

Cultural Competence Case Presentation Toxic Ingestion

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Case Scenario/History

A 3 year-old Asian boy is brought into the ER by the rescue squad in respiratory distress. In broken English, his grandmother reports finding him in the living room about 20 minutes ago with labored breathing and making 'wheezing' noises. She also found her pouch of 'nganga' on the floor. It appeared to have been opened.

a. Review of Systems

Labored breathing, wheezing, no fever, no vomiting, no diarrhea.

b. Past Medical History

Reactive airway disease, immunizations are up to date. Medications: none. Allergies: NKDA

c. Family History

Father with asthma.

d. Social History

Lives with Mom and Dad, grandma is visiting from the Philippines and has been staying with the family for only two weeks; she is babysitting for her daughter and son-in-law who both work.

e. Physical Exam

Temp: Temp 98.6°F, HR 155, RR 35, BP 130/70, O₂ Sat: 90% on room air

General: Mild respiratory distress, crying child on grandmother's lap

ENT: Constricted, but reactive pupils bilaterally, slight nasal flaring, no rhinorrhea, tm's clear, non-erythematous oropharynx, non-enlarged tonsils, moist oral mucosa, brown bark-like material present on tongue and buccal mucosa

Neck:

Cardiovascular: RRR, tachycardic at 150 bpm, very active precordium, nl S₁=S₂, no murmur, rubs, gallops

Lungs: Diffuse wheezing throughout, no crackles or rhonchi, BS equal bilaterally, mild intercostals retractions noted

Abdomen: soft/nontender/nondistending, bowel symptoms present throughout

Extremities: No clubbing, cyanosis or edema, cap refill less than 2 seconds

Skin: No rashes, moist, cool skin

Neuro: Alert and awake, moving all extremities, 2+ DTRs symmetrically

Questions for discussion

1. What other historical questions would you ask?

Questions about the circumstance where the patient was found, ie small toys in the area, any potential foreign body ingestions. You may want to inquire about recent history of URIs, coughing or fevers, or other history of sick contacts or previous episodes.

2. How would you approach a patient (or family member) when there is a language barrier?

In cases where an interpreter is not immediately available, it will be difficult to get an adequate history. Your facial expression and open body language are your tools, ie do not cross your arms, do not raise your voice. Speak calmly and clearly, using simple terminology when possible.

3. How would you approach this possible ingestion?

In any patient in distress, address the ABCs first. Once you are convinced he is able to protect his airway, breathing adequately and is well-perfused (or have taken steps to ensure these (ie intubation, nebulizer treatments, O₂, IVF), you may proceed with obtaining more history.

4. How do the findings on the physical help your management?

The patient appears to be in some respiratory distress, as shown by his tachypnea, accessory muscle use and nasal flaring. He also has acute constriction of his lower airways (bronchi, bronchioles) as he is wheezing on the lung exam (as opposed to stridor seen in obstruction of the upper airways). He is afebrile, not coughing and has no other signs of an active respiratory infection. He is also tachycardic with a mildly increased blood pressure.

5. What do you make of the bark-like substance found in this boy's mouth?

Consider that this child may have eaten something he shouldn't have!

You decide to give an Albuterol/Atrovent nebulizer to the patient and he responds with marked improvement. You also ask Grandma to look in his throat and she promptly tells you that it looks like her 'nganga' chew. She pulls out a small pouch with a brown substance inside.

6. How would you go about researching what this unknown substance is?

Your local Poison Information Center is a wonderful resource and a consultation to your resident toxicologist may be helpful.

7. Does the fact that Grandma is from the Philippines have any significance?

Yes! She knows the name of the substance in her own language and researching names will be far more expedient than having this substance sent to the lab for analysis.

ED Course

The wheezing resolves after three treatments and the patient appears much more comfortable. His heart rate is 130. He is still crying but consolable. Pupils remain small.

Together with the toxicologist, you find that 'nganga' is also called **betel nut** in western countries. It is a common masticatory drug used by up to 600 million people in south-east Asia, India and the South Pacific. Arecoline, the active ingredient in betel nut (*Areca catechu*), has stimulatory effects similar to that of nicotine and has effects consistent with cholinergic (muscarinic and nicotinic) activation. Symptoms include tachycardia, lacrimation, salivation, dizziness, nausea, euphoria, weakness, hypertension, urinary incontinence, and diarrhea¹. Betel chewing also increases plasma concentrations of epinephrine and norepinephrine, as well as inhibits GABA uptake². The structure of arecoline is closely related to that of the substance, methacholine, used by pulmonologists as an inhalational provocative test to confirm asthmatic tendencies. Thus, betel nut may also cause bronchospasm and asthma exacerbations.

Case Outcome

The patient was admitted to the pediatric ICU for close observation. This 3 year old Asian boy's symptoms improved after treatment with Albuterol/Atrovent nebulizer. He continued to improve so atropine was not needed. After a two-day stay in the ICU, he was discharged home. The boy's mother, father and grandmother were all observed to interact in an appropriate manner with the child while he was in the hospital. There was no need in this case to contact Child Protective Services.

8. What do you do now?

Treatment is supportive: careful airway and respiratory care, cardiac and hemodynamic monitoring and fluid resuscitation. In known overdoses, atropine may be used as an antagonist and GI decontamination with activated charcoal may be necessary.

After he is stabilized, Grandma approaches you, somewhat anxious, stating that she loves her grandchild and would never be this careless. She begs you not to tell the authorities because they might come and take him away from his mommy and daddy.

9. How would you handle the grandma's request not to tell authorities?

Many third world countries do not have Child Protective Services as we do in the US. The myth of children being disciplined by their parents, then being taken away from their homes, remains a fear by those who do not understand the law. Carefully explain this to Grandma and use your best judgment to decide whether neglect was a factor in this incident.

10. *What sections of the case incorporate the 6 ACGME areas of core competence?*
- a. **Patient care** – A thorough history and physical would have elucidated grandma’s betel nut chew as a potential etiology for this child’s asthma exacerbation
 - b. **Knowledge** – Betel nut, though rarely used in western civilization, is common in developing countries and remains a daily practice in many immigrant households. With the growing immigrant population in the US, we, as emergency practitioners, need to be more aware of these practices
 - c. **Interpersonal & Communication Skills** – An interpreter would have been necessary to communicate with grandma in this case. Also, good communication is paramount to the social aspects of this case, especially if there might be potential for Child Protective Services’ involvement.
 - d. **Systems-based Practice** – Use of local resources as Poison Control and Child Protective Services is helpful in a case such as above.

References

1. Deng, JF. Acute toxicities of betel nut: rare but probably overlooked events. *J Toxic Clin Toxicol*, January 2001, 39(4):355-60.
2. Chu, NS. Effects of betel nut chewing on the central and autonomic nervous systems. *J Biomedical Sci*, May-June 2001, 8(3):229-36.
3. Kagawa-Singer, M. and Kassim-Lakha, S. A strategy to reduce cross-cultural miscommunication and increase the likelihood of improving health outcomes, *Acad. Med.* 2003;78:577-587.
4. Post, DM, Cegala DJ, Marinelli, TM. Teaching patients to communicate with physicians: the impact of race, *Jnl Nat Med Assn*, January 2001, 93(1):6-12.