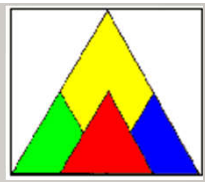
CASE REPORT

KHẠC RA MÁU KÉO DÀI

BS TRƯƠNG NGỌC LỄ

CASE REPORT

- Bệnh nhân nam, 48 tuổi
- Địa chỉ :Đồng Nai
- LDĐK :Khạc ra máu kéo dài
- Bệnh sử: Cách nhập viện 4 tháng,bệnh nhân bị khạc ra máu ,lượng ít,không liên tục.Bệnh nhân không sốt,không khó thở,không đau họng,không đau đầu,không tiền căn lao phổi,viêm phổi ,giãn phế quản,bệnh dạ dày ... Bệnh nhân đến khám tại nhiều BV : BV Phổi Đồng Nai, BVTN…,điều trị nhiều đợt không khỏi nên đến MEDIC.



CÔNG TY TNHH Y TẾ HÒA HẢO
PHÒNG KHÁM ĐA KHOA
KHOA XÉT NGHIỆM (MEDIC - LAB)
Hotline: (028) 3834 9593 - 1900 6497
254 Hòa Hảo - P.4 - Q.10 - TP.HCM
Tel: (028) 3927 0284 (Ext: 1134) - Fax: (028) 3927 1224
Email: admin@medic-lab.com
www.medic-lab.com /www.medic-lab.com.vn

PID: **8152742** S.T.T.: **100316**
Ngày giờ đăng ký: **07:13:30 03/03/2025**
Ngày giờ lấy mẫu: **07:20:00 03/03/2025**
Ngày giờ nhận mẫu: **07:22:00 03/03/2025**

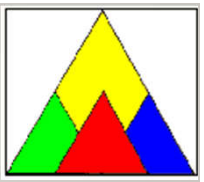
PHIẾU KẾT QUẢ XÉT NGHIỆM

(BM.TTXN.XN.02.1 - Ngày áp dụng: 01/03/2016 - Phiên bản: 1.2)

Họ tên: **H**
Ngày thá
Số CCCD
Địa chỉ: **1**
Phái: **Nam**
Quốc tịch:
Đơn vị: ***Medic***
Nơi lấy mẫu: **Tầng trệt**
BS yêu cầu: BS. CKI. TRƯƠNG NGỌC LỄ
Loại mẫu: **Máu/Đàm**
Tình trạng mẫu: **Đạt**

TÊN XÉT NGHIỆM	KẾT QUẢ		KHOẢNG THAM CHIẾU	MÃ QT
I. HUYẾT HỌC / ĐÔNG MÁU - HEMATOLOGY / COAGULATION				
NFS(C.B.C)(CÔNG THỨC MÁU)[1]	*			
WBC	***12.9***	***H***	(4.0 - 10.5)10^9/L	*QTHH019*
% Neu	**59.1**		(40 - 74 %)	
% Lym	**31.9**		(19 - 48 %)	
% Mono	**7.2**		(3 - 9 %)	
% Eos	**1.4**		(0 - 7 %)	
% Baso	**0.4**		(0 - 1.5 %)	
# Neu	***7.6***	***H***	(1.7 - 7.0) 10^9/L	
# Lym	***4.1***	***H***	(1.0 - 4.0) 10^9/L	
# Mono	**0.9**		(0.1 - 1.0) 10^9/L	
# Eos	**0.2**		(0 - 0.5) 10^9/L	
# Baso	**0.1**		(0 - 0.2) 10^9/L	
RBC	**4.96**		(3.80 - 5.60)10^12/L	*QTHH020*
Hb	**15.5**		(12.0 - 18.0 g/dL)	*QTHH025*
Hct	**45.1**		(35 - 52 %)	
MCV	**91.0**		(80 - 100 fL)	
MCH	**31.3**		(26 - 32 pg)	
MCHC	**34.4**		(32 - 36 g/dL)	
RDW	**14.9**		(11.0 - 15.7%)	
PLT	**294**		(150 - 400)10^9/L	*QTHH021*
MPV	**6.7**		(6.30 - 12.0 fL)	
II. VI SINH/NƯỚC TIỂU/PHÂN/ĐÀM/DỊCH - MICROBIOLOGY/URINE/STOOL/SPUTUM/FLUID ANALYSIS				
BK(AFB)/Sputum I	**Âm tính**		Âm tính	
III. SINH HOÁ - BIOCHEMISTRY				
hs CRP	**0.750**		(≤ 3 mg/L)	*QTSH028*

* Đây là kết quả dạng số trả tự động từ hệ thống Medic. Bản giấy, khoa Xét nghiệm đã ký trả bệnh nhân



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Ngày giờ nhận mẫu: **07:22:00 03/03/2025**

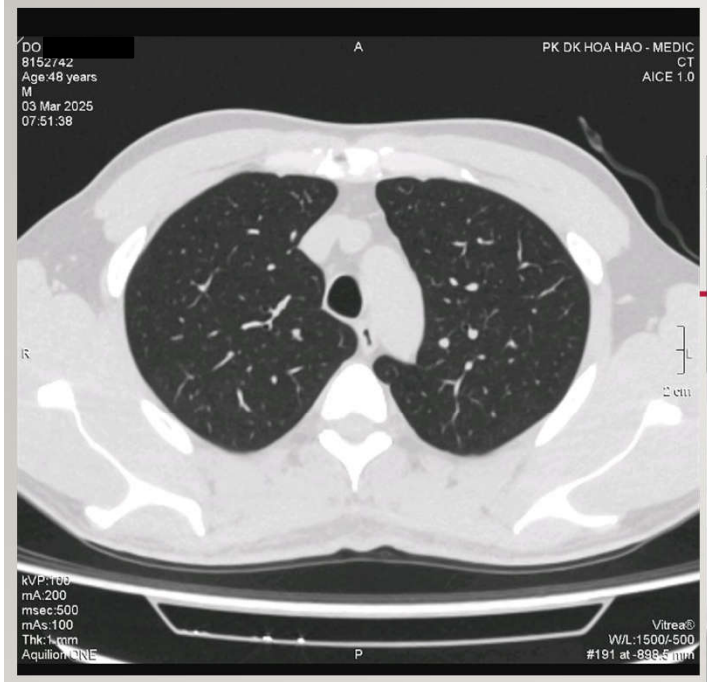
PHIẾU KẾT QUẢ X IGHIỆM

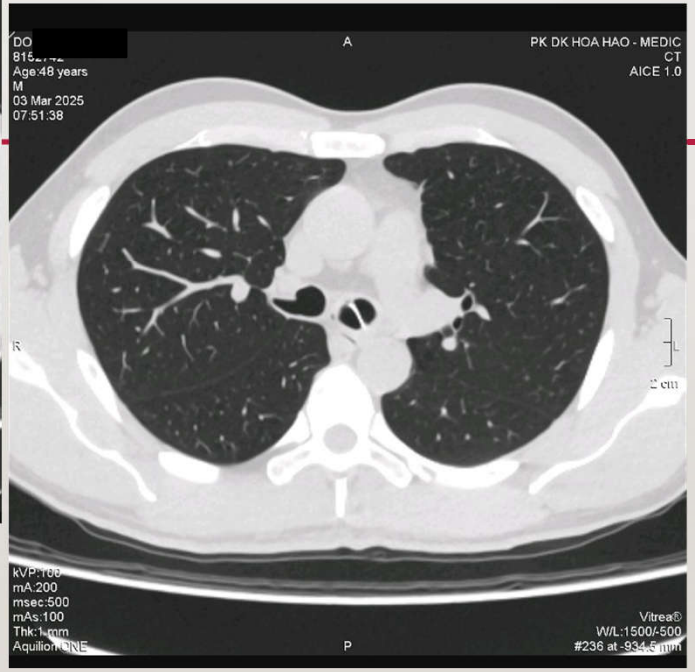
(BM.TTXN.XN.02.1 - Ngày áp dụng: 01/ hiên bản: 1.2)

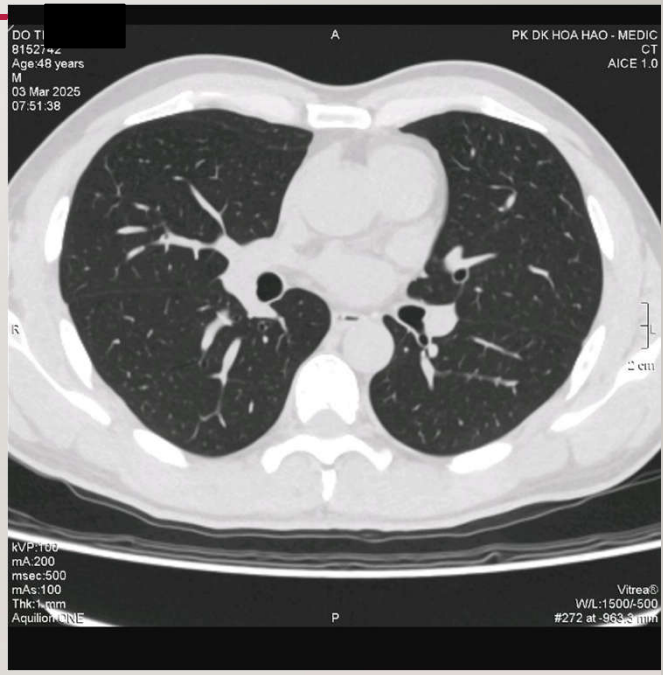
Họ tên:
Phái: **Nam**
Ngày tháng năm sinh: **1977**
Quốc tịch:
Số CCCD/Hộ chiếu:
Địa chỉ: **KP. HƯƠNG PHƯỚC,**
Đơn vị: ***Medic***
Nơi lấy mẫu: **Tầng trệt**
BS yêu cầu: BS. CKI. TRƯƠNG NGỌC LỄ
Loại mẫu: **Máu/Đàm**
Tình trạng mẫu: **Đạt**

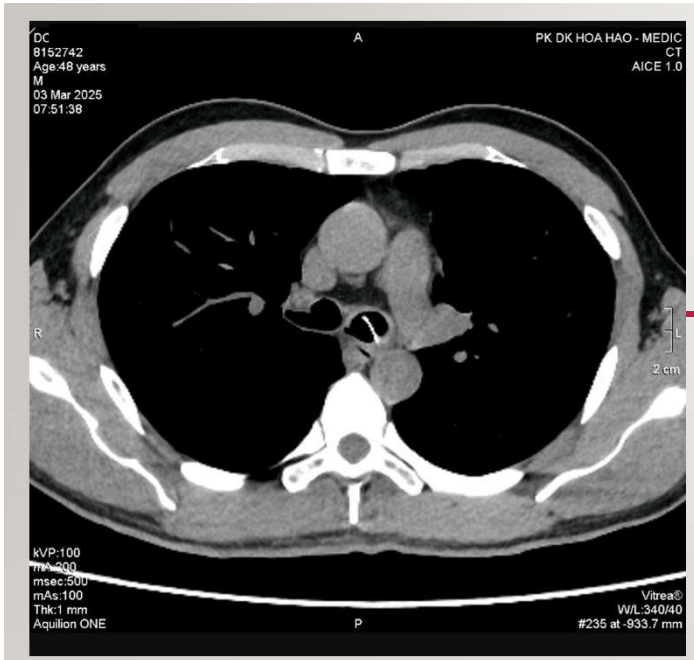
TÊN XÉT NGHIỆM	KẾT QUẢ	KHOẢNG THAM CHIẾU	MÃ QT
Urea/ Serum[1]	**36.79**	(15 - 49 mg/dL)	*QTSH002*
*Độ Lọc Cầu Thận (CKD-EPI)	*		
Creatinin/Serum[2]	**1.11**	(M: 0.6 - 1.3; F:0.5 - 1.1 mg/dL)	*QTSH027*
eGFR (CKD-EPI)	**82**	(≥ 90 mL/min/1.73 m²)	
SGOT (AST)[1]	**17.76**	(< 35 U/L)	*QTSH005*
SGPT (ALT)[1]	**25.25**	(< 30 U/L)	*QTSH013*

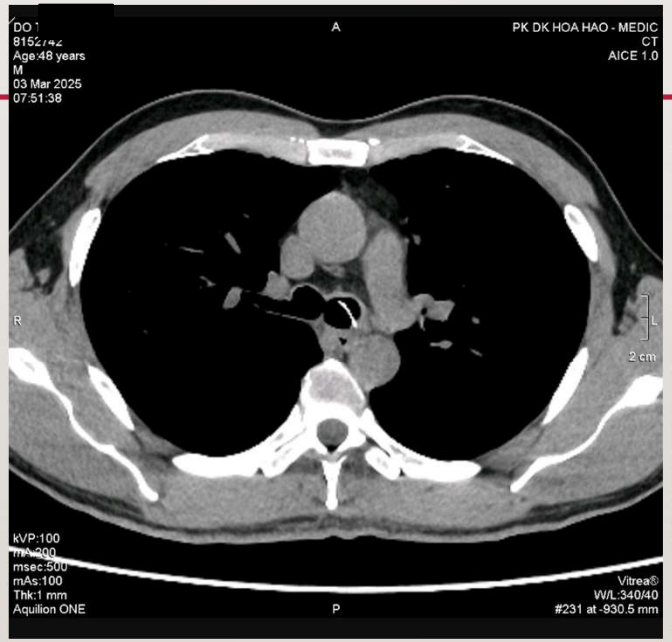
Thời gian duyệt: 08:05:17 03/03/2025
In lần 1: 08:05:23 03/03/2025

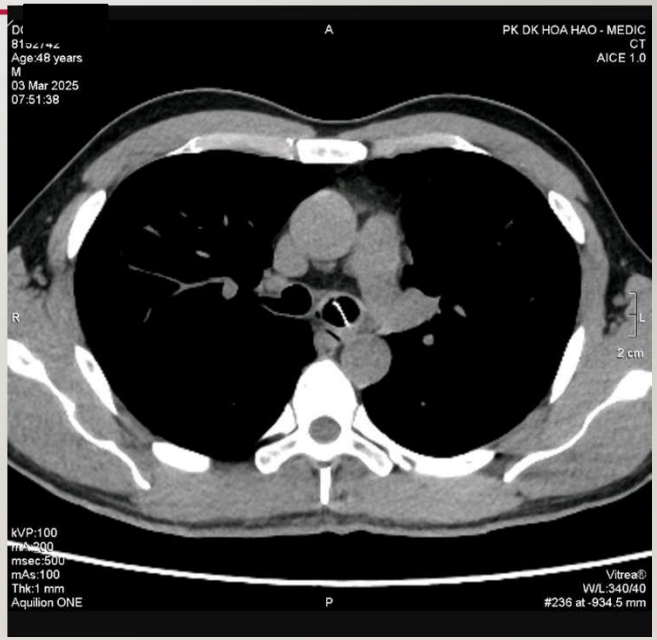

DO [redacted]
8152742
Age:48 years
M
03 Mar 2025
07:51:38
A
PK DK HOA HAO - MEDIC
CT
AICE 1.0
R
L
2 cm
kVP:100
mA:200
msec:500
mAs:100
Thk:1 mm
Aquilion ONE
P
Vitrea®
W/L:1500/-500
#191 at -898.5 mm

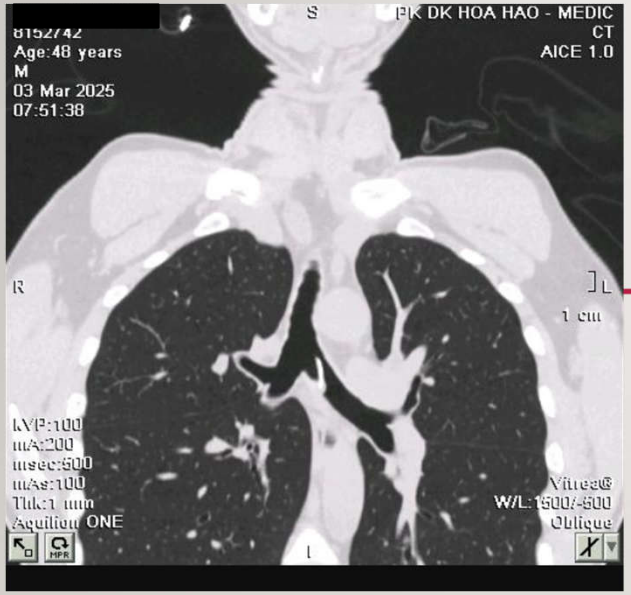

DO [redacted]
Age:48 years
M
03 Mar 2025
07:51:38
A
PK DK HOA HAO - MEDIC
CT
AICE 1.0
R
L
2 cm
kVP:100
mA:200
msec:500
mAs:100
Thk:1 mm
Aquilion ONE
P
Vitrea®
W/L:1500/-500
#236 at -934.5 mm

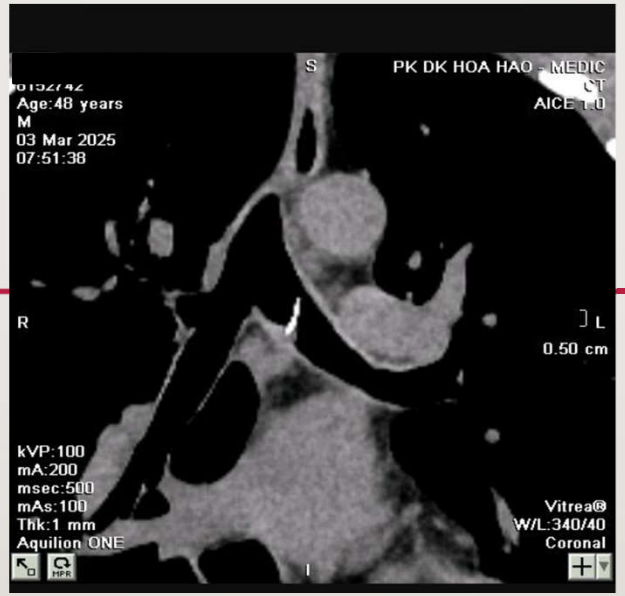

DO TI [redacted]
8152742
Age:48 years
M
03 Mar 2025
07:51:38
A
PK DK HOA HAO - MEDIC
CT
AICE 1.0
R
L
2 cm
kVP:100
mA:200
msec:500
mAs:100
Thk:1 mm
Aquilion ONE
P
Vitrea®
W/L:1500/-500
#272 at -963.5 mm

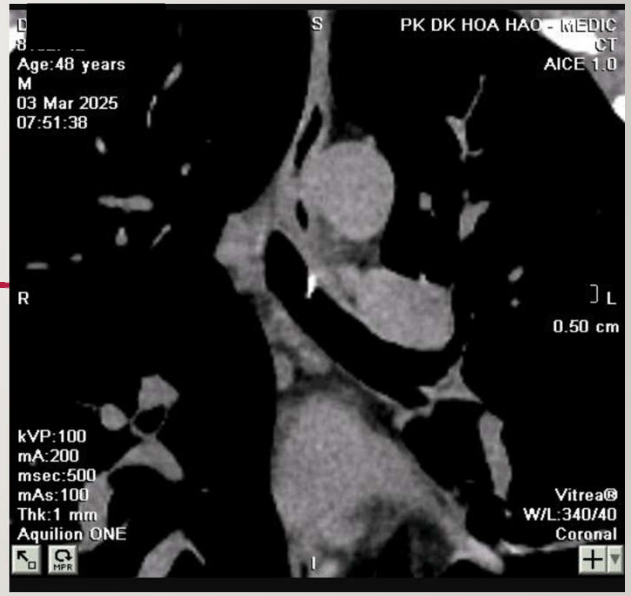

DC
8152742
Age:48 years
M
03 Mar 2025
07:51:38
A
PK DK HOA HAO - MEDIC
CT
AICE 1.0
R
L
2 cm
kVP:100
mA:200
msec:500
mAs:100
Thk:1 mm
Aquilion ONE
P
Vitrea®
W/L:340/40
#235 at -933.7 mm


A
PK DK HOA HAO - MEDIC
CT
AICE 1.0
Age:48 years
M
03 Mar 2025
07:51:38
R
L
2 cm
kVP:100
msec:500
mAs:100
Thk:1 mm
Aquilion ONE
P
Vitrea®
W/L:340/40
#231 at -930.5 mm


A
PK DK HOA HAO - MEDIC
CT
AICE 1.0
Age:48 years
M
03 Mar 2025
07:51:38
R
L
2 cm
kVP:100
msec:500
mAs:100
Thk:1 mm
Aquilion ONE
P
Vitrea®
W/L:340/40
#236 at -934.5 mm







8152742

MEDIC CT SCAN REPORT

STT : 250303047 **Ngày ĐK :** 03/03/2025 07:31
Bệnh nhân : **Tuổi :** 48 **Nam - ĐT** :
Địa chỉ :
BS chỉ định : BS. CKII. TRƯƠNG NGỌC LÊ **BV** : MEDIC **Khoa :** PK
Chẩn đoán sơ bộ :
Vùng : CT NGỰC **Máy** : MSCT 640 _ 2 **Không tiêm tương phản**
Kết quả : KĨ THUẬT:
Các lát hình 1mm qua 2 phổi, không có tiêm cản quang, khảo sát ở hai cửa sổ: nhu mô, trung thất.

MÔ TẢ:
Dị vật hình xương cá, mật độ vôi, nằm trong đoạn đầu PQ gốc trái, d # 2cm.
Khí quản thoáng, không tắc nghẽn. Không tổn thương nhu mô phổi hai bên.
Không thấy tràn dịch màng phổi hai bên.
Không thấy phì đại hạch trung thất, hạch rốn phổi hai bên.
ĐMC ngực không phình.
Vách thực quản mỏng, không giãn.
Không thấy tổn thương thành ngực. Tuyến giáp không phì đại.
*** KẾT LUẬN:
TD DỊ VẬT PHẾ QUẢN GỐC TRÁI BỎ QUÊN.

Tp. Hồ Chí Minh, ngày 03/03/2025 08:32
(Bác sĩ đã ký)

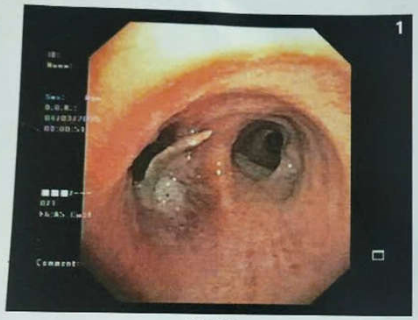
SỞ Y TẾ TP. HCM
BV PHẠM NGỌC THẠCH

PHIẾU TƯỜNG TRÌNH THỦ THUẬT NỘI SOI PHẾ QUẢN

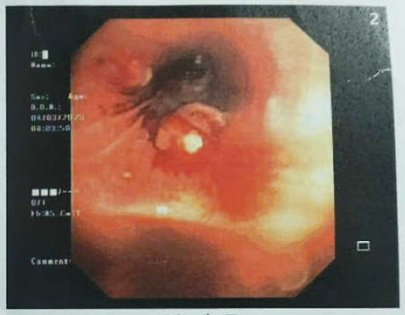
----------oOo----------

Họ và tên :
Địa chỉ: Đồng Nai

Giới : Nam *Năm sinh :* 1977
Mã y tế : 25022354



Carina



PQ gốc (T)

PQ thùy trên và dưới (T)

Dị vật


4
ID:
Name:
Comment:

DỊ VẬT ĐƯỜNG THỞ

- Nguồn gốc: + hữu cơ: xương , thịt,trái cây ,vỏ hạt,hạt đậu,hạt lựu,sapoche…(47%) (không cản quang ,gây ra nhiều biến chứng do có khả năng hấp thu độ ẩm cao ,thường dẫn đến tắc nghẽn đường thở và viêm phổi sau tắc nghẽn. Đồng thời gây ra phản ứng viêm mạnh trong mô phế quản nên lấy dị vật rất khó khăn).

  + vô cơ: đinh ghim ,ốc vít,đồng xu,mảnh nhựa,…

- Vị trí: tính chất dị vật quyết định vị trí
- Lâm sàng:-Hội chứng xâm nhập

  -Dị vật thanh quản:khó thở thanh quản

  -Dị vật khí quản:khó thở 2 thì

  -Dị vật phế quản:hội chứng xâm nhập+nhiễm trùng hô hấp.

CHẨN ĐOÁN

-Lâm sàng: có thể từ không triệu chứng đến trường hợp cấp cứu đe dọa tính mạng .

+cấp tính: ho,đau ngực,khó thở

+bán cấp: ho ra máu ,viêm phổi sau tắc nghẽn, abces phổi,…

+ triệu chứng phổ biến: ho(56-98%) ;thở khò khè,khó thở ,đau ngực (35%) ; ho ra máu tái phát (24%) ;viêm phổi sau tắc nghẽn .

-Cận lâm sàng:

+XQ:hình ảnh cản quang của dị vật,xẹp phổi,viêm phổi…

+MSCT:phát hiện dị vật dù kích thước nhỏ,không cản quang

+Nội soi:(thanh khí phế quản):xác định và gắp dị vật

Accuracy of Chest X-Ray in the Diagnosis of Tracheobronchial Foreign Bodies in Children

Hamid Reza Mansourian, Abdol-Reza Sadrearhami, Amir Abbas Shadman Yazdi
Department of Radiology, Shaheed Sadoughi University of Medical Sciences, YAZD – IRAN.

ABSTRACT

Background: *Tracheobronchial foreign body (TFB) aspiration is a common cause of mortality and morbidity in early childhood. The aim of this study was to evaluate the diagnostic value of chest x-ray in tracheobronchial foreign body aspiration among a group of Iranian children.*

Materials and Methods: *We evaluated 32 children who underwent bronchoscopy for suspected airway foreign bodies. We reviewed the patients' age, symptoms, duration of symptoms, prebronchoscopy posterior-anterior x-rays, type of foreign body, and anatomic location of foreign body. Sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV), and accuracy indices of chest x-ray for the diagnosis of TFB aspiration were measured in this study.*

Results: *The mean age of patients was 30 months (range 6–54 months), and 19(59.4%) were males. Among 32 patients who underwent bronchoscopy, foreign body was found and removed in 26 (81.2%) of them. Foreign bodies observed were the hull of nuts in 10 (38.5%), pomegranate seeds in 6 (23%), beans in 4 (15.4%), and some food products such as meat in two (7.7%) children. Chest x-ray was normal in 12 patients (37.5%). The most common symptom was cough in 80% of patients; followed by wheezing in 60%, tachypnea in 40%, dyspnea in 20%, and stridor in 5%. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy of expiratory chest radiography in this study were 65%, 50%, 85%, 25%, and 62.5%, respectively.*

Conclusion: *Chest x-ray is not specific for diagnosis of foreign body aspiration, and a normal chest x-ray does not always rule out the diagnosis of foreign body aspiration in patients with a history suggestive of foreign body aspiration and positive physical examinations.* ***(Tanaffos 2008; 7(1): 58-62)***

Foreign Body in the Tracheobronchial Tree as a Cause of Hemoptysis in an Adult Without Risk Factors for Aspiration: A Case Report

Vasiliki E. Georgakopoulou [1], Kyriakos Tarantinos [2], Dimitrios Mermigkis [2]

1. Department of Pathophysiology and Pulmonology, Laiko General Hospital, Athens, GRC 2. Department of Pulmonology, Sismanogleio General Hospital, Athens, GRC

Corresponding author: Vasiliki E. Georgakopoulou, vaso_georgakopoulou@hotmail.com

Abstract

Although aspiration of a foreign body into the trachea and bronchi can occur in all age groups, it is more common in infants and young children. Foreign bodies in the tracheobronchial tree are uncommon in adults and mainly present in patients with dysphagia and an altered level of consciousness. The identification of foreign bodies in the tracheobronchial tree is frequently overlooked or delayed, leading patients to present later with chronic symptoms and potential complications. These complications may include persistent coughing, wheezing, obstructive pneumonitis, bronchiectasis, and abscess formation secondary to recurrent pulmonary infections. This article aims to present the case of a 27-year-old patient without risk factors for aspiration who has experienced recurrent self-limiting hemoptysis episodes for five years. Bronchoscopy revealed a foreign body at the entrance to the middle lobe bronchus. The presence of a foreign body in the tracheobronchial tree should be considered in any patient with recurrent hemoptysis. Bronchoscopy leads to accurate diagnosis, treatment, and prevention of complications.

Categories: Internal Medicine, Pulmonology, Therapeutics
Keywords: tracheobronchial tree, cough, hemoptysis, bronchoscopy, foreign body

Introduction

Hemoptysis, the expectoration of blood originating from the respiratory tract, is a concerning symptom that warrants thorough investigation and management. While it often indicates underlying pulmonary pathology such as infection, inflammation, or neoplasm, it can occasionally stem from less common etiologies [1]. Among these, foreign body aspiration into the tracheobronchial tree stands as a rare but potentially life-threatening cause, particularly in adults without predisposing risk factors [2].

Foreign body aspiration is more commonly associated with pediatric populations, often occurring during exploration or ingestion of small objects. However, its occurrence in adults, especially those without evident risk factors such as impaired consciousness, neuromuscular disorders, or altered mental status, presents a diagnostic challenge due to its rarity and the potential for delayed recognition [3].

The insidious nature of foreign body aspiration in adults, coupled with its diverse clinical manifestations, underscores the importance of considering this diagnosis even in patients lacking traditional predisposing factors. The clinical presentation of foreign body aspiration can vary widely, ranging from asymptomatic cases to severe respiratory distress or even fatal outcomes if not promptly recognized and managed [4]. Hemoptysis, although less commonly associated with foreign body aspiration compared to cough, dyspnea, or wheezing, can serve as a sentinel sign warranting further investigation [5]. The presence of hemoptysis in

Case Presentation

A 27-year-old non-smoking patient with a reported history of bronchial asthma treated with inhaled budesonide or formoterol presented due to recurrent self-limiting episodes of hemoptysis for five years without further investigation. The patient underwent a chest X-ray, which revealed no abnormalities (Figure *1*).

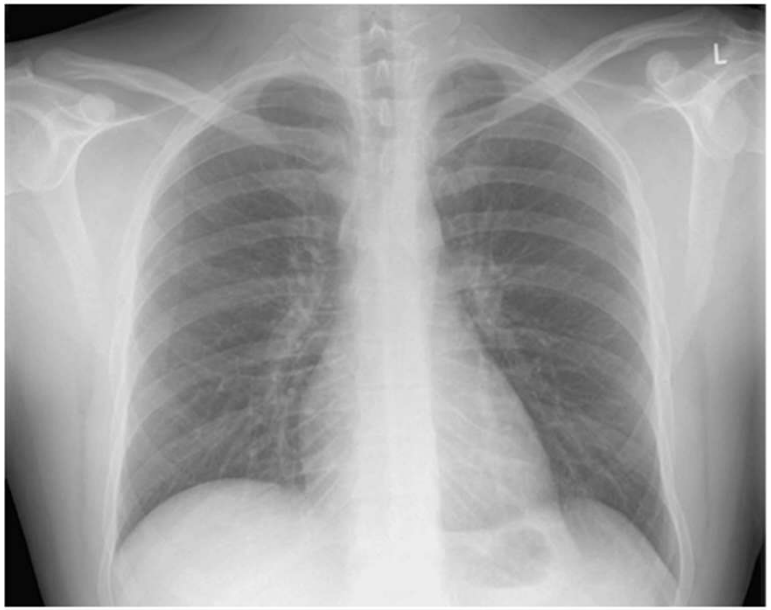


FIGURE 1: Chest X-ray

The patient also underwent blood clotting testing with a complete blood count and testing for prothrombin time, international normalized ratio, and partial thromboplastin time, which also did not reveal any abnormalities. Subsequently, a CT of the chest was performed, revealing the presence of a foreign body in the right bronchus intermedius (Figure *2*).

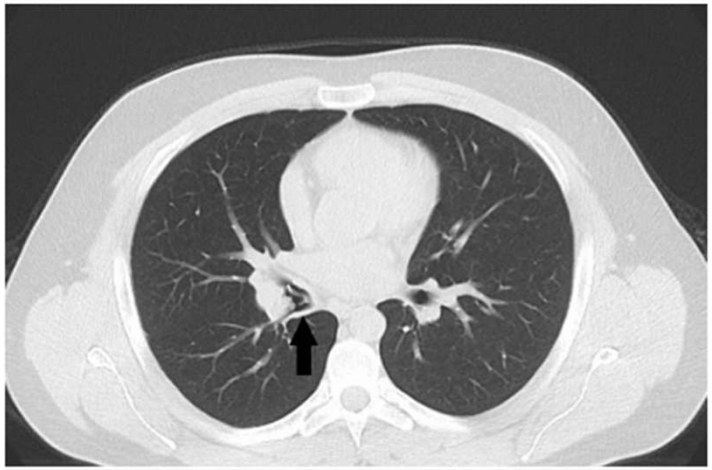


FIGURE 2: CT of the chest

The arrow shows the foreign body in the right bronchus intermedius.

The patient underwent bronchoscopy, which revealed a foreign body at the entrance to the middle lobe bronchus (Figure 3A), which, after removal, proved to be a piece of plastic cap (Figure 3B). After the removal of the foreign body, multiple polypoid lesions with hemorrhagic dispositions were revealed (Figure 3C).

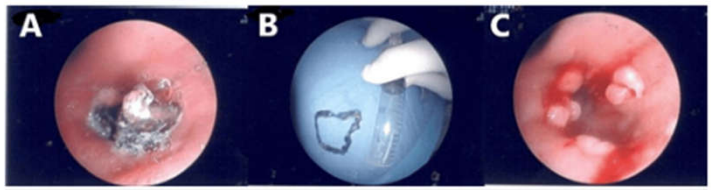


FIGURE 3: (A) Foreign body at the entrance to the middle lobe bronchus. (B) The foreign body was identified as a piece of a bottle cap. (C) After the removal of the foreign body, multiple polypoid lesions with hemorrhagic dispositions were revealed.

The patient was questioned about foreign body ingestion during the five-year period of intermittent hemoptysis, and he denied any ingestion. Follow-up evaluations at three and six months revealed no new episodes of hemoptysis.

PROLONGED HEMOPTYSIS DUE TO ENDOBRONCHIAL FOREIGN BODY

Kelvin K. Shiu, DO, PhD · Patricia Villamena, MD · Zab Mosenifar, MD

Abstract

INTRODUCTION: Endobronchial foreign bodies usually present with cough and complications of obstruction such as atelectasis or pneumonia. We present a case of hemoptysis for two years caused by a foreign body.

CASE PRESENTATION: A 66-year-old white male presented to his primary care physician with a chief complaint of hemoptysis. Over a two-year period, the hemoptysis was scant and intermittent. He was a non-smoker with a history of only hypertension treated with amlodipine 5 mg daily and gastroesophageal reflux treated with lansoprazole 30 mg daily. CT scans of the chest and paranasal sinuses were normal, as were spirometry, lung volumes and carbon monoxide diffusing capacity. Laboratory studies showed no abnormalities. The patient was treated with several courses of antibiotics with no improvement, and a laryngologic examination was negative. A flexible bronchoscopy revealed an obstruction that occluded about 50% of the lumen of the bronchus intermedius. There was mild edema of the area, and the proximal portion of the occlusion showed polypoid granulation tissue emanating from the medial aspect of the bronchus with a yellowish mucous-like concretion. Distal to it was a lobulated mass protruding from the lateral aspect of the airway. A biopsy of the abnormality revealed inflammation, granulation tissue and plant matter with bacteria. Bronchoalveolar lavage was negative. A subsequent rigid bronchoscopy with laser exfulguration was performed, and a protruding foreign body was revealed which was extracted with difficulty. Pathology identified it as a pistachio nut shell. The distal bronchus was patent with mild edema of the distal segments. Patient tolerated the procedure well, and had no more hemoptysis. He had no recollection of aspiration events at any time.

DISCUSSIONS: Most endobronchial foreign bodies occur in children, and present with cough and obstructive sequelae such as atelectasis or pneumonia. Hemoptysis is uncommon, and distinctly rare without these sequelae. In this case, the patient had only hemoptysis for two years, and repeat CT scans of the chest did not reveal the foreign body. Also, it illustrates that patients with this disorder need not present with the classic risk factors for aspiration, nor recall that the event happened.

The clinical features of foreign body aspiration into the lower airway in geriatric patients

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Purpose: To analyze the clinical features of foreign-body aspiration into the lower airway in geriatric patients.

Patients and methods: The clinical data of 17 geriatric patients with foreign-body aspiration were retrospectively analyzed and compared with 26 nongeriatric adult patients. The data were collected from Peking University First Hospital and Anhui Chest Hospital between January 2000 and June 2014.

Results: (1) In the geriatric group, the most common symptoms were cough and sputum (15 cases, 88%), dyspnea (six cases, 35%), and hemoptysis (four cases, 24%). Five patients (29%) in the geriatric group could supply the history of aspiration on their first visit to doctor, a smaller percentage than in the nongeriatric group (13 cases, 50%). Only three cases in the geriatric group were diagnosed definitely without delay. Another 14 cases were misdiagnosed as pneumonia or lung cancer, and the time of delayed diagnosis ranged from 1 month to 3 years. Complications due to delay in diagnosis included obstructive pneumonitis, atelectasis, lung abscess, and pleural effusion. (2) Chest computed tomography demonstrated the foreign body in three cases (21%) in the geriatric group, which was lower than the positive proportion of detection in the nongeriatric group (nine cases, 35%). The most common type of foreign body in the geriatric group was food, such as bone fragments (seven cases, 41%) and plants (seven cases, 41%), and the foreign body was most often lodged in the right bronchus tree (eleven cases, 65%), especially the right lower bronchus (seven cases, 41%). Flexible bronchoscopy removed the foreign body successfully in all patients.

Conclusion: The clinical features of foreign-body aspiration in geriatric patients are usually more obscure than in nongeriatric adults, which may lead to long delay in diagnosis. Flexible bronchoscopy is safe and useful for early diagnosis and effective management in geriatric patients. We suggest flexible bronchoscopy as the first-line approach to similar patients, especially those with aspiration history and unexplained pneumonia.

body aspiration, false-negative results of direct presentation by chest computed tomography (CT), delayed application of flexible bronchoscopy, and other reasons. Identification and removal of the foreign body is of vital importance to avoid complications such as recurrent pneumonia, hemoptysis, and granulation formation. However, the information about airway foreign-body aspiration in geriatric patients is limited. To investigate the clinical features of airway foreign-body aspiration in geriatric patients and to improve diagnosis and treatment in this patient group, we analyzed the clinical data of 17 geriatric patients with foreign-body aspiration over the past 14 years and compared them with results from 26 nongeriatric adult patients in the same period.

Materials and methods

Study design

In this retrospective study, we analyzed the medical records of adults patients with foreign-body aspiration treated at Peking University First Hospital or Anhui Chest Hospital between January 2000 and June 2014. Patients older than 18 years of age with definitively diagnosed foreign-body aspiration into the lower airway were enrolled. Symptoms, aspiration history, chest CT presentations, and treatments were reviewed. The nature and lodgment site of the foreign body were recorded. Patients older than 65 years of age were included in the geriatric group.

Endoscopic procedures

Flexible bronchoscopes were used in all patients. Topical anesthesia was given intranasally using lidocaine for the first attempt of flexible bronchoscopy in all the patients. Patients with a high risk for hemorrhage and asphyxia (eight patients) were given general anesthesia for the second attempt of flexible bronchoscopy. The accessories to remove the foreign bodies included foreign-body forceps, biopsy forceps, snares, and foreign-body baskets. Other techniques included argon plasma coagulation and cryotherapy.

Data analysis

The data of the patients, including age, sex, symptoms, chest CT images, process of diagnosis and treatment, and endoscopic findings, including the types and locations of foreign body, were collected and analyzed.

Results

Clinical manifestations

Of the 43 adults examined, 30 were male and 13 were female. The range of age was from 18–83 years, with a mean age of 56 years. Seventeen patients (40%) were older than 65 years of age. The most common symptoms among these patients were cough and sputum (15 cases, 88%), dyspnea (six cases, 35%), and hemoptysis (four cases, 24%) (Table 1). Although five of the 17 patients (30%) could supply the history of aspiration on their first visit to doctor, only three cases were immediately definitively diagnosed. The remaining 14 cases were misdiagnosed as pneumonia (13 cases) or lung cancer (one case), and the time of delay in diagnosis ranged from 1 month to 3 years. In the nongeriatric group (n=26), 13 patients (50%) could supply the history of aspiration on their first visit to doctor. Two patients were immediately definitively diagnosed. The remaining 24 cases were misdiagnosed as pneumonia (23 cases) or lung cancer (one case) and the time of delayed diagnosis ranged from 6 days to 10 years.

Chest CT

The most common presentation of foreign-body aspiration on chest CT was pneumonic patch (13 cases, 93%). In the geriatric group, chest CT identified the foreign body in three patients (21%), while in the nongeriatric group, it was detectable in nine patients (35%). The nondirect presentation on chest CT findings is shown in Table 2.

Foreign body

The types of foreign bodies are listed in Table 3. Food accounted for more than 80% of foreign-body features, both

Table 1 Characteristics of symptoms and aspiration history of patients

	>65 years, cases (%)	≤65 years, cases (%)
Cough, sputum	15 (88)	25 (96)
Dyspnea	6 (35)	6 (23)
Hemoptysis	4 (24)	1 (4)
Fever	2 (12)	2 (8)
Chest pain	1 (6)	4 (15)
Supply the history of aspiration initially	5 (29)	13 (50)
Recall the history of aspiration after flexible bronchoscopy	9 (53)	12 (46)
Time for correct diagnosis	0–3 years	0–10 years

atric group. Plants and melon seeds were easily seen, with a proportion of 41% in the geriatric group (Figure 2). The proportion of iatrogenic foreign bodies (such as dentures and trachea cannulas after tracheal incision) was much higher in the geriatric group. The location and frequency of foreign-body aspiration is shown in Table 4. Lodgment was more frequently observed in the right bronchial tree.

Flexible bronchoscopy

In the geriatric group, 14 patients (79%) were misdiagnosed as having pneumonia or suspicion of lung cancer; the misdiagnoses persisted for 1 month to 3 years. In the nongeriatric group, more than 90% of patients were misdiagnosed as having other respiratory disease, also for several years. All patients were confirmed as having experienced foreign-body aspiration by flexible bronchoscopy. All of the foreign bodies were successfully removed by flexible bronchoscopy. In the geriatric group, 13 cases (76%) were resolved successfully on the first attempt and another four cases (24%) were resolved successfully on the second attempt. In the nongeriatric group, the success rate of the first attempt to remove the foreign body by flexible bronchoscopy was 85% (22 cases); four patients (15%) required a second flexible bronchoscopy. Among the

Table 3 Types of foreign body

	>65 years, cases (%)	≤65 years, cases (%)
Bones	7 (41)	13 (50)
Vegetable/melon seeds	7 (41)	9 (35)
Metal	0	1 (4)
Plastic	0	2 (8)
Iatrogenic	3 (18)	1 (4)

Discussion

Airway foreign-body aspiration occurs more commonly in children, and about 75% of cases occur in children younger than 3 years of age.[2,3] Although foreign-body aspiration is relatively rare for adults, when it does occur it is usually seen in adults older than 60 years of age,[3,4] which is probably due to abnormal airway protection mechanisms. Aging-associated pathological status, impaired cough reflex and dysphagia, medications, and many other circumstances may contribute to

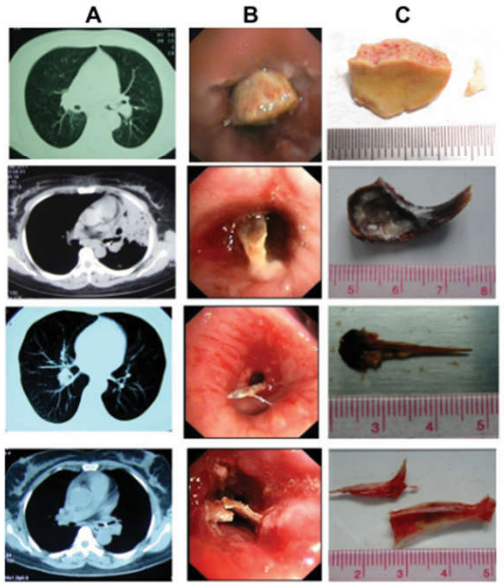

Figure 1 The presentation of airway foreign bodies (chicken bones and fish bones).
Notes: Chest computed tomography (**A**), bronchoscopy (**B**), and photographs of the foreign bodies (**C**).

Figure 2 The presentation of airway foreign bodies (chili, pea, melon seed, and sunflower seed).
Notes: Chest computed tomography (**A**), bronchoscopy (**B**), and photographs of the foreign bodies (**C**).

the increased risk for airway foreign-body aspiration events in the elderly. However, the clinical information about geriatric airway foreign-body aspiration is limited. To understand the clinical features of airway foreign-body aspiration in geriatric patients for better diagnosis and treatment, we retrospectively analyzed the data of geriatric patients.

Because of the nonspecificity of clinical presentations, adult airway foreign-body aspiration is easily misdiagnosed, of or ignorance of aspiration history, and the lack of direct evidence of the existence of a foreign body on chest CT were the probable reasons for misdiagnosis in geriatric patients. We will discuss these in detail below.

As far as the symptoms are concerned, the clinical presentation of lower airway foreign-body aspiration is dependent on the site of foreign-body impaction. If the foreign body is aspirated into the tracheal region, inspiratory stridor with bouts of coughing can occur. If the foreign body passes into the bronchi, the symptoms can be variable and can range from minimal to obvious, such as coughing, sputum, wheezing, and choking. But the classic triad of cough, wheezing, and choking is only observed in a small percentage of patients.[4,6] In our study, the common symptoms in the geriatric group were cough, sputum, dyspnea, and hemoptysis, similar to the results in published literature.[4] No classic triad was observed. These symptoms may be obscure and nonspecific and may mimic other respiratory diseases, such as pneumonia or bronchitis, or be regarded as the exacerbation of basal disease in geriatric patients (for example, acute exacerbation of chronic obstructive pulmonary disease). Nonspecific respiratory symptoms may be mistakenly attributed to other medical conditions unless there is a clear history of aspiration, with enough attention paid to this.

Due to the little contribution of symptoms to the confirmative diagnosis of airway aspiration, doctors should emphasize the importance of aspiration history. In our study, about 30% of geriatric patients and 50% of nongeriatric patients could supply their history of aspiration on their first visit to doctor. The low proportion of recognition of aspiration in the geriatric group was probably due to the confused or damaged

Foreign body aspiration

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Abstract: The clinical manifestations of foreign body (FB) aspiration can range from an asymptomatic presentation to a life-threatening emergency. Patients may present with acute onset cough, chest pain, breathlessness or sub-acutely with unexplained hemoptysis, non-resolving pneumonia and at times, as an incidental finding on imaging. Patients with iatrogenic FB such as an aspirated broken tooth during difficult intubation or a broken instrument are more common scenarios in the intensive care unit (ICU). Patients with post-obstructive pneumonia with or without sepsis, or variable degree of hemoptysis often require ICU level of care and bronchoscopic interventions. Rigid bronchoscopy has traditionally been the modality of choice; however, with the innovation in instrumentation and wider availability of flexible bronchoscopes, most of the FB removal is now successfully performed using flexible bronchoscopy. Proceduralists choose instruments in accordance with their training and expertise. We describe the use of most common instruments including forceps, balloon catheters, and baskets. Role of cryoprobe and LASER in FB removal is reviewed as well. In general, larger working channel bronchoscopes are preferred; however, smaller working channel bronchoscopes may be used in situations when the patients are intubated with a smaller diameter endotracheal or tracheostomy tubes. Large size FB are removed *en bloc* with the grasping tool, bronchoscope, and endotracheal or tracheostomy tube, requiring preparation to safely re-establish the airway. After FB removal, bronchoscopy is re-performed to identify any residual FB, assess any injury to the airway, suction post-obstructive secretions or pus, control any active bleeding and remove granulation tissue that may be obstructing the airway. Additional interventions like balloon dilatation may be required to dislodge an impacted FB or to maintain patency of bronchial lumen. If bronchoscopic methods fail, surgery may be required for retrieval of FB in symptomatic patients or to resect suppurative or necrotizing lung process. Multidisciplinary approach involving intensivists, surgeons, and anesthesiologists is the key to optimal patient outcomes.

lung abscess formation. Patients who present with acute respiratory failure and require intensive care unit (ICU) admission may have large volume hemoptysis, sepsis from post-obstructive pneumonia, or gas exchange abnormalities due to combination of significant airway obstruction and pre-existing co-morbidities. As such, these patients require timely interventions to remove the FB in order to relieve the obstruction to achieve source control.

A German laryngologist, Gustav Killian, is credited to be the first one to have removed a pork bone from a patient's trachea using a rigid esophagoscope in 1897 (2). This opened the era of rigid bronchoscopy which became a widely used method of FB removal worldwide. Advancement in technology and introduction of flexible bronchoscopy has made it easier to achieve similar results as rigid bronchoscopy in most situations and as such, it is now the preferred approach for FB extraction (3-5). Even so, rigid bronchoscopy holds its utility in select situations, especially in children (4).

In this comprehensive review, we discuss the role of bronchoscopic tools and intervention techniques for FB removal in the ICU.

Clinical presentation

The clinical presentation of FB aspiration varies among children and adults. Due to relatively small diameter of the tracheobronchial tree, FB gets lodged in the proximal airways in children resulting in stridor and acute respiratory distress. However, adults usually present with symptoms resulting from distal impaction of the FB. It is more common for a FB to get impacted in the right bronchial tree due to the straighter alignment of the right mainstem with trachea compared to left. Among adults, most studies show high incidence of FB aspiration in the 45–60 year age group (5-7). Often, adult patients have predisposing risk factors for aspiration, which may include altered mental status, alcohol or drug intoxication, neuromuscular weakness. In certain cases, FB aspiration can also be iatrogenic.

The most common presenting symptom of FB aspiration is cough, which is a primitive airway protective reflex, and is observed in 58–96% of the cases (8-11). Other symptoms include wheezing, dyspnea, chest pain, hemoptysis, and recurrent post-obstructive pneumonia (3,12). Multiple case series have reported that patients often do not recall the aspiration event and, therefore, do not report it (5,7,8,10,13). This may result in a delayed diagnosis, sometimes for like obstructive emphysema due to ball-valve mechanism, bronchial stenosis, post-obstructive bronchiectasis, necrotizing pneumonia, bronchopleural and broncho-cutaneous fistulas, empyema, and osteomyelitis of the rib (14-19). Therefore, symptoms of non-resolving cough or recurrent bronchitis or pneumonia warrant careful clinical evaluation and FB aspiration must be considered even in patients without risk factors.

Patients with FB aspiration admitted to the ICU often, are the ones who develop life threatening airway obstruction, hemoptysis or respiratory failure. Post-obstructive necrotizing pneumonia secondary to FB aspiration may cause hypoxic respiratory failure and some patients may require ventilator support (*Figure 1*). Rarely, patients may present post-cardiopulmonary arrest after a "choking" episode due to FB aspiration (20,21). In intubated patients, endotracheal tube (ETT) obstruction due to aspirated FB may result in worsening hypoxia and difficulty with oxygenation and ventilation (22,23). The obstruction may be secondary to an aspirated FB or iatrogenic as a result of traumatic intubation, for example, a broken tooth. It is critical to promptly recognize ETT obstruction. Activation of high-pressure alarm on the ventilator, reduced tidal volume delivered, reduced expired end-tidal CO_2, severe hypoxemia and inability to pass the suction catheter down the ETT, all may provide clues to the intensivist (23). Diagnostic bronchoscopy is valuable in these circumstances to both diagnose the cause of obstruction and if due to FB, mechanically dislodge the FB outside the ETT into the tracheobronchial tree. The FB is then removed using the tools and techniques discussed in later sections. Alternatively, consideration may be given to exchange of ETT especially if the FB is firmly lodged in the lumen of ETT.

Types of aspirated foreign bodies

It is important to understand the nature and type of FB aspirated as each FB has distinct characteristics and poses a unique challenge for the bronchoscopist. Also, it helps the proceduralist plan ahead with the choice of tools that may be required for its safe and successful retrieval.

Foreign bodies are broadly classified into: Organic and Inorganic (3). Organic FBs include chicken or fish bones, meat, fruit or vegetable pieces, seeds and tend to be the predominant group (47%) as reported in a literature review by Blanco Ramos *et al.* (5). Inorganic

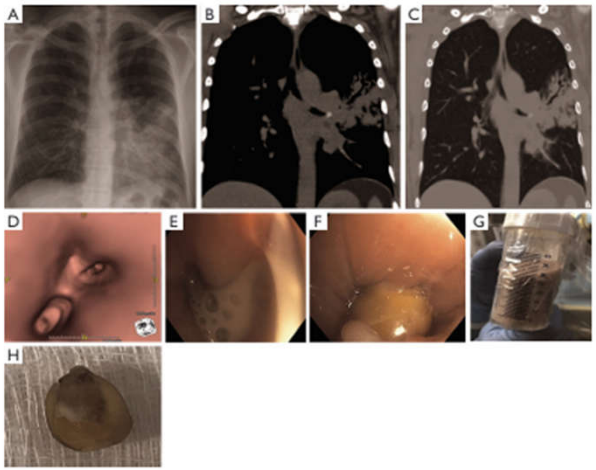

Figure 1 A 46-year old man, never smoker, with history of Asthma presented with non-resolving cough and hemoptysis. He received two prior antibiotic treatments for presumed pneumonia a month apart with mild improvement. Chest imaging revealed findings concerning for necrotizing pneumonia as result of lingular obstruction (A-C). Computed tomography scans revealed high density foreign body (B) and post obstructive bronchiectasis (C). 3-dimensional reconstruction of the tracheobronchial tree was performed to localize the obstruction (D). After receiving intravenous antibiotics for 72 hours, patient was intubated electively given concern for "spill-over" of pus from relief of obstruction. A significant amount of pus was suctioned post-extraction of the foreign body (E-G). Foreign body was determined to be a corn kernel (H). Patient completed a course of antibiotics and had no symptoms on a follow up visit.

etc. Organic FBs are known to cause more complications due to their ability to absorb moisture that often result in airway obstruction and post-obstructive pneumonia. Also, they elicit a strong inflammatory reaction within the bronchial tissue, thus, making their extraction much more challenging (13). The ability to hold moisture does help when using cryoprobe for extraction of organic FB and it is tool of choice for many proceduralists (*Figure 2*). Inorganic FBs do not possess absorbent properties, hence difficult to retrieve using cryoadhesion and require grasping tools.

Patients generally present with accidental aspiration of FB. However, aspiration may be iatrogenic which poses a different set of challenges. Iatrogenic FBs such as tooth (*Figure 3A*), dental prostheses, endoscopic capsules, broken instrument pieces (*Figure 3B*), etc., may get lodged in the airway inadvertently during invasive procedures like endotracheal intubation (24,25), laryngoscopy or rigid bronchoscopy (26), and administration of anesthesia (27). Timely recognition and retrieval are important to prevent any post-obstructive complications such as necrotizing pneumonia, lung abscess, hemoptysis, empyema, and resultant sepsis or respiratory failure.

Diagnostic evaluation

Bronchoscopy is the mainstay in diagnosis and management of FB aspiration. While it may be the only diagnostic modality in emergent situations, when patient is stable, other diagnostic testing may be performed during pre-procedural planning to reduce the complications and

enhance the outcomes.

The initial diagnostic evaluation of patients with suspected FB aspiration includes obtaining a postero-anterior and lateral chest radiograph. The visibility of the aspirated FB depends on its radio-opacity, size, anatomical position in the airway and the patient's body habitus. Organic foreign bodies like food particles and wood are generally radiolucent while inorganic ones like coins, stone particles, metals, glass pieces etc. are radiopaque. It is estimated that only around 26% of the aspirated FBs are radio-opaque and visible on chest radiographs (5). Indirect signs of FB aspiration seen on chest radiography include hyper-lucency suggesting air trapping (*Figure 4*), atelectasis, consolidation, and mediastinal shift. Blanco Ramos *et al.* reported the incidence of these radiological findings from various case series as: Consolidation (43%), atelectasis (15%) and bronchiectasis (5%) though absence of these does not exclude FB aspiration (5).

Computed tomography (CT) of chest helps in localizing and evaluating the nature of the FB and provides better information compared to a plain chest radiograph. The FB is visible on CT in 62% cases and helps in identifying concomitant or indicative consolidation, atelectasis, pleural effusion and bronchial wall abnormalities (28). Intra-operative ultrasonography is occasionally employed to identify sub-pleural radiolucent foreign bodies. Fluoroscopy provides real time images and is rarely used for FB evaluation (29). It has been used intra-procedurally to guide forceps especially, when the FB gets lodged distally (30-32).

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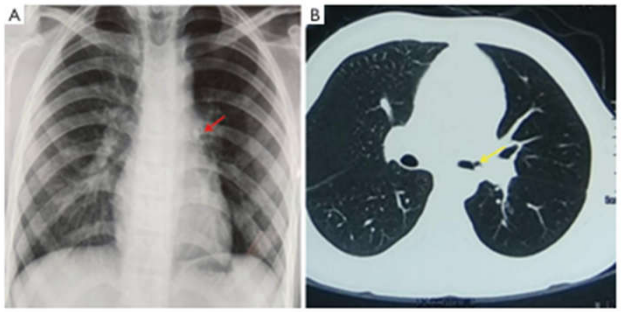

Figure 4 A 13-year-old boy presented with history of whistling sound while breathing. A history of aspirating components of a plastic whistle 6 weeks back was elicited. (A) Chest X-ray demonstrates hyper-lucency of left lung with opacity (red arrow) in left hilar region. (B) Computed tomography showed a reverse C shaped artifact (yellow arrow) in left main bronchus with hyperinflation of left lung fields. A plastic whistle component was removed using sharktooth forceps that revealed significant granulation of the surrounding mucosa that was managed conservatively. Repeat bronchoscopy after 2 months showed normal lumen with mild inflammatory changes.

BÀN LUẬN

- Bệnh nhân khạc ra máu kéo dài 4 tháng,điều trị ở nhiều bệnh viện không khỏi , do đó cần cân nhắc nghi ngờ có dị vật đường thở ở bất kỳ bệnh nhân nào bị ho ra máu tái phát kéo dài.
- Bệnh nhân không nhớ có sặc thức ăn (vì sau sặc ,cảm thấy bình thường nên không nhớ,không đi khám),chỉ có 30% bệnh nhân khai có tiền sử sặc dị vật đường thở trong lần khám đầu tiên nên cần hỏi kỹ bệnh sử.
- Xq ngực có thể không phát hiện dị vật.Theo nghiên cứu trên xq ngực : dị vật cản quang (26%) ; đông đặc(43%) ; xẹp phổi (15%) ; giãn phế quản (5%)
- CT ngực giúp xác định vị trí và đánh giá bản chất của dị vật ,tránh bỏ sót chẩn đoán,chẩn đoán nhầm,chẩn đoán muộn (bn đã đến điều trị tại nhiều bệnh viện trong khoảng thời gian dài ,nhưng không CT ngực nên không phát hiện dị vật)

BÀI HỌC

- Khi có tình trạng ho ra máu mà không có bệnh lý rõ ràng từ phổi hay các yếu tố nguy cơ thì nên nghi ngờ có thể có dị vật đường thở (đặc biệt trong các trường hợp không đáp ứng với các phương thức điều trị thông thường).
- Cần chú ý khai thác kỹ bệnh sử khi có nghi ngờ dị vật đường thở.
- CT ngực nên được chỉ định sớm,dù bệnh nhân có kết quả XQ ngực bình thường.
- Chẩn đoán sớm,chính xác giúp giảm được thời gian và chi phí cho bệnh nhân.

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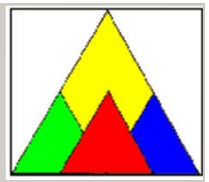

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