Upper-Airway Obstruction

Brady Paramedic Care
Medical Emergencies
[vol. 3] p. 35.
or standard paramedic
text on Airway Obstruction

Objectives

At the conclusion of this lesson you will be able to discuss:

- Preparations for advanced airway management in a patient with upper airway obstruction - total or partial
- Common causes of Upper-Airway Obstruction, such as Foreign body, infectious, allergic reactions, and trauma
- Less common causes of airway occlusion, such as angioedema

Airway Obstruction Definition

- Blockage of the upper airway
  - oral / pharyngeal
  - tracheal
  - laryngeal
- Partial or complete
  - complete, if not corrected, leads to rapid suffocation and death.

Signs and symptoms of Upper-Airway Obstruction

Signs common to all partially obstructed airway disorders:

- Choking; gasping
- Stridorous inspiratory crowing +/or
- Expiratory wheezing or whistling

Causes of Upper-Airway Obstruction

- Foreign body
- Infectious
  - viral and bacterial infections
- Allergic reactions
- Laryngospasm
- Trauma
  - Fire / heat / smoke inhalation
  - Chemical inhalation or burns

Foreign Bodies

FBAO

- Adults
  - Tongue: most common
  - Food (aspirated chunks of meat +/- alcohol)
    - "café coronary"
    - dentures (unable to sense chewing-completion)
- Children
  - most common FB : peanuts
  - FB most associated with fatal aspiration : hot dogs

FBAO

- Conscious
  - "cough"
  - "5"
- Unconscious
  - "5, 5, 5,.."
  - until ready with laryngoscope + Magill forceps
    - Consider transtracheal approach
    - Consider pushing FB into right bronchus

Infectious Causes of Upper Airway Obstruction

- Croup
- Epiglottitis
  - Acute bacterial epiglottitis
    - can cause rapid obstruction
    - preventable vaccine for H. influenza bacteria
- Abscesses [***trismus*** Sx + Sn.s]
  - Peritonsilar Abscess [muffled voice]
  - Retropharyngeal [muffled voice]
    - rapidly expanding; can block the airway

Allergic Reaction as a Cause of Airway Obstruction

Anaphylactic reaction

- Trachea and/or pharynx swell close
- Typical reaction to insect sting
- Other common allergens: peanuts, medication (penicillin)

Angioedema : a Possible Cause of Upper-Airway Obstruction

- Painless, nonpruritic, nonpitting edema
- Head and neck, including the face, lips, floor of the mouth, tongue, and larynx, and any other body part
  - In worst cases, edema progresses to complete airway obstruction and death secondary to this laryngeal edema
  - Intestinal wall edema
    - colicky abdominal pain, nausea, vomiting, and diarrhea

Epidemiology of Angioedema

- Hereditary, non-medication induced cases
  - Two thirds of present before age 13 yrs
  - In 1888, Osler first described HAE
    - 24-year-old woman episodic attacks of edema
    - interviewed woman's 92-year-old grandfather
      - 5 successive generations had similar attacks
- Classic triad :
  - severe colicky abdominal pain,
  - peripheral +/- facial edema, and
  - laryngeal edema
  - with ***NO*** urticarial hives

Complication of Angioedema

- Most worrisome complication of angioedema : complete airway obstruction caused by laryngeal edema
- Angioedema-type swelling usually less acute than that of anaphylaxis
- Progression : hours-long
  - from hoarseness and dysphagia
  - to upper airway obstruction
  - develops fully within a few hours ;
  - then fades in 48-72 hrs

Causes of Angioedema

- Hereditary
- Acquired
- Allergic reaction; anaphylaxis
- Medication induced: ACE inhibiters
- Idiopathic

Acquired Angioedema

- Rare syndrome
- Life-threatening laryngeal edema and airway obstruction major concern
- ACE inhibitor–induced angioedema
  - 22% require intubation
  - overall ***mortality 11%***
- No correlation between starting date of ACE-I and onset of clinical findings of angioedema
  - can occur within a few hours to several ***yrs*** ;
    - most (85%) symptomatic within 1st wk

ACE Inhibitors

- Enalapril (Vasotec ®)
- Fosinopril (Monopril ®)
- Lisinopril (Prinivil ®)
- Moexipril (Univasc ®)
- Ramipril (Altace ®)

Physical Exam of ACE Inhibitor–induced Angioedema

- Milder cases: only facial rash
- Commonly : face and oropharynx
  - Edema of the soft palate (uvula)
  - Tongue
  - Larynx

Prehospital Care for Acute Angioedema

- ? Intubation candidate - strongly consider if:
  - stridor
  - Voice changes (eg, hoarseness, muffling)
  - orotracheal intubation preferred
  - If laryngeal edema is severe, surgical cricothyrotomy
  - Epi, steroids, and Benadryl
    - ***not*** effective in HAE and ACE inhibitor–induced angioedema.
  - But these are recommended
    - And angioedema may be due to allergic anaphylaxis

Usual Care for Acute Angioedema

- Supportive only
- Emphasis on close observation,
  - and if needed, intubation
    - to avoid potentially fatal complication of airway occlusion
- Adjunctive
  - Epi 0.5mL SQ
  - Methylprednisolone 125 mg IV
  - Benadryl 25 mg IV

Management of Upper Airway Emergencies

- Management of airway prior to intubation
  - Complete airway obstruction maneuvers
    - Heimlich maneuver (5 abdominal thrusts,…)
    - removal with Magill forceps
  - Identification of the causes of airway emergencies
- Oral intubation
- Adjunctive techniques for establishing ventilation
  - Translaryngeal tracheal intubation
  - Transtracheal catheter ventilation
  - Surgical cricothyrotomy