Case Discussion

clerk 2 邱妍僖
Supervisor 鄭評嘉老師

Brief history

Name	彭ＯＯ	Age	3y	Gender	F	No.

Chief complaint: **Left nasal pain and blood-tinged nasal discharge with crusting for four days**

Present illness

Underlying disease: Fenestrated ASD, ostium secundum type, with two defects

Glucose-6-phosphate dehydrogenase deficiency (G6PD)

Tentative diagnosis

Alcohol: Denied

Betel nut: Denied

Treatment

Cigarette: Denied

Progression

Allergy: Denied

Brief history

Present illness

Tentative diagnosis

Treatment

Progression

Birth history	G2P2, full term via C/S
Immunization history	As schedule
Growth and development history	As milestone
Family history	not contributory
Past medical history	Denied
TOCC	Denied

Brief history

Present illness

Tentative diagnosis

Treatment

Progression

Name	彭ＯＯ	Age	3y	Gender	F	No.

Chief complaint

Left nasal pain and blood-tinged nasal discharge with crusting for four days

2026/01/24

- left nasal pain
- blood-tinged nasal discharge with crusting

2026/01/26

- cough with sputum
- fever up to 38.8°C
- left periorbital pain

Brief history

Present illness

Tentative diagnosis

Treatment

Progression

Name 彭ＯＯ Age 3y Gender F No.

Chief complaint **Left nasal pain and blood-tinged nasal discharge with crusting for four days**

2026/01/28 ER

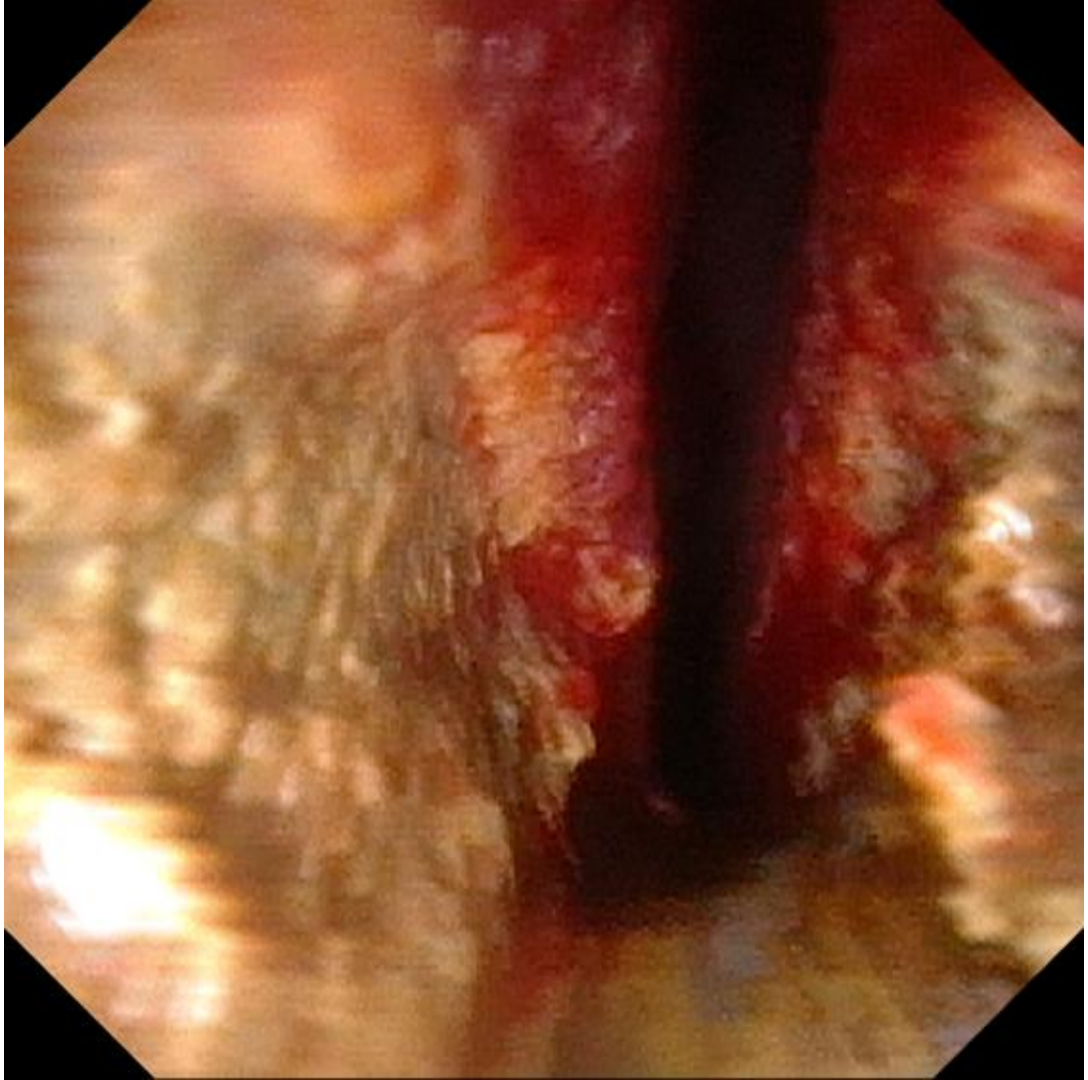
Vital sign and PE

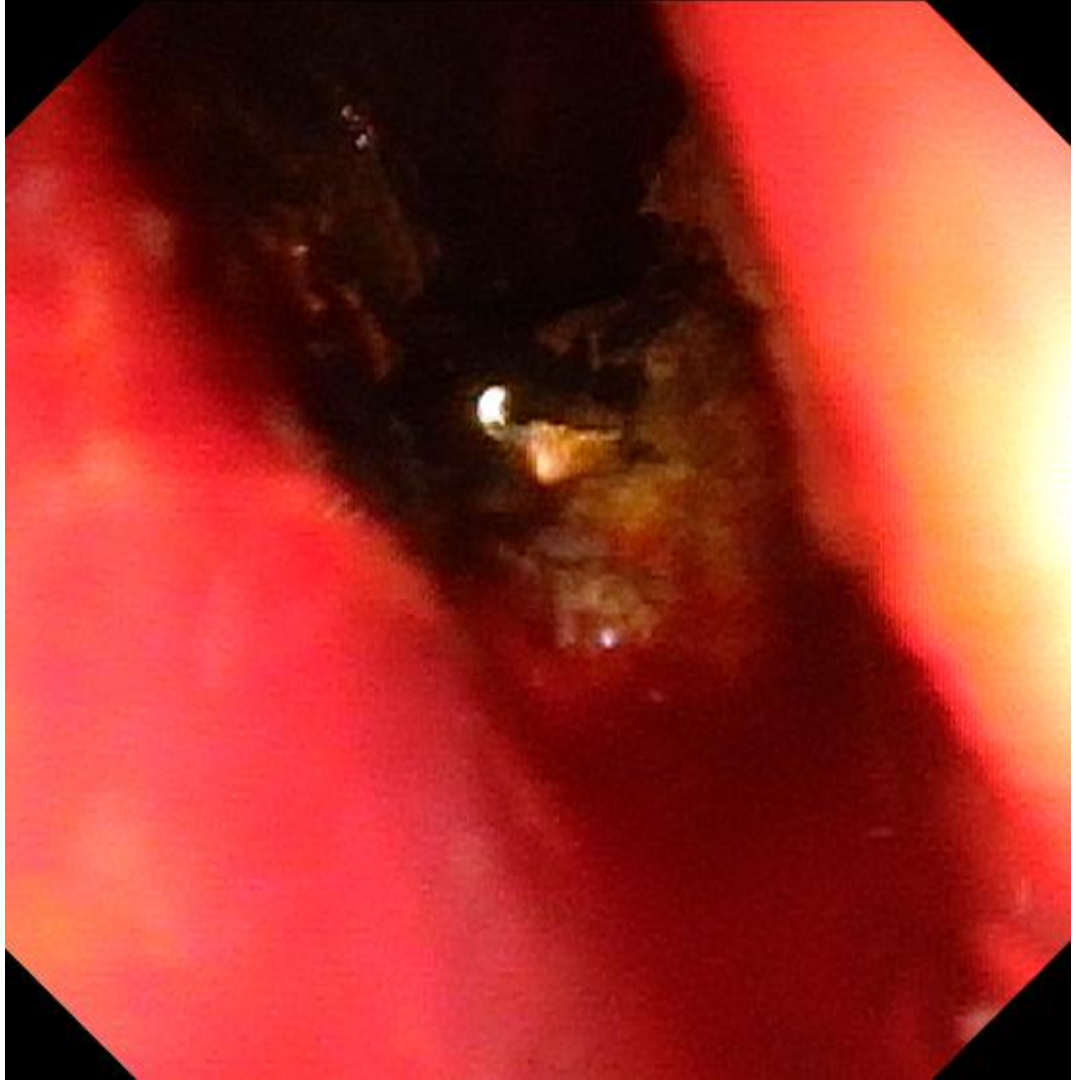
- ✓ TPR: BT 37.9, RR 18, pulse 135, BP 111/75
- ✓ GCS E4M6V5
- ✓ pupils 2+/2+
- ✓ Clear bilateral breath sounds
- ✓ Abdomen: soft, non-tenderness

Fiberoptic examination

- ❖ Confirmed a left nasal foreign body
- ❖ Charred septum

Fiberoptic examination





Brief history

Present illness

Tentative diagnosis

Treatment

Progression

2026/01/28

Skull X-ray

- A button cell in the left nasal cavity

Chest X-ray

- No definite active lung lesion

Laboratory

- hemoglobin 10.5 g/dL
- alanine aminotransferase (ALT) 52 U/L
- activated partial thromboplastin time (APTT) 39.0 seconds

Skull X-ray


Skull AP+Lt Lat
Se: 1
Im: 2/2
H
主要
Far Eastern Memorial Hospital
Study Date: 2026-01-26
Study Time: 11:17:51
L
R
L
F
WL:1907 - WW:4922


L
R
H
F

Brief history

Present illness

Tentative diagnosis

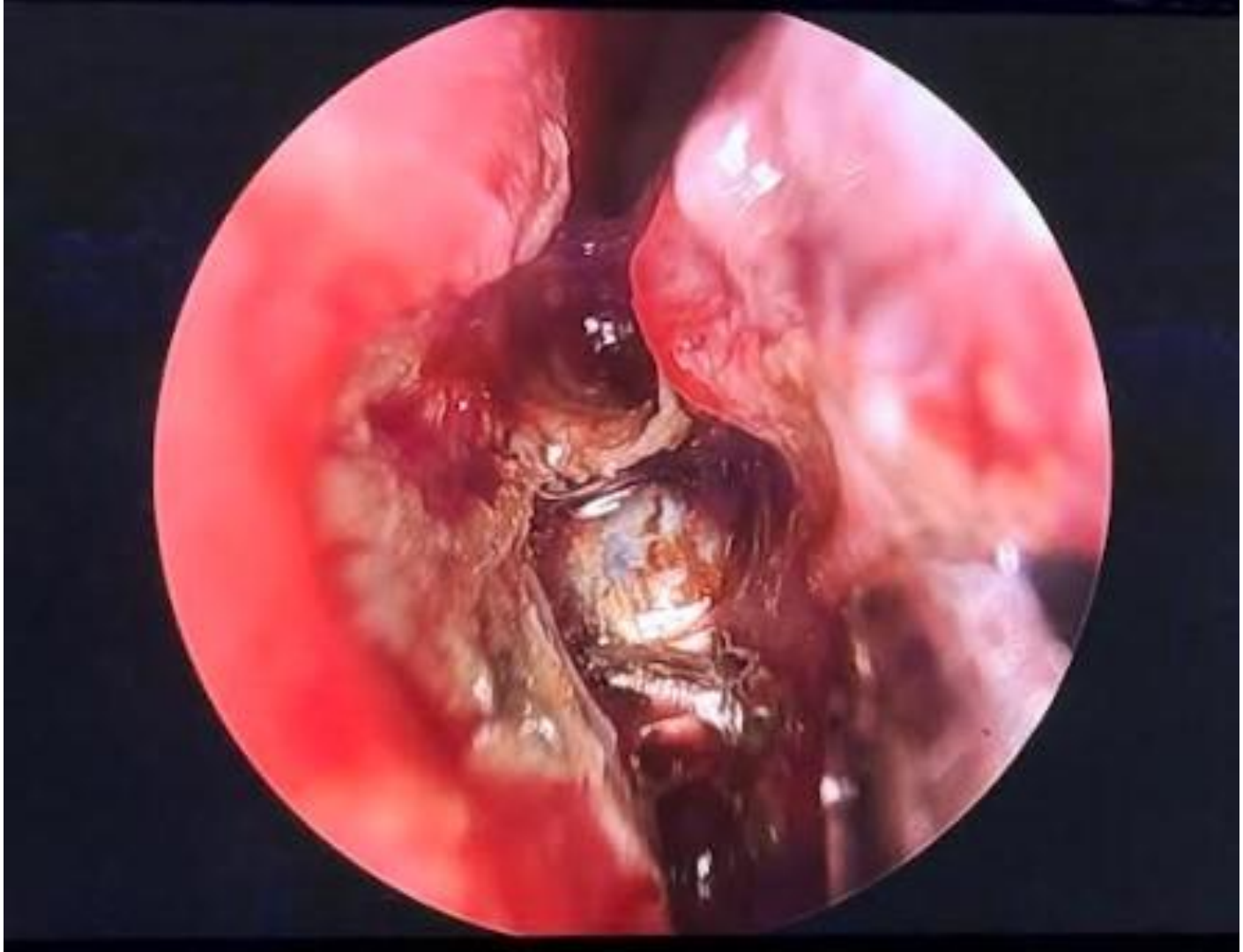
Treatment

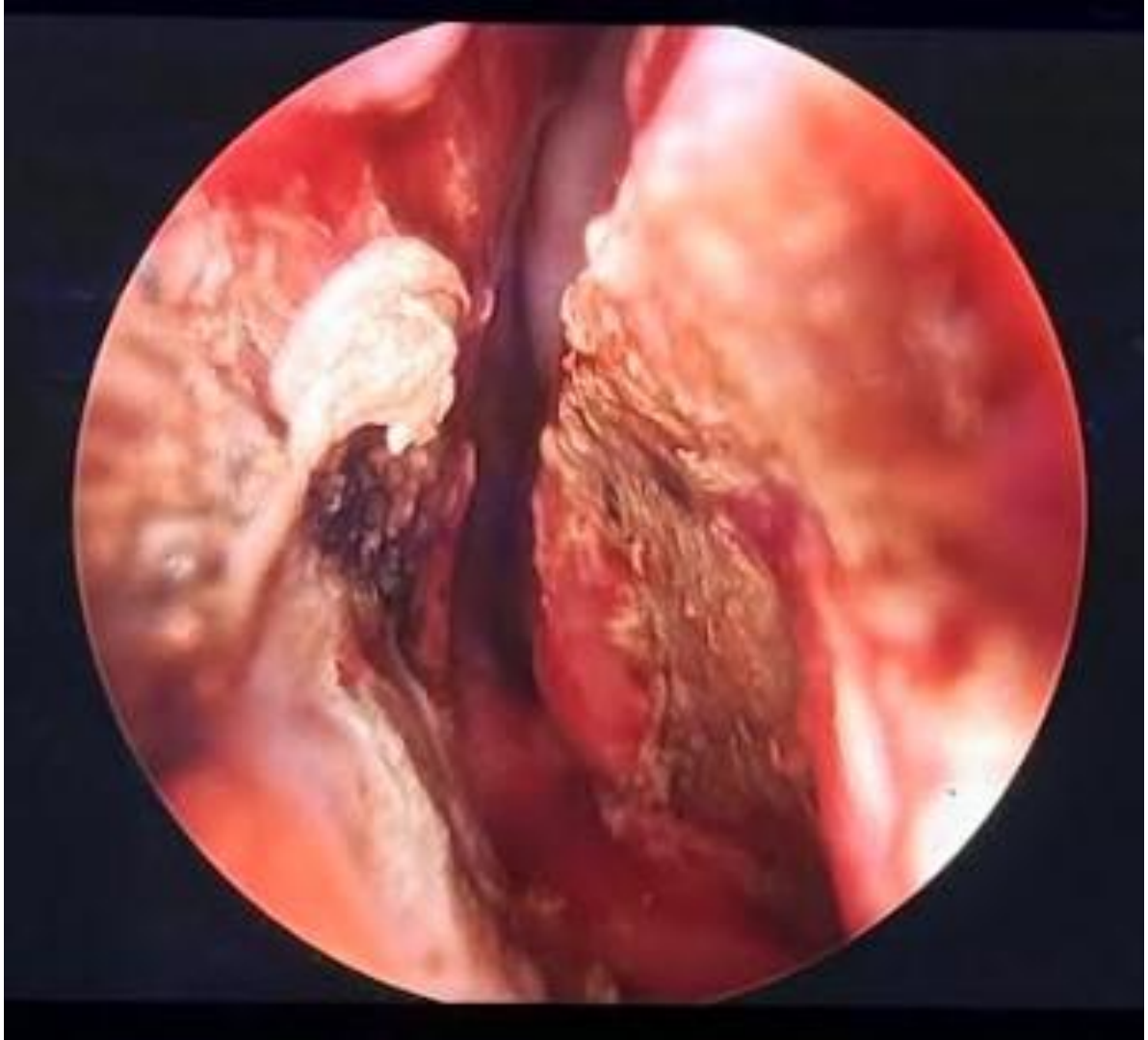
Progression

2026/01/28

Operation

- Complicated foreign body removal
  - general anesthesia
- Findings
  - A mercury cell found over the left common meatus
  - **Extensive mucosal erosion** by chemical reaction over the **inferior turbinate** and **nasal septum**






INCHES
METRIC 1
1
2
3
4

Brief history

Present illness

Tentative diagnosis

Treatment

Progression

2026/01/28

Operation

- Complicated foreign body removal
  - general anesthesia
- Findings
  - A mercury cell found over the left common meatus
  - **Extensive mucosal erosion** by chemical reaction over the **inferior turbinate** and **nasal septum**

2026/01/29

Admission

- Ulceration of the nasal septum and left inferior turbinate
  - Topical antibiotics: Neomycin
  - Intravenous antibiotics: Unasyn
  - Observation

Brief history

Present illness

Tentative diagnosis

Treatment

Progression

2026/2/5

OPD follow up

- Left nasal cavity crust
- Wound healing well

Case Report

To X-Ray or Not to X-Ray? Discussing Unknown Nasal Foreign Bodies and Button Batteries

Ear, Nose & Throat Journal
2024, Vol. 103(1) NP49–NP52

DOI: 10.1177/01455613211033123
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Background

Background

- **Esophageal** button battery ingestion
  - widely recognized as a medical emergency
- **Foreign bodies** in the **ear** or **nose**
  - often initially considered less urgent
  - frequently unwitnessed in children
  - can lead to delayed recognition of dangerous objects
    - such as **button batteries**

This Study

- Case presentation
  - a child with an unwitnessed nasal foreign body
- Literature review
  - the role of X-ray imaging in nasal foreign bodies
- Discussion
  - whether facial X-rays should be used more readily in pediatric cases

Case Presentation

Patient

- 2-year-old boy
- Presented to the ER
- With a **nasal** foreign body
  - Insertion was **unwitnessed**
  - Parents reported that a pen had a missing nib
  - ED doctors reportedly visualized a pen nib in the nostril
- Attempts at removal in the ED were unsuccessful
  - The object was thought to be embedded in the nasal septum
  - bleeding and pain when trying removal

Management

- Referred to ENT
  - the procedure was postponed to the next day
- Operation
  - poor visualization
    - due to what was thought to be dried blood and ink debris
  - extensive local damage
    - **local pressure** and **tissue necrosis**
    - effect of the e**lectrochemical damage to the mucosa**

→ highlighted the danger of delayed recognition

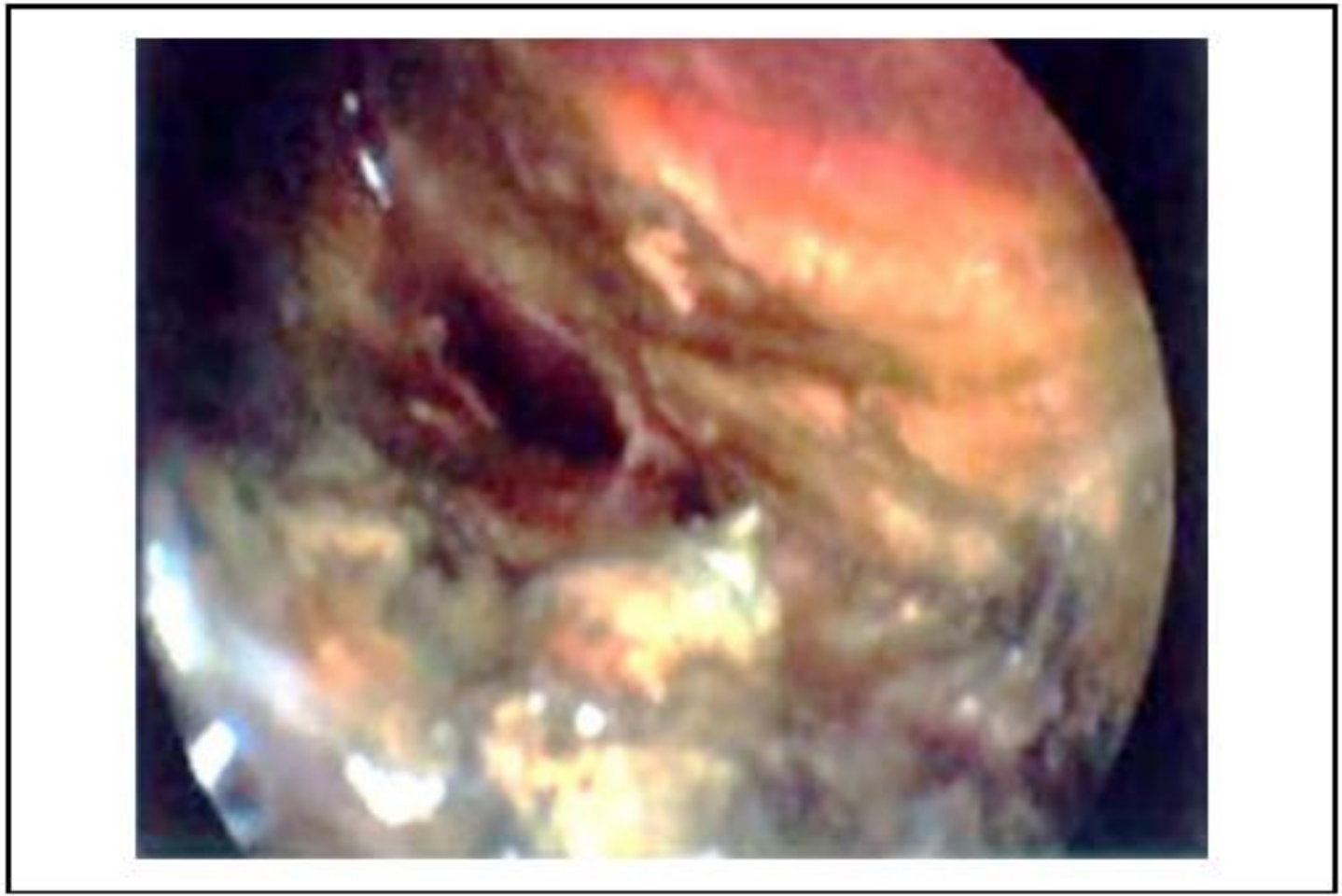

Figure 1. Anterior left septum and lateral wall.

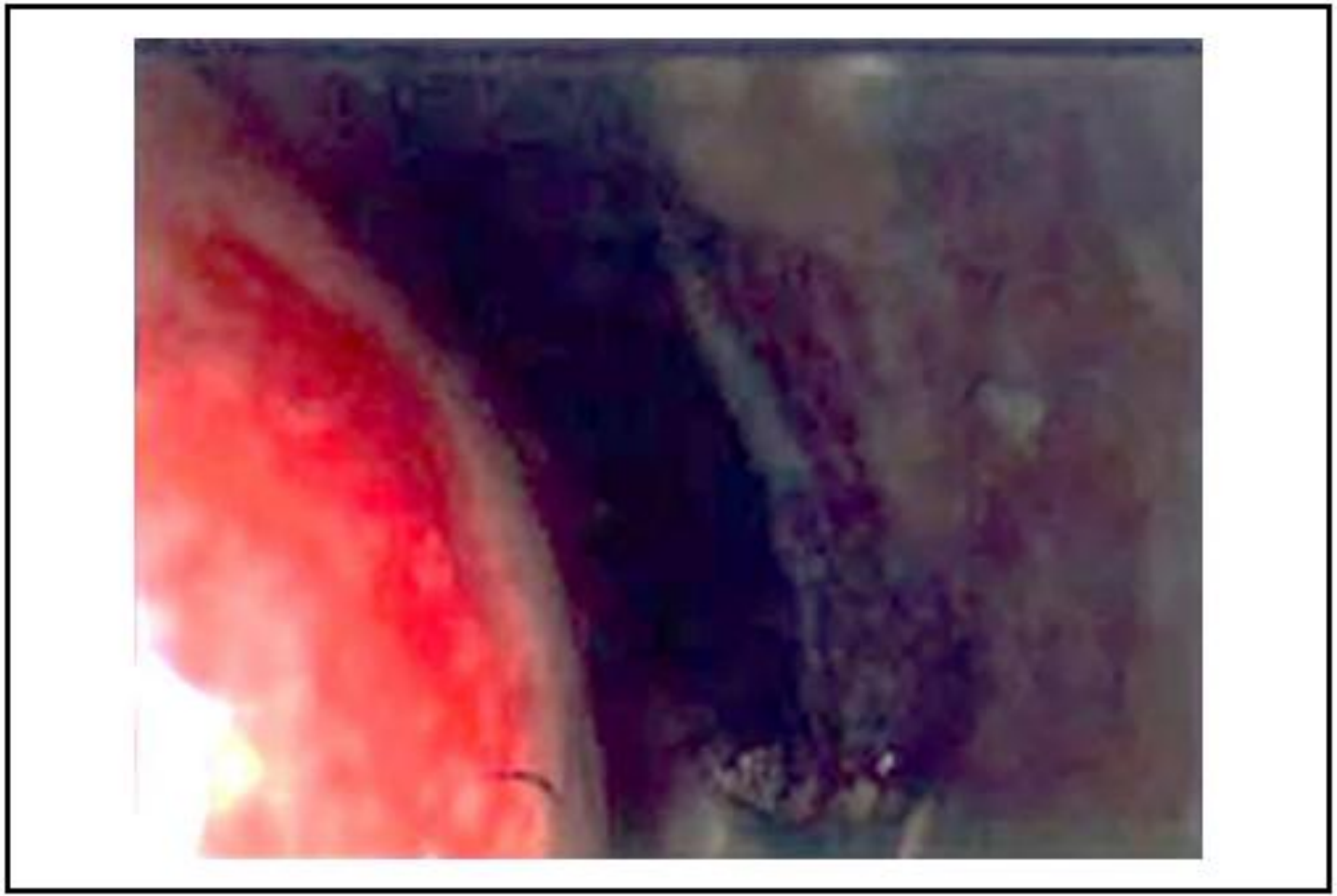

Figure 2. Anterior right septum and inferior turbinate.

Case Reflection

- Avoidance of radiography in young children
  - ➢ **plain X-ray** might identified the object as a button battery earlier
- Clinical team relied heavily on parental history suggesting a pen nib
- Radiographic appearance of a button battery could have prompted urgent intervention

Methods

Literature Search

- Using the MEDLINE database
  - search terms included:
    - “Button Battery” or “Lithium Battery”
    - and “Ear” or “Nose”
    - not “Oesophagus”
    - not “Trachea”
- Limited to English pediatric articles published within last 10 years

Results

Results of Literature Review

- 15 abstracts were identified
  - All met inclusion criteria and were reviewed
  - No articles specifically discussed button batteries in the ear
  - Eight papers discussed **the use of X-ray imaging**

Findings

- Plain X-ray
  - detect button batteries and **distinguish them from coins**
  - when the foreign body is **not visible**
  - in cases with **unilateral nasal discharge**
  - when insertion is **unwitnessed**
- X-ray may expedite access to urgent surgical management

AUTHOR	Paper Reference	Key Comment
Thabet, M et al	Button battery foreign bodies in children: hazards, management, and recommendations *BioMed research international; 2013; vol. 2013 ; p. 846091*	Plain X-ray successfully detected button battery. Importance of distinguishing coin from battery.
Watanbe K, et al	The necessity of simple X-ray examination: a case report of button battery migration into the nasal cavity *Pediatric emergency care; Feb 2013; vol. 29 (no. 2); p. 209-211*	Reviewing doctors should consider nasal x-ray examination.
Glynn F, et al	Nasal foreign bodies in children: should they have a plain radiograph in the accident and emergency? *Pediatric emergency care; Apr 2008; vol. 24 (no. 4); p. 217-218*	Recommend a plain radiograph in all children presenting with a nonvisible foreign body or unilateral nasal discharge.
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Guidera, A et al	Button batteries: the worst case scenario in nasal foreign bodies. *The New Zealand medical journal; Apr 2010; vol. 123 (no. 1313); p. 68-73*	X-rays are only worthwhile as evidence to expedite theatre access.
Bakshi S et al	Long-Term Complications of Button Batteries in the Nose *The Journal of emergency medicine; Mar 2016; vol. 50 (no. 3); p. 485-487*	Recommends X-ray of unwitnessed/unknown nasal foreign body (Water's view and Lateral views) in view of recognising delays when assume simple foreign body (e.g. coin).
Hoon O et al	Is Radiologic Evaluation Necessary to Find out Foreign Bodies in Nasal Cavity? *The Journal of craniofacial surgery; Jan 2016; vol. 27 (no. 1); p. e62*	Suggests X-ray evaluation in negative examination and/or unwitnessed foreign body insertion.
Abou-Elfadl, M et al	Nasal foreign bodies: Results of a study of 260 cases *European annals of otorhinolaryngology, head and neck diseases; Dec 2015; vol. 132 (no. 6); p. 343-346*	Recommends X-ray for purulent discharge or unwitnessed foreign body, especially if anterior rhinoscopy is difficult or inconclusive.
Cetinkaya, E et al	Nasal foreign bodies in children: Types, locations, complications and removal. *International journal of pediatric otorhinolaryngology; Nov 2015; vol. 79 (no. 11); p. 1881-1885*	If foreign body is unwitnessed or not visualised on anterior rhinoscopy, recommend ideal of nasoendoscopy; however, imaging with lateral XR, CT or MRI may be necessary in 'some cases.'

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Discussion

Mechanisms of Button Battery Injury

Mechanisms

- **Direct pressure** from the impacted object leading to necrosis
- **Electrical current** between anode and cathode
- **Leakage of toxic substances** such as mercuric oxide and alkaline compounds
- **Electrochemical reactions** with moisture producing hydroxide ions and hydrogen gas

→ These reactions lead to **rapid mucosal erosion**

Importance of Clinical Suspicion

- Only about **38%** of pediatric foreign body insertions **is witnessed**
  - ➢ history alone may be unreliable
- Button batteries **may not be recognized** until surgical removal (3/44)
- Symptoms that appear **disproportionate to the reported object** should raise suspicion

Role of Plain X-ray

Plain X-ray

- help identify metallic foreign bodies
- button batteries radiographic appearances
  - double ring sign
  - step-off sign
- Although radiation exposure in children should be minimized, risk-benefit assessment is essential
  - Early imaging may prevent serious complications
  - comparable to using X-rays for suspected fractures or foreign body ingestion

Figure 4. Plain film X-ray of unwitnessed nasal foreign body.

Figure 5. Button battery removed from nose.

Conclusions

Key Conclusions

- Button batteries must be urgently removed regardless of their location
- **Early recognition** is essential to prevent severe tissue damage
- Plain X-ray imaging should be considered in the following situations:
  - **Unwitnessed** foreign body insertion
  - Suspected **metallic** foreign body
  - **Disproportionate** nasal discharge or pain

Thanks for your listening