious complications, including perforation, retropharyngeal abscess, mediastinitis, fistula, pyo-pneumothorax and aspiration [4,5].

Patient is evaluated and detailed clinical examination is done. Examination of the oropharynx and neck is done for local tenderness, erythema, painful swelling and presence or absence of any emphysema or crepitus. Radiological examination is the next very important step as it provides vital

information and determines future course of action, like choice of therapeutic modality. Radiological examination shows the size, shape, location, nature of the FB and any signs of complications. In cases of oesophageal perforation, mediastinal, sub-diaphragmatic, subcutaneous air, thickening of the soft cervical-mediastinal tissues, and presence of prevertebral emphysema are usually observed. [7,8] CT scan is indicated in some cases with food or meat bolus impaction, where the FB are not always detectable on xray. In the situations when the aforesaid modalities fail to clinch the diagnosis, direct visualisation by means of endoscopy and retrieval of the FB should be considered. At the current times, endoscopy is considered as the first approach as it has the dual purpose of diagnostic and therapeutic value. If Open surgery should not delayed, as all those patients who require it are already in critical state after failed endoscopic attempt and deteriorating general condition. Depending on the location of the FB in the oesophagus, skin incision is made on the left side of the patient's lower neck along the lower horizontal crease. On the other hand incision can also be given along the anterior border of the sternocleidomastoid muscle. The author prefers horizontal incision because of better access, wide field of exposure and negligible scar. The sternocleidomastoid and strap muscles are retracted laterally and medially to expose the carotid sheath.In cases where oesophagous is already perforated one should be ready to encounter difficulty as features of tissue inflammation and adhesion will be seen. This is body's own effort to seal off the site of perforation. Thourough knowledge of anatomy is needed as the area contains vital stuructures like carotids,Internal jugular vein, recurrent laryngeal nerve, vascular supply to parathyroids etc. The hooking of the oesophagus isolates it from the recurrent laryngeal nerves in the vicinity and reduces injury to the same. FB is removed and care should be taken not to extend the opening if possible. The stay sutures are placed laterally and longitudinal incision in given at the buldging portion in the wall of oesophagous. Ryles tube placed through the nose traversing the oesophagotomy site under direct vision. It acts as stent also in addition to that of feeding purpose. Wound is closed in layers over closed drain.



Flow chart: 1- Shows a reasonable diagnostic approach and management protocol for impacted FB in cervical oesophagus

If In our series all cases were uneventful except one who had oesophageal wound dehiscence and subsequent leak. The complications of oesophagotomy are oesophageal suture line dehiscence, pharyngeal stricture, oesophageal fistula, and serious wound infections. [10,11] When there is a complication (e.g. perforation) or chances of developing one is there and the removal of FB by other means have failed then surgery should be considered. Some authors have successfully treated perforation by conservative approach also.[12]

CONCLUSIONS:

Foreign bodies ingestion and its subsequent impaction in oesophagus is an emergency. Prompt and accurate diagnosis and timely treatment are essential to prevent the complications. Serious complications like perforation, fistulisation, mediastinitis or tear of great vessels of neck may endanger the life of the patient or even cause death. Impacted oesophageal foreign bodies are usually retrieved endoscopically by either flexible or rigid oesophagoscopy.

Cervical oesophagotomy can be a safe and viable option in skilled hand and does not require extra facility other than basic surgical setup. It can be considered in all cases when endoscopic retrieval fails or where endoscopic removal is not feasible.

open Surgery can be lifesaving and usually has only minor postoperative complications if patient is managed appropriately. In the current era of endoscopic and minimal access surgery, open approach should not be written off and the surgeons should not hesitate to go for it at the earliest.

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