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PNEUMONOTOMY FOR REMOVAL OF SHARP FOREIGN BODY IN LUNG- A CASE REPORT

Paediatric Surgery

Dr Nandini Desai	Senior Resident, Department of Pediatric Surgery, Lokmanya Tilak Municipal Medical College and Hospital, Sion, Mumbai, India.
Dr Pratiksha Joshi	Senior Resident, Department of Pediatric Surgery, Lokmanya Tilak Municipal Medical College and Hospital, Sion, Mumbai, India.
Dr. Paras Kothari	Professor & Head, Department of Pediatric Surgery, Lokmanya Tilak Municipal Medical College and Hospital, Sion, Mumbai, India.
Dr Abhaya Gupta	Additional Professor, Department of Pediatric Surgery, Lokmanya Tilak Municipal Medical College and Hospital, Sion, Mumbai, India.
Dr Shahaji Deshmukh	Assistant Professor, Department of Pediatric Surgery, Lokmanya Tilak Municipal Medical College and Hospital, Sion, Mumbai, India.

ABSTRACT

Foreign body aspiration in paediatrics is a common surgical emergency. However, instances of chronic lodgement of sharp metallic pointed objects like needles or pins into the lung parenchyma are rare. Diagnosis of these cases is a challenging task in itself as the symptoms are variable, ranging from prolonged mild illness to acute attacks of respiratory distress. Careful evaluation to locate the site and status of impaction helps decide on the prospective plan of management. Our case is of a 10 year old male who presented with an alleged history of foreign body aspiration 3 months back , followed by an asymptomatic period till date. On investigations we found a sharp metallic pin residing in the right lower lobe lung parenchyma. Posterolateral thoracotomy was performed to palpate the lung tissue and guide safe removal of the pin. Bronchoscopic removal is the best method of management for centrally located objects, present freely in the bronchi. Thoracoscopy is upcoming as the minimally invasive modality of choice for peripherally situated foreign bodies in the thorax. Certain rare cases like our patient, require formal thoracotomy followed by pneumonotomy for safe removal of sharp metallic pin impacted at a depth into the lung parenchyma. These modalities are potentially life saving in children , preventing multitude of complications that may result due to the grave nature of sharp foreign body associated with its chronicity. Hence knowledge of this entity is extremely useful to provide urgent and appropriate management in children.

KEYWORDS

Pin in Lung, Foreign Body Impaction, Pneumonotomy

INTRODUCTION

Foreign body aspiration or ingestion in children is a common presenting complaint to the emergency department.[1] Diagnosis of sharp and pointed metallic foreign bodies in the thorax require urgent management for removal. Bronchoscopy is the treatment modality of choice, while thoracotomy is usually reserved to locate and remove objects not retrieved by it.[2] Recently there have been reports of video assisted thoracoscopic surgeries being done for removal of intrathoracic foreign bodies. [3]

Case Presentation

A 10years old male was admitted with alleged history of ingestion of sharp pointed metallic pin 3months back. He complained of mild intermittent right sided chest pain, without any associated hemoptysis, coughing or respiratory distress. He was vitally stable with no tachypnea, air entry being bilaterally equal. Chest X-ray demonstrated a linear radio-opaque foreign body in the lower zone of right hemithorax.(Fig.1) Other routine laboratory investigations were normal. Flexible bronchoscopy revealed no foreign body in all tertiary bronchi of right side.HRCT scan of chest demonstrated the exact location of the needle in the right lower lobe lung parenchyma.(Fig.2)

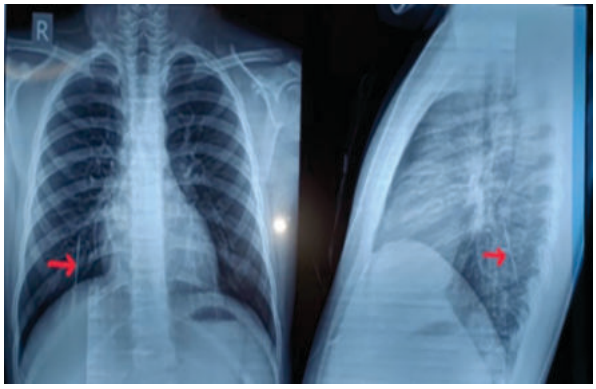

Fig.1. Arrow Demonstrates Location Of Needle On Chest Xray

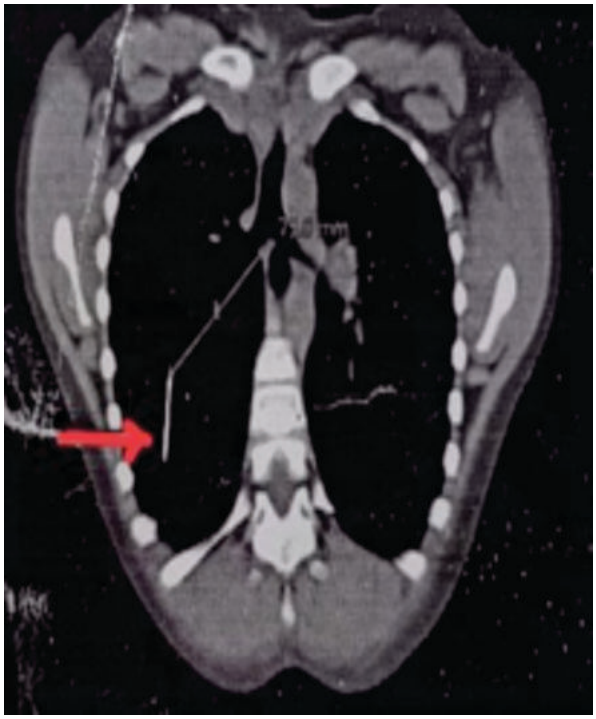

Fig.2. Arrow Demonstrates Needle In Right Lower Lobe Of Lung On HRCT Chest

Right posterolateral thoracotomy was done to expose lower lobe of right lung. Foreign body palpated inside parenchyma and incision taken over it.(Fig.3) Needle identified and removed intact with no injury to surrounding structures.(Fig.4) Patient had an uneventful postoperative recovery. Intercostal drainage tube was removed on postoperative day 2 and patient discharged on day 3.

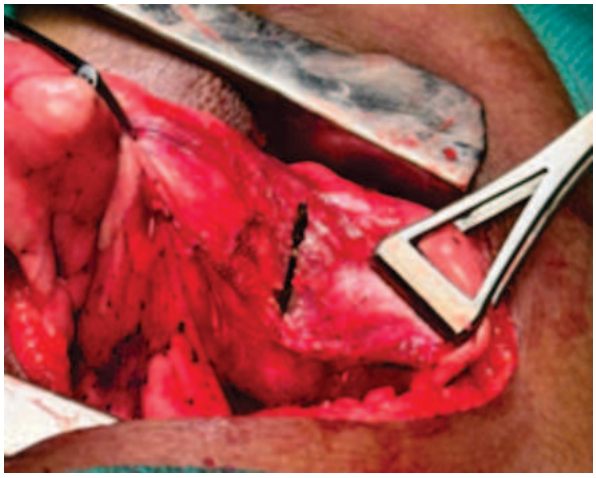

Fig.3. Arrow Demonstrates Needle Impacted Inside Lung Parenchyma

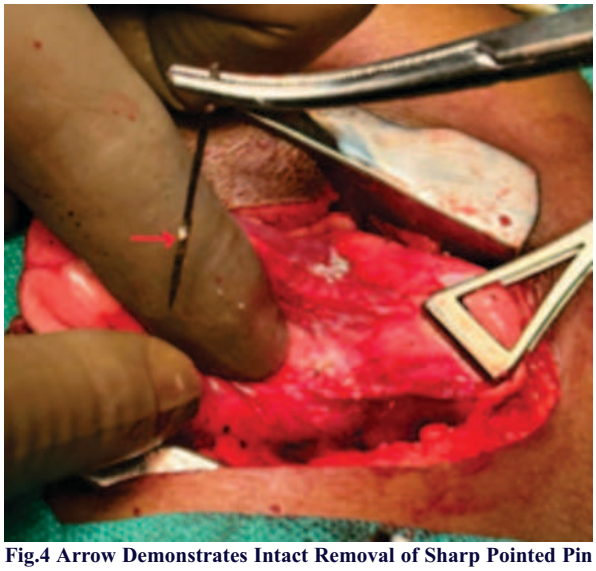

Fig.4 Arrow Demonstrates Intact Removal of Sharp Pointed Pin From Lung

DISCUSSION

Foreign body aspiration in paediatric age group, usually presents with acute penetration syndrome of coughing fits, suffocation and dyspnea.[4] Aspiration of organic materials such as nuts and seeds is most commonly reported, while some inorganic materials noted include coins, plastic pieces, and toy parts.[5] Metallic pins found in paediatric lungs are rare. Being pointed yet slender, they are neither asphyxiating, nor do they favour parenchymal superinfections even on chronic lodgement, hence patients are usually asymptomatic at presentation. In our case, a significant lag of 3 months exists between the accident and approaching the hospital. Misdiagnosis as upper respiratory tract infection, asthma or croup can also lead to delay in appropriate management. Complications due to significantly late presentation include obstructive emphysema, bronchiectasis, recurrent pneumonia, pulmonary abscess and empyema.[6]

All types of metallic foreign bodies in the thorax have been reported. Intrathoracic migration of orthopedic fixation pins, scarf pin inhalation, a swallowed penny which migrated into the mediastinum, a safety pin and a sewing needle which pierced the pericardium are some of the reports found in the literature.[7,8] Deaths reported follow catastrophic events like pericardial tamponade, arrhythmia, vascular aneurysms, arteriovenous fistulas, pulmonary embolism, pneumo-mediastinum and mediastinitis. Retrieval of foreign body depends on site of lodgement, depth of impaction, its physical nature, accessibility and feasibility of interventional facilities available. Rigid bronchoscopy is the procedure of choice in paediatrics compared to its flexible counterpart.[9] Surgery remains the only alternative in cases of unsuccessful endoscopy[10]. Traditionally, posterolateral thoracotomy was practised. Few cases require intraoperative radiological guidance. Pneumonotomy, bronchotomy and parenchymal resections are the different surgical procedures performed as per location of the foreign body.[11] Few centres now recommend thoracoscopic removal due to its minimal invasiveness and earlier postoperative recovery.[12]

CONCLUSION

Although foreign body ingestion or inhalation is a very common event encountered in paediatrics, the presence of a sharp pointed metallic pin lodged chronically inside the lung as seen in our patient is a rare occurrence. It can present with variable mild symptoms as well as favour grave complications. Hence a very high index of suspicion for this diagnosis is must while dealing with paediatric cases presenting with unusual and prolonged upper respiratory tract symptoms. Urgent management with minithoracotomy or thoracoscopy for removal of foreign body with negligible complications has proven to be life saving.

REFERENCES

[1] Ulas A.B., Aydin Y., Eroglu A. Foreign body aspirations in children and adults. Am. J. Surg. 2022;224:1168–1173. doi: 10.1016/j.amjsurg.2022.05.032.

[2] Baram A., Sherzad H., Saeed S., Kakamad F.H., Hamawandi A.M.H. Tracheobronchial Foreign Bodies in Children: The Role of Emergency Rigid Bronchoscopy. Glob. Pediatr. Health. 2017;4:2333794x17743663. doi: 10.1177/2333794X17743663

[3] The role of VATS in the removal of intrathoracic foreign bodies - a systematic review. Kakamad FH, Ali RK, Amin BJH, Mohammed SH, Omar DA, Mohammed KK, Karim SO, Kakamad SH, Salih RQM,Mohammed DA, Salih AM, Mustafa MQ. Indian J Thorac Cardiovasc Surg. 2023 Mar;39(2):125-136. doi: 10.1007/s12055-022-01445-9. Epub 2022 Dec27.PMID: 36785615

[4] Pénétration Syndrome : About à Case of an Intra-Bronchial Foreign Body in an Infant at Dschang District Hospital. Marie Christine Atyam Ekoto Tchoffo, Joseph Fondop, Hassanatou Iyawa Ousmanou, Jean Fabrice Ondo Ondo, Serge Max Akamba Zibi, et al. (2022) SAJ Case Report 9: 101

[5] Eren S, Balci AE, Dikici B, Mehmet Doblan, Mehmet Nesimi Eren (2003) Foreign body aspiration in children : experience of 1160 cases. Ann Trop Paediatr 23 : 31.PMID: 12648322, DOI: 10.1179/000349803125002959

[6] Occult foreign body aspirations in pediatric patients: 20-years of experience. Liu B, Ding F, An Y, Li Y, Pan Z, Wang G, Dai J, Li H, Wu C. BMC Pulm Med. 2020 Dec 9;20(1):320. doi: 10.1186/s12890-020-01356-8. PMID: 33298020

[7] 5.Fenane H, Bouchikh M, Bouti K, El Maidi M, Ouchen F, Mbola TO, et al. Scarf pin inhalation: Clinical characteristics and surgical treatment. J Cardiothorac Surg. 2015;10:61. doi: 10.1186/s13019-015-0268-z.

[8] Migration of a Kirschner wire used in the fixation of a subcapital humeral fracture, causing cardiac tamponade: case report and review of literature. Freund E, Nachman R, Gips H, Hiss J. Am J Forensic Med Pathol. 2007 Jun: 28(2):155-6. do: 10.1097/PAF.0b013e31806195a1.PMID: 17525569

[9] El Koraïchi A, Mokhtari M, El Haddoury M, El Kettani SE. Rigid bronchoscopy for pin extraction in children at the Children's Hospital in Rabat, Morocco. Rev Pneumol Clin. 2011;67:309–13. doi: 10.1016/j.pneumo.2010.11.003.

[10] Caidi M, Kabiri H, Lazrek I, el Maslout A, Ben Osman A. Surgery for intra-bronchial foreign bodies. Ann Chir. 2002;127:456–60. doi: 10.1016/s0003-3944(02)00795-2.

[11] Amano Y, Takanashi Y, Neyatani H. Emergency left pneumonectomy for foreign body aspiration: a case report. J Surg Case Rep. 2019;9:1–3. https://doi.org/10. 1093/jscr/rjz258

[12] Metallic foreign body in the lung: a case report. Dave N, Oak SN. J Pediatr Surg. 2007 Jul;42(7):1282-3. doi: 10.1016/i.pedsurg.2007.02.022. PMID: 17618897