CASE-BASED DISCUSSION

A 4-year-old girl with a coin ingestion

ED R1 柯子謙

Sep 10, 2025

6/7 8:38

ER

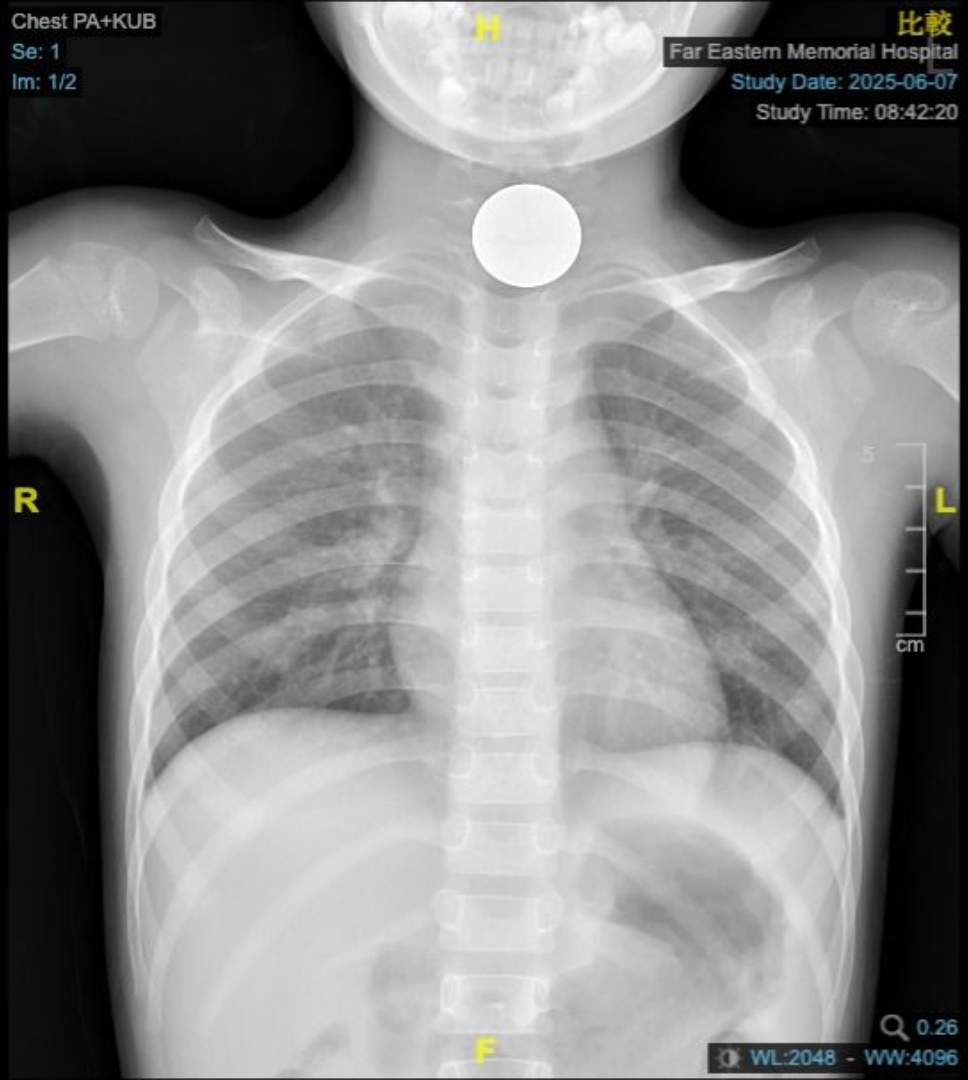
4-year-old girl

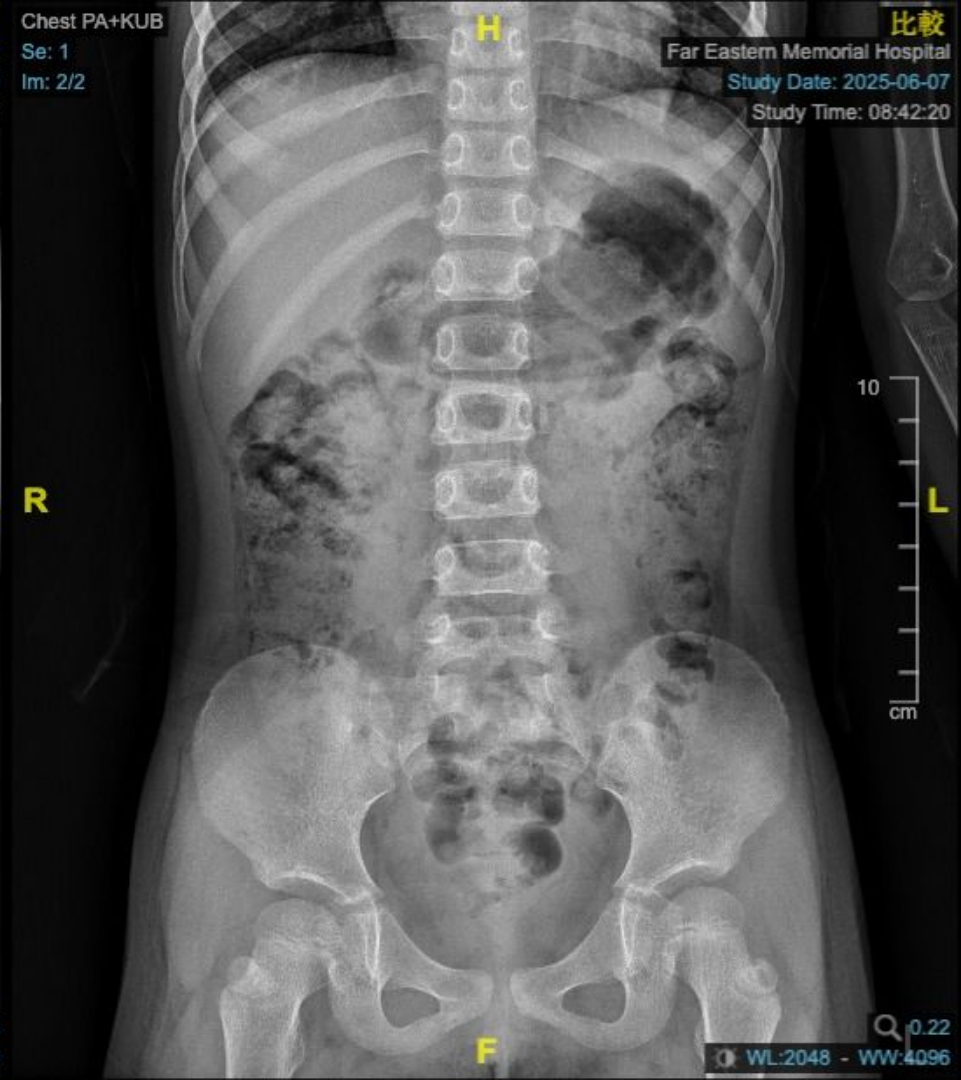
Normal birth history

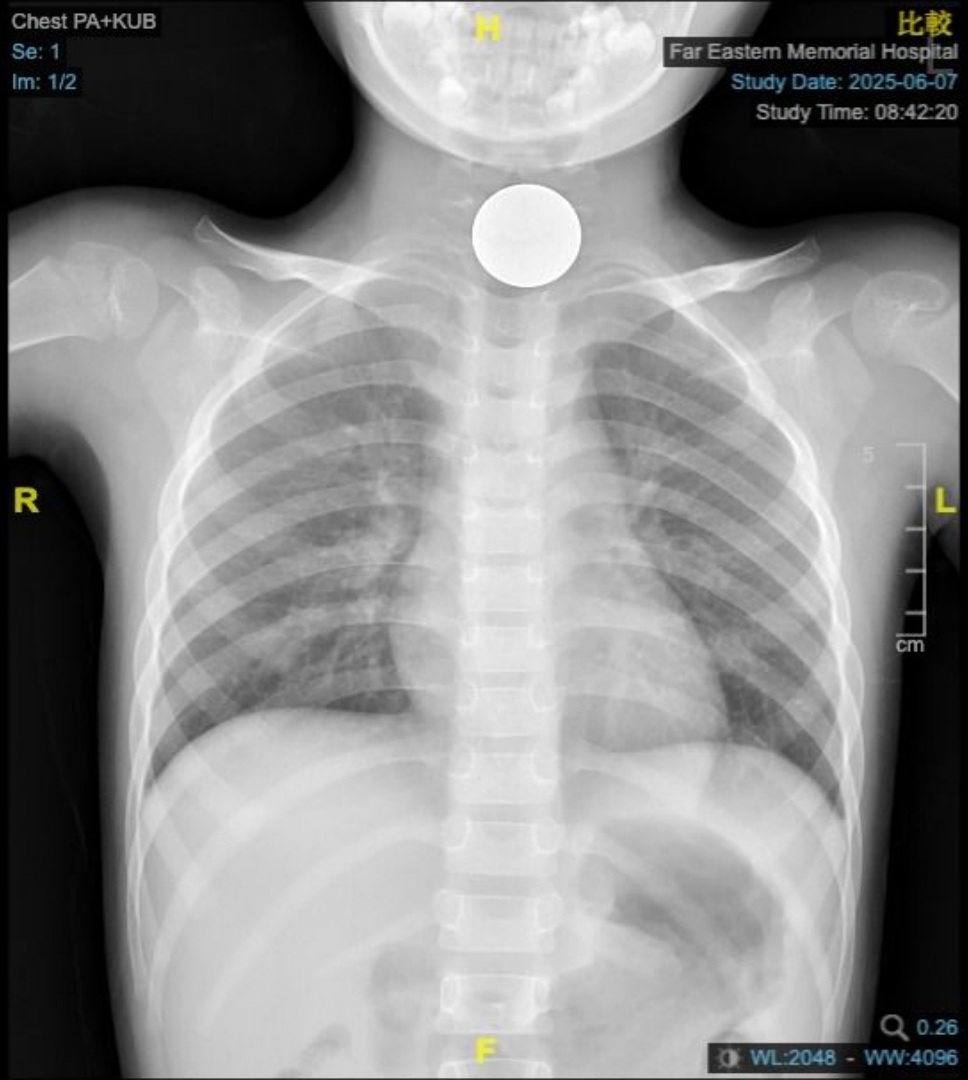
- Brought by mother
- Stating possible misswallowing of a 10 dollar coin

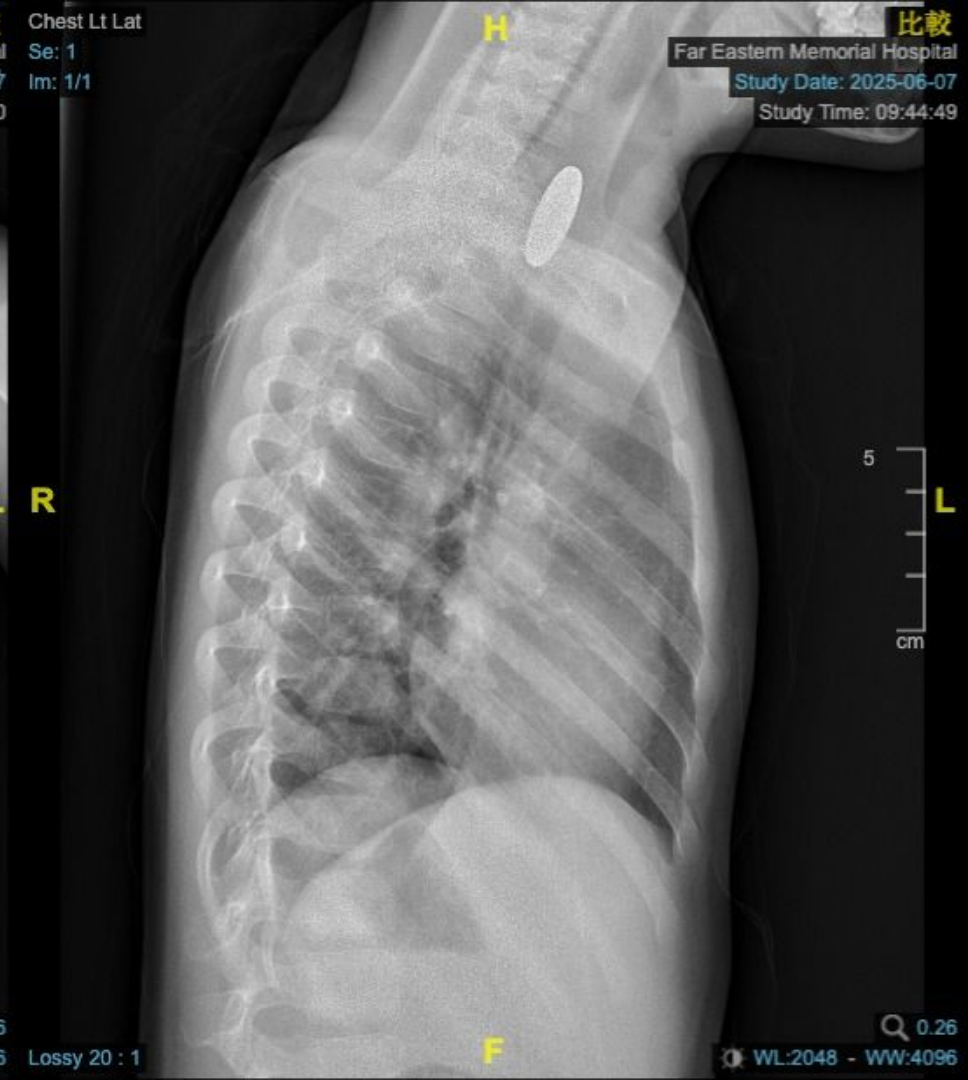
No dyspnea, no stridor, no vomiting

PE: Injected throat


Chest PA+KUB
Se: 1
Im: 1/2
H
比較
Far Eastern Memorial Hospital
Study Date: 2025-06-07
Study Time: 08:42:20
R
L
5
cm
F
0.26
WL:2048 - WW:4096


Chest PA+KUB
Se: 1
Im: 2/2
H
比較
Far Eastern Memorial Hospital
Study Date: 2025-06-07
Study Time: 08:42:20
R
L
10
cm
F
0.22
WL:2048 - WW:4096


Chest PA+KUB
Se: 1
Im: 1/2
H
比較
Far Eastern Memorial Hospital
Study Date: 2025-06-07
Study Time: 08:42:20
R
L
5
cm
F
0.26
WL:2048 - WW:4096


Chest Lt Lat
Se: 1
Im: 1/1
H
比較
Far Eastern Memorial Hospital
Study Date: 2025-06-07
Study Time: 09:44:49
R
L
5
cm
F
0.26
Lossy 20 : 1
WL:2048 - WW:4096

6/7 10:10

ENT consultation

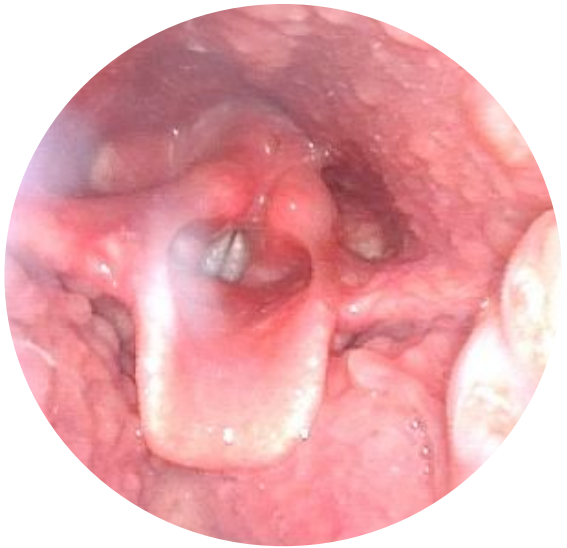
CC: Misswallowing of coin this morning

PI: Persisted lumping and foreign body sensation(+), Odynophagia(+)

Neck lat view: FB in Esophagus

ENT local finding: no FB in oral cavity

Fiber: no obvious FB in ENT field



EKG
INIFNITT
Se: 1
Im: 1/1

比較
Study Date: 2025-06-07
Study Time: 11:38:28

1258315 2025-06-07 11:38:28
0 Year Unknown

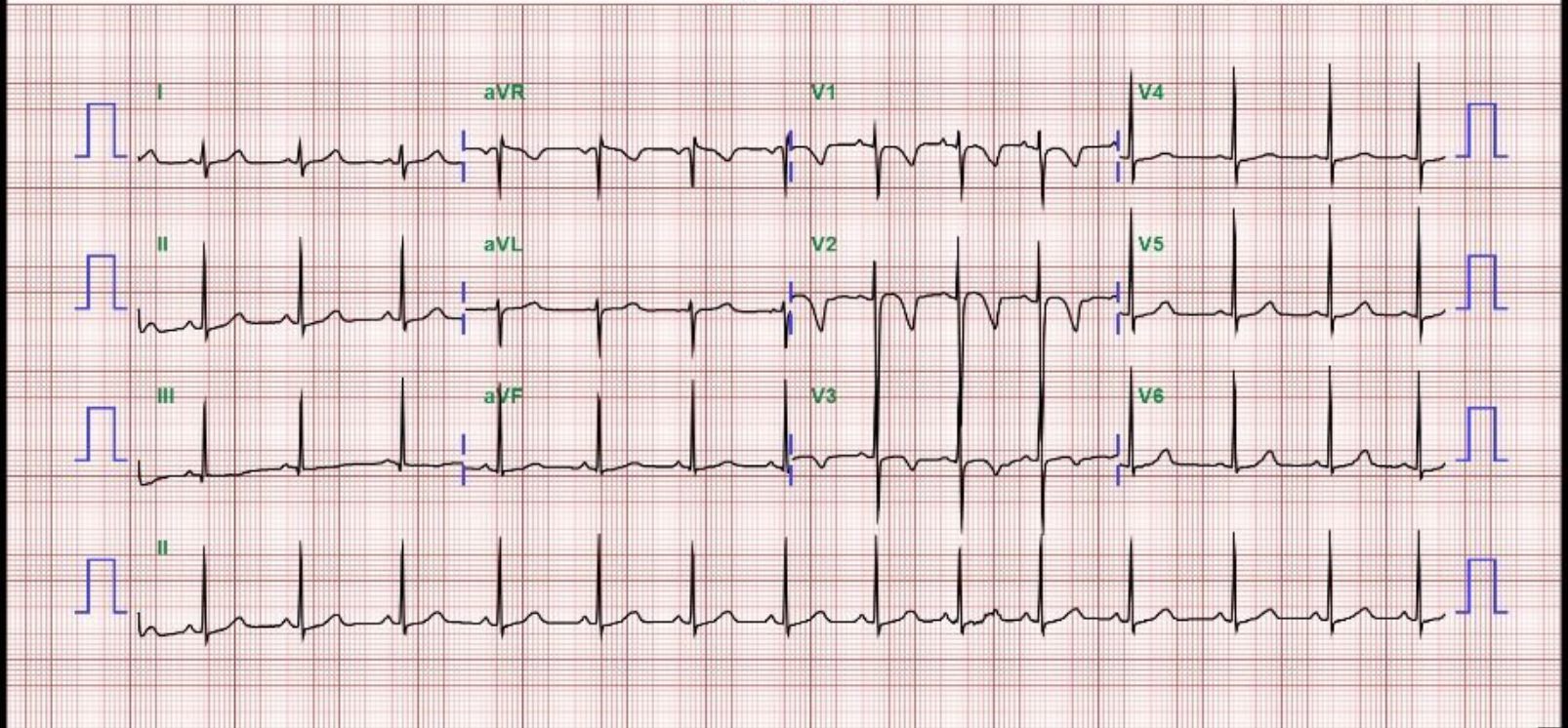
Institution: CV ROOM
Dept:
Room:
Operator:

Rate	84
RR	714
PR interval	135
QRSD	71
QT	386
QTc	457
····· AXIS ·····	
P	112
QRS	85
T	20

Age not entered, assumed to be 50 years old for purpose of ECG interpretation
Sinus rhythm ····· normal P axis, V-rate 50- 99
Consider left ventricular hypertrophy ····· (S V1/V2+R V5/V6) >3.50mV
Abnormal T, probable ischemia, anterior leads ····· T <-0.50mV, V2-V4

[UID : 1997336898]
[PID : 1258315 / Date : 2025-06-07]
Unconfirmed Diagnosis

- ABNORMAL ECG -



0.51

6/7 12:15

Lab

檢驗報告結果列表

最後報告日期：2025-06-07 12:15 (檢體序號： 5067336897)

歷史資料	項目名稱	檢體類別	檢驗報告	單位	正常值 (Low)	正常值 (High)
查看	Na	Blood	128	mmol/L	134	143
查看	K	Blood	4.9	mmol/L	3.3	4.6
查看	Creatinine	Blood	0.26	mg/dL	0.44	0.65
---	Creatinine & eGFR	Blood				
查看	AST	Blood	37	U/L	15	50
查看	Glucose random	Blood	89	mg/dL	70	200
查看	Sample Hemolysis	Blood	2+			

項目名稱	檢體類別	檢驗報告	單位
CBC-I	Blood		
HGB	Blood	13.8	g/dL
HCT	Blood	42.2	%
MCV	Blood	82.6	fL
RBC	Blood	5.11	10^6/µL
MCHC	Blood	32.7	g/dL
WBC	Blood	5.17	10^3/µL
Platelet	Blood	375	10^3/µL
MCH	Blood	27.0	pg
RDW-CV	Blood	13.1	%
PDW	Blood	7.7	fL
MPV	Blood	8.00	fL
Plateletcrit	Blood	0.30	%

6/7 14:01

Operation

Diagnosis: Foreign body in esophagus, s/p removal

ETGA with esophagoscope

Finding: Coin and erosion was noted in the esophagus at 10cm below upper incisor

6/7 16:46

Discharged

Pediatric Esophageal Foreign Bodies and Caustic Ingestions

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Otolaryngologic Clinics of North America journal, 2024
Department of Otolaryngology–Head and Neck Surgery, Eastern Virginia Medical School, USA

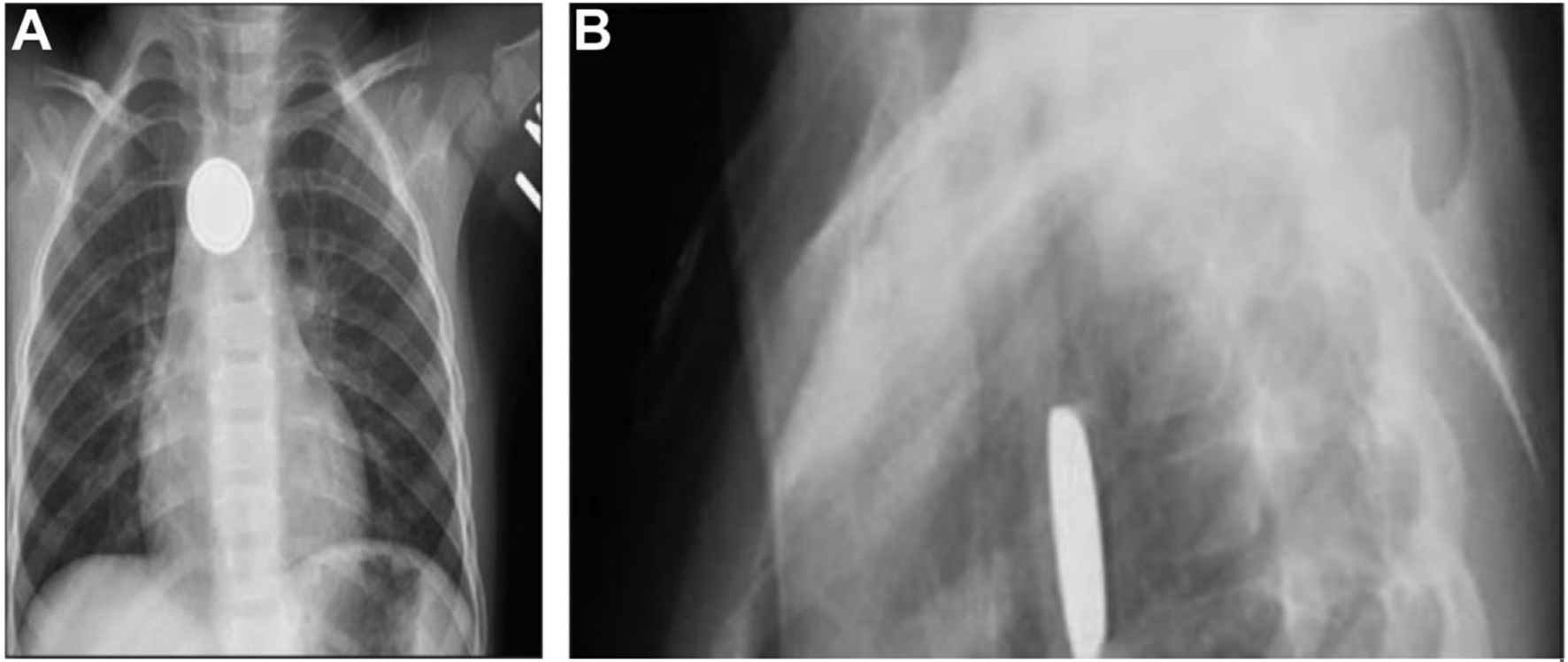
Introduction

- Pediatric Foreign Body Ingestions
  - <6 y/o
  - Psychiatric disease
  - Developmental delay
- Most common object: Coins
  - Toys, jewelry, batteries
- Symptoms
  - Asymptomatic
  - → Severe respiratory distress, dysphagia, chest pain, drooling
  - 1000 pediatric deaths per year

Epidemiology

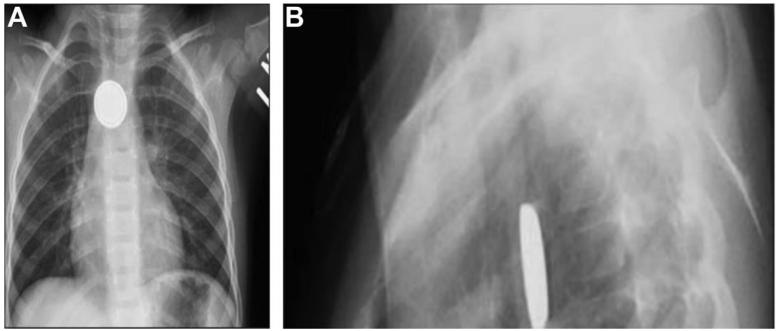
- 100,000 emergency room visits annually
- COVID pandemic → **increase incidence**
- 10% admission
- 80% require intervention
- Prevention
  - Secure packaging
  - Labeling for high-risk products
  - Parental counseling

Button Batteries



Button Batteries

- Lithium
  - Generate electrical current with saliva → **caustic injury**
- >20 mm = High risk
  - Lodge, Perforation, Fistulation
- Increased 6.7 fold in the past 25 years

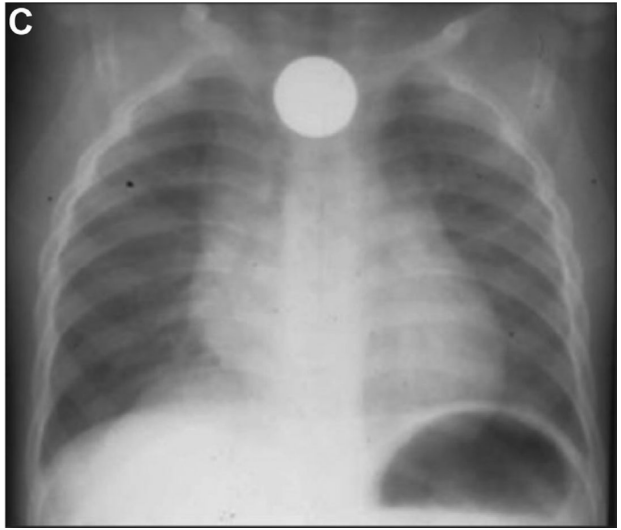


Button Batteries – Management

- Medical emergency → emergent OR removal
- Pre-removal measures (if <12 hrs, >1 yr old)
  - Honey or sucralfate orally
  - Do NOT delay endoscopic removal
- Careful exam for **mucosal damage**
- Irrigate mucosa with acetic acid if no perforation
- Repeat endoscopy in **48–72 hrs** if significant injury
- Close long-term follow-up required for complication

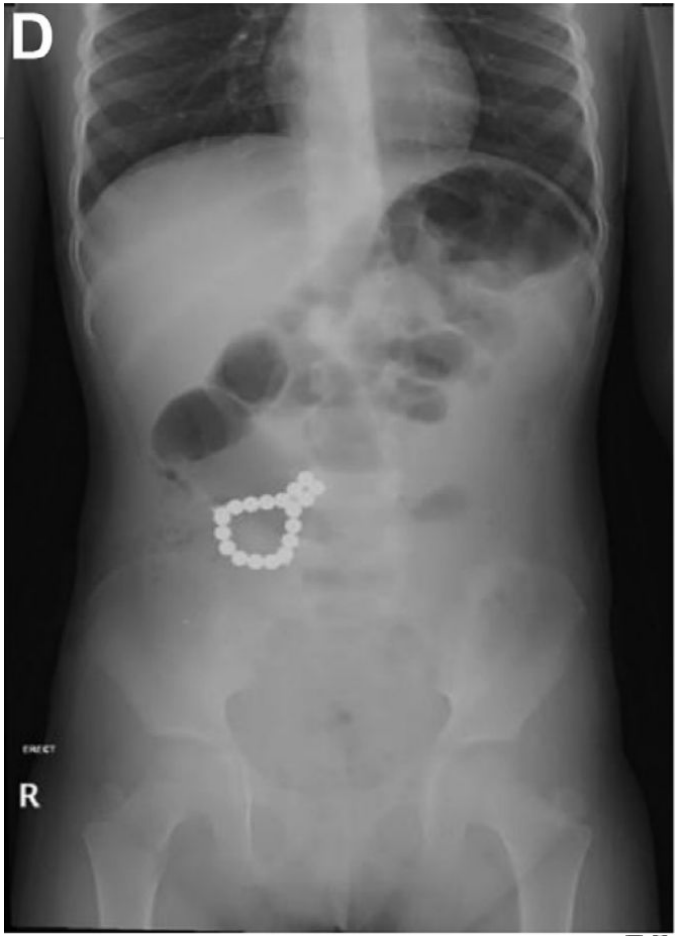
Coins

- Up to 80% of pediatric FB ingestions
- Most common age: 1–3 years
- Few complications unless lodged → **obstruction**
- Natural course: Once in stomach
  → usually passes spontaneously



Magnets

- Multiple magnets: attract across bowel loops → necrosis, perforation, fistula
- Single magnet: avoid external magnets



Food

- More common in adults
- Comorbidities: Eosinophilic esophagitis, anatomic obstructions, and disorders of decreased motility
- Suspect **esophageal disorder**
- Consider biopsy during endoscopic removal

Workup

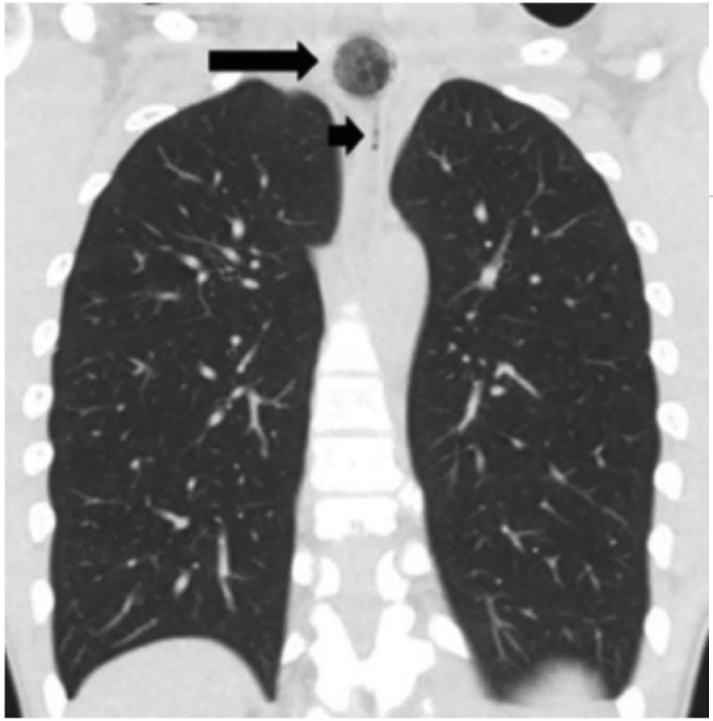
- Head and neck examination r/o FB in other locations
  - ears or nose
- PE warning signs
  - Crepitus, swelling, or erythema of the neck or chest → Perforation?
  - Abdominal rebound tenderness, guarding, and rigidity → Peritonitis?
- Plain film
  - AP & Lat of Neck, Chest, Abdomen
  - Tracheal compression, tracheal deviation, esophageal air trapping, or bowel obstruction → if the object is not visible

Imaging

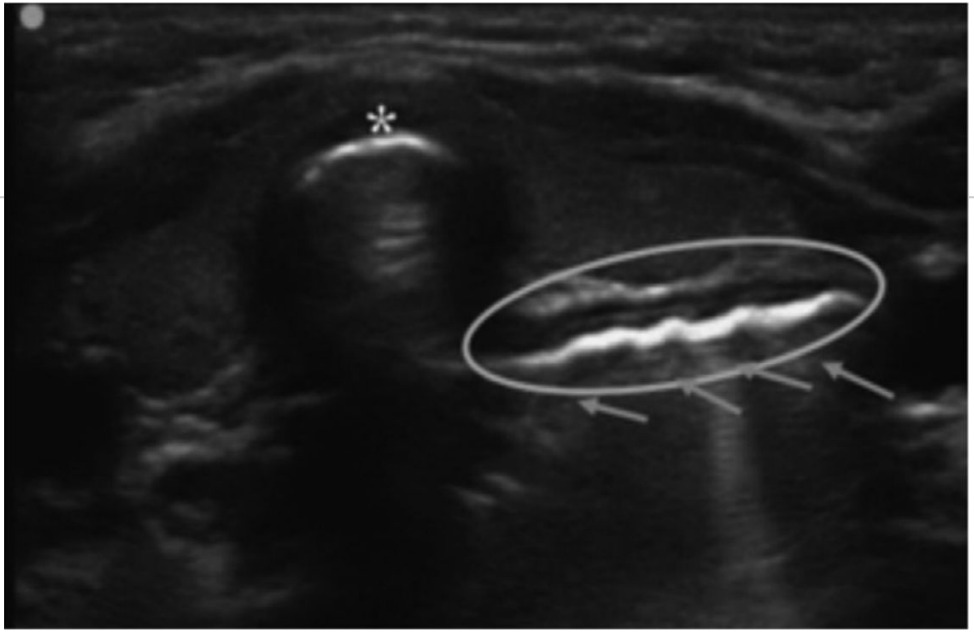
Table 1
Radiopaque and radiolucent objects[1,19,22,23]

Radiopaque	Radiolucent
Coins	Wood
Metals	Plastic
Button batteries	Glass
Magnets	Fish bones
Medications: Iron, potassium chloride, amiodarone, spironolactone, bisoprolol, and lisinopril	Food
	Polymers

- Consider CT if radiolucent
- Ultrasonography for upper esophageal foreign bodies



Plastic bottle cap in the esophagus with trapped air above



A coin with artifact
(* Trachea)

Treatment

- Removal?
  - Time since ingestion, Symptoms, Location in esophagus, Patient's age, Type of object
- Coins (low risk)
  - 25–30% pass spontaneously within 24 hrs
  - Observation: 8–16 hrs with repeat radiograph
- Sharp items, Oily materials (cause mucosal inflammation)
  Button batteries → Require **urgent removal**

Endoscopic removal

- **General anesthesia + endotracheal intubation** (~90%)
- Direct laryngoscopy (Magill forceps)
  - Cervical esophagus or postcricoid region of the larynx
- Esophagoscopy
  - Success rates: Rigid 95.4% vs Flexible 97.4% (no significance)
  - Rigid scope: better for sharp/penetrating FB (protects mucosa)

Bougienage and Foley catheter

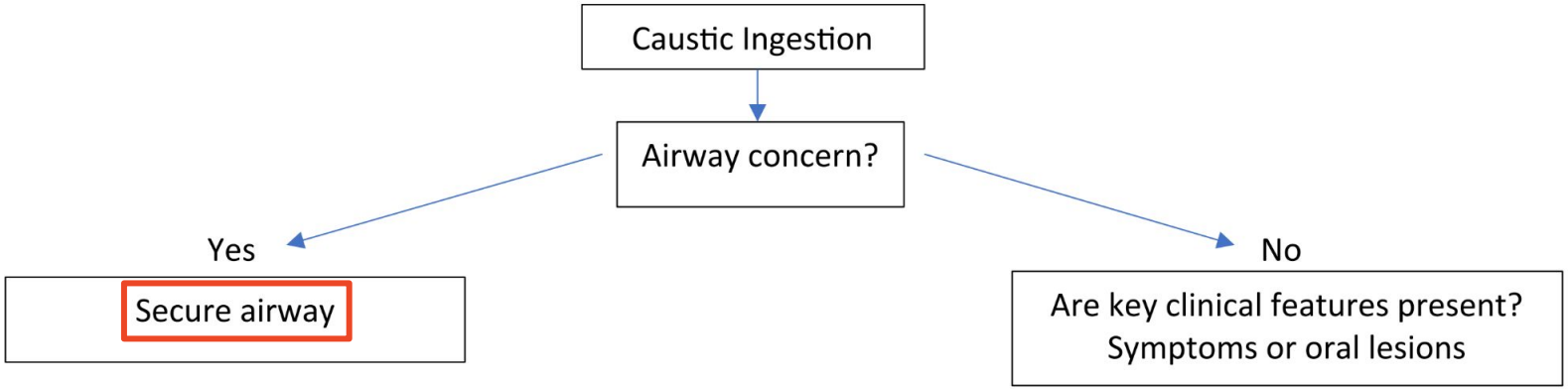
- Bougie dilator
  - uncomplicated coin ingestions
  - pushes object into stomach
  - Success rate: ~94%
- Foley Catheter
  - Foley passed distal to blunt FB
  - → balloon inflated → withdrawn with FB
  - Success rate: >85%
- May avoid need for general anesthesia
  - But airway not protected

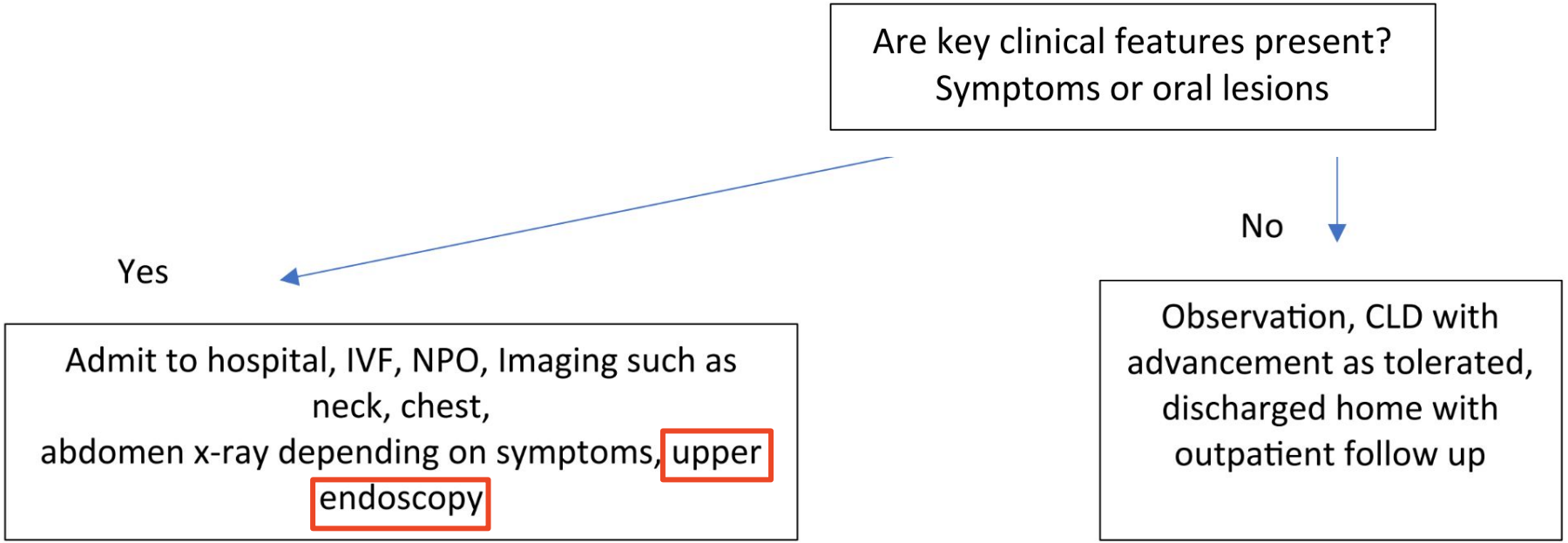
Pediatric Caustic Ingestion

- <5 yrs → accidental ingestion
  - Adolescents/adults → suicide attempts
- Common agents: **Household cleaners** (50%), Bleach (30–40%), Laundry detergent (20%)
- Bases: **liquefactive necrosis** → deep injury, perforation, vascular thrombosis
- Acids: coagulative necrosis → obstruction

Pediatric Caustic Ingestion

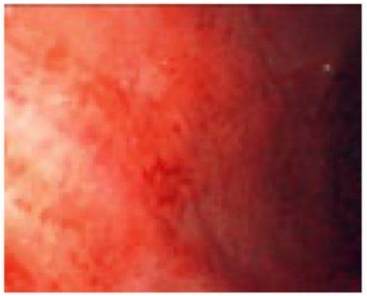
- Presentation: vomiting, dysphagia, odynophagia, chest/abdominal pain, dyspnea, voice change, tachycardia



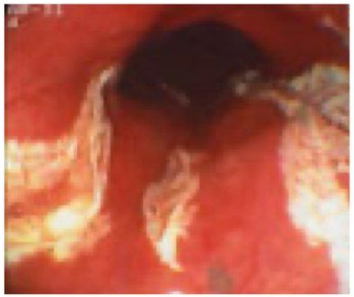

Are key clinical features present?
Symptoms or oral lesions
Yes
No
Admit to hospital, IVF, NPO, Imaging such as neck, chest,
abdomen x-ray depending on symptoms, upper endoscopy
Observation, CLD with advancement as tolerated, discharged home with outpatient follow up

Zargar Classification of Corrosive Injuries

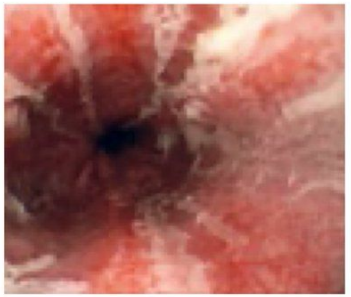
Grade	Endoscopic Findings
I	Edema and erythema
IIA	Hemorrhage, erosions, blisters, superficial ulcers with exudate
IIB	Deep focal or circumferential ulcers
IIIA	Focal necrosis with multiple deep ulcers with brown, black, or gray discoloration
IIIB	Extensive necrosis
IV	Perforation



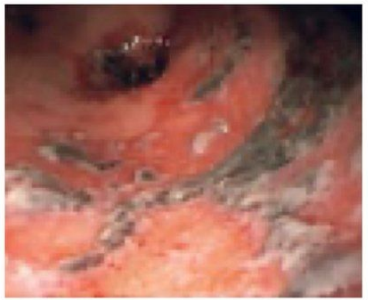
I Edema and erythema



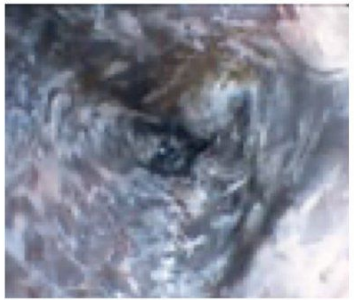
IIA Superficial ulcers with exudate, hemorrhage



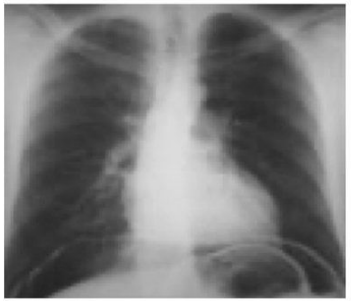
IIB Deep focal or circumferential ulcers



IIIA Focal necrosis with multiple and deep ulcerations



IIIB Extensive necrosis

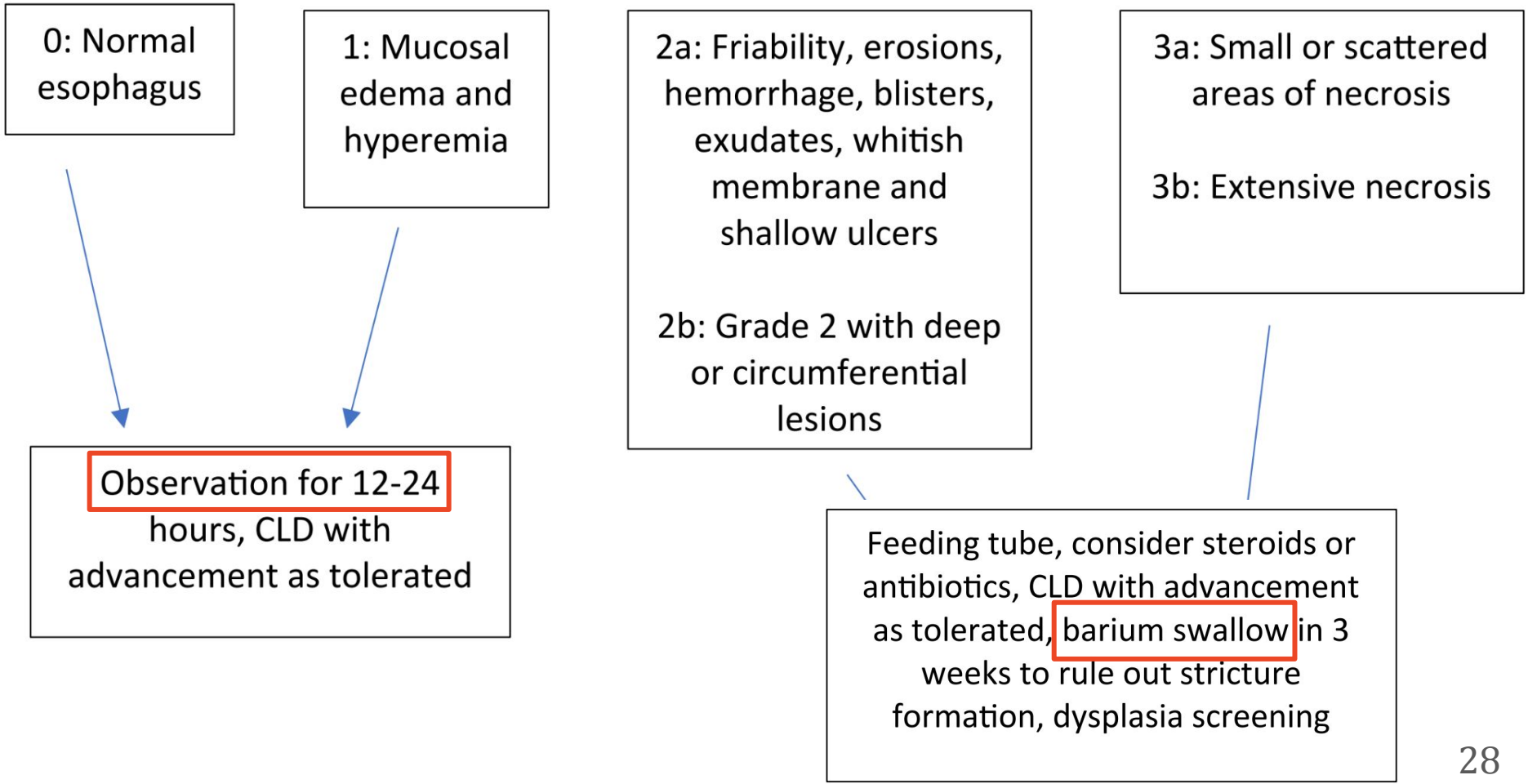


IV Perforation

@enrrikke

Image from: Cabral C, Surg Endosc. 2011

Upper endoscopy results: Grade of esophageal burns



4: Perforation

Endoscopy is contraindicated if perforation suspected from imaging.
Recommend surgical management to repair perforation.

- Obtaining a thorough history and physical examination followed by plain film radiographs are the first steps in evaluation.
- If a foreign body ingestion was witnessed or suspected without evidence on radiographs, radiolucent objects should be considered and worked up with further imaging modalities.
- Treatment of foreign bodies consists of a wait-and-watch approach for coins in some patient populations and operative intervention for the removal of higher risk ingestions and coins that do not pass within 24 hours.
- Rigid esophagoscopy, flexible esophagoscopy, bougienage, and Foley catheter are all options for removal.
- Button battery ingestion is a medical emergency. Early operative removal is imperative for batteries lodged in the esophagus.
- For patients with symptoms or oral lesions after caustic ingestion, upper endoscopy within 12 to 24 hours should be performed to determine the grade of esophageal burn to guide further management.