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AN ANALYTICAL STUDY OF IMPACTED FOREIGN BODIES IN THORAX

Clinical Research

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ABSTRACT

AIM OF THE STUDY: To analyse various types of impacted foreign bodies that occurs in thoracic surgical practice and surgical modalities opted in management of them in various parts of thorax.

MATERIALS AND METHODS: Venue: Department of cardiothoracic surgery ,Government Rajaji hospital and Madurai Medical college, Madurai .Study Period: August 2004 to April 2007.

STUDY POPULATION: 20 patients who were operated for impacted foreign bodies in thorax. All patients underwent routine screening by chest x-Ray and C.T. chest / MRI when ever needed. Failure of Trial attempt of removal by oesophagoscopy / bronchoscopy by other specialists landed the patient for surgical exploration by thoracic surgeons. Removal of radio opaque F.B's were done with on table x-ray guidance / c-arm. Removal of radiolucent F.B's were done by surgical exploration

RESULTS: Total number of cases 20 . M:F ratio 12 : 8. Incidence was more common among young (0-30 years), 85% are Radio opaque foreign bodies & 15% are Radiolucent

CONCLUSION: Non vegetable foreign bodies tend to get impacted commonly which needs active surgical intervention .Cervical Oesophagus Oblique incision along the left sternomastoid muscle & exposure of oesophagus done in visceral space of neck. - Right Thoracotomy Prone position of patient & left / right posterolateral thoracotomy as indicated. Cardio- pulmonary Bye pass instituted to arrest the heart & remove foreign body. Earlier reporting of patients with earliest intervention combined with meticulous post operative care will result in low morbidity and minimal mortality.

KEYWORDS

Impacted Foreign body thorax , Thoracotomy

BACKGROUND : Foreign bodies in the thoracic cavity, its walls or other vital organs in the Thorax are not un common. Their introduction in the thoracic- are by various methods. Especially inhalation & ingestion of foreign bodies are common in young children & aged people. Traumatic introduction of foreign body are more common in the middle age group , negligence to intervene immediately and disparity in size of the foreign body to the passage where it gets lodged leads to impaction and renders surgery the only option for relief and cure eg: F.B in aero-digestive tract. Foreign body in heart great vessels & lungs is an emergency to be managed as they embolize and complicate. Foreign body in chest wall & pleural cavity demands immediate surgical attention to prevent complication like infection & subsequent disability. Though foreign bodies from the aero-digestive tract has been revolutionized by removal using rigid/flexible Bronchoscopes / oesophagoscopes. The main stay iesurgical when impaction of the foreign bodies occur. In this study the surgical techniques and modalities for the management of variety of foreign bodies in thorax has been discussed. All cases were referred cases from other specialties like E.N.T. paediatric surgery & general surgery where first line of management has failed.

AIM OF THE STUDY:To analyse of the types of impacted foreign bodies that occurs in thoracic surgical practice and surgical modalities opted in management of them in various parts of thorax.

MATERIALS AND METHODS:

Type of Study: Cross sectional study

Period: August 2004to April 2007.Sutdy population: 20 patients who were operated for impacted F.B's. All patients were admitted initially in E.N.T. department or pediatric department and subsequently referred to cardio-thoracic surgery department. All patients underwent routine screening by chest x-Ray and C.T. chest / MRI when ever needed. Trial attempt of removal by oesophagoscopy / bronchoscopy were done by other specialists. Failure by above technique landed the patient for surgical exploration by thoracic surgeons. Removal of radio opaque F.B's were done with on table x-ray guidance / c-arm. Removal of radioluscent F.B's were done with on table reconfirmation of position with oesophagoscopy / bronchoscopy .

RESULT: Total number of cases 20 . M:F ratio 12 : 8. Incidence was more common among young (0-30 years), though we had come across old patients also (70-75year).85% are Radio opaque foreign bodies & 15% are Radiolucent.

Graph:1

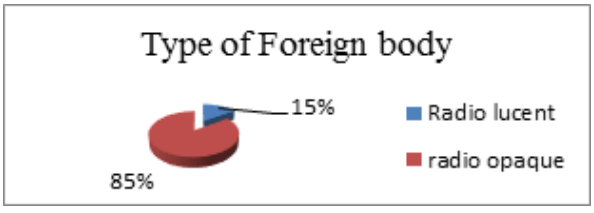


TABLE:1 – SEX RATIO

Total no.of cases =20	
Males	Females
12	8

TABLE:3- FOREIGN BODIES

S.No	Objects	No. of cases
1.	Denture (Oesophagus)	4
2.	Safety pin – Open (Oesophagus) Closed	3 1
3.	Surgical 11 Blade (Pleural cavity)	1
4.	Bone piece(Oesophagus)	2
5.	Sewing needle (R.V.Chamber)	1
6.	Iron rod (Chest wall/Mediastiniun/ Pleural cavity)	2
7.	Metal cap of soft beverage bottle (Oesophagus)	1
8.	Coin – (Oesophagus)	2
9.	Plastic nozzle of pen/Beed (Bronchus)	2
10.	Glass piece (Pleural Cavity)	1

DISCUSSION:. Un awareness about the seriousness of the problem a negligence leads to varied complication. Eg: Foreign body in the oesophagus leads to inflammation & retro pharyngeal abcess formation & subsequent septicemia. Septicemia was the most common mode of death in patients who, are submitted for surgical exploration of the impacted foreign body. Secondly vascular erosion due to inflammatory process contributes to the collapse and death of the patient. Foreign body in the pleural cavity iatrogenic (5%) and traumatic (5%) were encountered in adult patients. Empyema with loculation was found in a case 11 blade in pleural cavity. Prompt recovery was seen on surgical intervention. Foreign body in the myocardial chamber (5%) CPB to arrest the heart & retrieve the foreign body. The over all morbidity (4%) and mortality f,1-0%)- in

this study is based upon the awareness on the side of the patient to seek medial attention at the earliest and timely active surgical intervention .Common Encounters were: i) Safety pin in oesophagus. ii) Denture in oesophagus. iii) Impacted bone pieces in oesophagus. iv) Aspiration of F.B. into Bronchial tree. Others were: Sewing needle in myocardium. Iatrogenic introduction of 11' Blade in pleural cavity during attempt of intercostal drainage procedure. R.T.A. with crucifixed transverse iron bar through thoracic cavity. Piercing Iron / Over chest wall i) F.B. in oesophagus: a) F.B. in cervical / thoracic inlet part of oesophagus: `C' —arm localization / re-oesophagoscopic confirmation of the F.B. on table. Patient placed in thyroid position with head turned to right. Visceral space of neck reached by oblique incision along the anterior border of left stemomastoid. Oesophagotomy / pharyngo-oesophagotomy was done and F.B. removed. Oesophagus closed with 3-0 vicryl interrupted sutures in single layer; after a Ryles tube placed in stomach.. b) F.B. in thoracic oesophagus: By 'C' arm control / Re-oesophagoscopy; F.B. position confirmed on table. Rt. Posterolateral thoracotomy done through 5th I.C.S. F.B. delivered by oesophagotomy. Ryles tube places and oesophagus closed in 2 layers. ii) F.B. in Rt. / Lt.; Bronchus: By 'C' arm control / Re-Bronchoscopy; F.B. position confirmed on table. Patient placed in prone position to prevent slipping of F.B from one Bronchial tree into opposite side. Lt. Posterolateral / Rt. Posterolateral thoracotomy done pleural cavity entered through 4th I.C.S. for upper lobe and main bronchus F.B. and through 5th I.C.S. for F.B. located in middle and lower lobes. Bronchotomy and removal of F.B. done. Bronchus closed with 3-0 ethibond interrupted sutures in single layer. Air leak checked. iii. F.B. in pleural cavity: Screening and localization of the side and site of F.B. in pleural cavity is done by c-arm. Rt./Lt. Postero-lateral thoracotomy is done and F.B. is removed. iv. Migrating sewing needle in the myocardium: Bilateral anterolateral thoracotomy done, the bar was removed under direct vision. Minimal lung injury was present on both sides. Mid sternum was shattered. After surgery patient had stove in chest and was ventilated for 3 days. Died of septicemia in Vth P.O.D.

Chest wall F.B.: A case of iron piercing iron bar over the lateral chest wall of a small boy who was a manual labourer due to accidental fall over it. It was in the muscle plane and was removed surgically under direct vision. Other foreign bodies are removed by local exploration with 'c' arm guidance. a) Oesophagus cases: - Kept nil orally for 4 days. - From 5th P.O.D. patient was fed through Ryles tube. - Only one 10th P.O.D. oral fluids were permitted and Ryles tube removed. Appropriate broad spectrum antibiotics and I.V. metrogyl were used in all oesophagotomy patients. b) Bronchial F.B. cases: - ICD's removed on 5th / 6th P.O.D. after checking for air leak. Appropriate broad spectrum antibiotics were used in all bronchotomy patients. c) Complications: There were two deaths: i) Elderly patient with crucifixation of rod across the chest. Died on 5th P.O.D. due to septicemia. ii) Impacted open safety pin in 18 year old girl got admitted 20 days later. MRI showed peri-oesophageal abcess and left subclavian aneurysm. Lt. Thoracotomy was done to manage aneurysm first and F.B. removal was planned next day. Patients succumbed later in the day of surgery.

CONCLUSION: Foreign bodies in the Aerodigestive tract get impacted due to the disparity in its size and lumen diameter. Commonly non vegetable foreign bodies tend to get impacted eg: open safety pin, dolar, coins fish bones etc., Which needs active surgical intervention .X-ray chest 'C' arm, oesophagoscopy & bronchoscopy (flexible) are the main stay of assessment, presurgically to plan intervention. Early referal of patients with earliest intervention as discussed above, combined with meticulous post operative care gave good results with low morbidity and minimal mortality.

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