Child Maltreatment

PALS (AHA) text : p. 272

EMC 420: Maternal & Child Emergency Care
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Objectives

- Recognize common presentations of physical abuse and sexual abuse.
- Describe diagnostic concerns.
- Explain the practitioner's responsibility in notifying appropriate authorities.

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Case Study 1: "Unresponsive"

- 9-month-old girl is found "unresponsive at home."
- Irritable in early afternoon
- Delivery: 35 weeks, otherwise healthy
- She is unresponsive to pain, has shallow respirations, and her color is pink.

Initial Assessment (1 of 2)

PAT:

– Abnormal appearance, normal breathing, normal circulation

Vital signs:

– HR 156, RR 20, BP 74/56, T 36.4°C, O_2 sat 94%

Initial Assessment (2 of 2)

A: Blood drooling from mouth; no stridor
B: Shallow, good air entry
C: Capillary refill <2 sec
D: Unresponsive, pupils 5 mm, nonreactive, extremities flaccid
E: Bruises noted on cheeks, buttocks, and left thigh

Question

What is your general impression of this patient?

General Impression

- Primary CNS dysfunction
  - No signs of respiratory failure
  - No signs of shock

What are your initial management priorities?

Priorities

- Position and suction airway.
- Begin BMV with 100% oxygen followed by endotracheal intubation.
- Verify rhythm on heart monitor.
- Obtain peripheral IV access or intraosseous access.
- Obtain blood for laboratory evaluation; determine rapid bedside glucose.

Management Priorities

- Monitor ventilation to keep pCO_2: 35-40 mm Hg, examine for signs of head trauma including otoscopic and funduscopic exams.
- Expose entire body and inspect for bruises, bites, burns, acute or healing fractures, and signs of genital trauma.

Management

Initial:

- Consider mild hyperventilation or use of osmotic agents for impending herniation syndrome.

Secondary:

- Palpate scalp carefully to look for hematoma(s) or area of depression
- Suspicious bruises will be located over cheeks, neck, buttocks, inner thigh, and ear lobe or pinnae.
- Generally, adult bite marks are larger than 3 cm.

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Case Discussion

- Shaken Infant Syndrome
- Shaken Infant Impact Syndrome

Background

- Head injury is the most common cause of death of pediatric victims of abuse.
- Average infant age of abusive head trauma is 5-10 months.
- Abusive head trauma often presents in the absence of accurate history and obvious external physical signs.

Mechanisms of Injury

- "Whiplash" shaking head movement
  - Shearing forces to brain parenchyma and intracranial vessels bridging the subdural space
- Violent impact of infant's head on firm surface
  - Abrupt deceleration of the head
  - External evidence of the impact is usually absent

Mechanisms of Fall Injury

Short falls

- Can present with local deformity of skull and linear skull fractures (temporal/parietal) with small underlying epidural or subdural collections.
- These mechanisms do NOT result in complex skull fractures, severe brain injury, or death.

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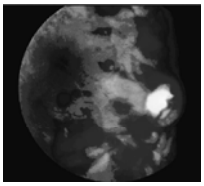
Clinical Features: Your First Clue

- Presents with nonspecific symptoms: Respiratory complaints, poor feeding, vomiting, irritability, lethargy, seizures, or minor trauma
- Trauma or age is inconsistent with accidental injury when presenting with severe CNS dysfunction.

Clinical Features: Your First Clue

- Retinal hemorrhages:
  - Multiple and diffuse
  - Extend to ora serrata
  - Preretinal, vitreous, subretinal
- Pathognomonic for abusive head trauma.



Differential Diagnosis: What Else?

- Seizure disorder
- Hypoglycemia
- Sepsis
- Other brain injury:
  - AV malformation
  - Tumor
  - Metabolic insult

Specific Management Issues

- Document legibly all injuries.
- Obtain photographs of physical findings.
- Record verbatim statement from child and parent.
- Report incident to law enforcement agencies and child protective services.

Case Outcome

- Child protection and law enforcement authorities notified.
- Proper documentation completed.
- Photographs of retina and bruises obtained.
- Child declared with cerebral death 48 hrs following admission to PICU.
- Nanny charged with manslaughter.

Case Study 2: "Bruises"

- 3-year-old boy referred to ED by preschool for bruises to face, neck, left pinna, lower back
- Parents say child is very active and has frequent falls.
- Two previous visits to ED for head trauma and fractured mid-shaft radius.
- Toddler is active, has no increased work of breathing, and skin is pink.

Initial Assessment

PAT:

– Normal appearance, normal breathing, normal circulation

Vital signs:

– HR 104, RR 28, BP 98/66, T 37.1°C, O_2 sat 98%

- General impression – stable

Case History

- Mother explains that bruises occurred one week ago when she was at work and child was left in the care of the father.
- According to father, child had an unwitnessed fall off a tricycle.
- Child says that he does not remember how bruises occurred.

Which children are at risk of abuse?

Children at Risk of Abuse

- Infants and preverbal children
- Children with chronic disease
- Children with disabilities
- Socially isolated families
- Chemically dependent caregiver
- Domestic violence
- Poverty

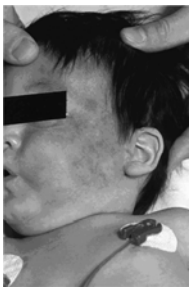
Focused History

- Obtain a chronologically detailed injury history of each bruise.
- Focus on unusual aspects of history:
  – History inconsistent with physical findings
  – Discrepancy between stories
  – Injuries attributed to young sibling

Historical Red Flags

- Minor mishap associated with major injury
- History inconsistent with developmental capability of child
- Delay in obtaining medical care
- History of intergenerational violence

Identify the Red Flag



Obtain Complete Medical History

- General medical history
- Social history
- Behavioral history
- Developmental history
- Child/parent information

Detailed Physical Exam

- Height, weight, head circumference
- Ear, nose, throat, neck:
  - Scalp swelling/fontanel fullness
  - Bruising/petechiae
  - Subconjunctival/retinal hemorrhages
  - Dental trauma/frenulum tear
  - Neck bruises/abrasions

Detailed PE

- Chest: deformities/bruising/marks
- Abdomen:
  - Bruising/marks
    - Note the location, size, shape, and color of each bruise
  - Distention/tenderness/bowel activity
- Perineum:
  - Bruising to genitalia/buttocks
  - Scars/Skin tags
- Complete CNS exam

Physical Exam

- Complete skin and soft tissue exam looking for:
  - Burns
  - Bite marks
  - Puncture marks
  - Lacerations
  - Strangulation marks

Background: Color and Age of Bruising

TABLE 10-1 Langlois and Gresham: The Color and Age of Bruising*

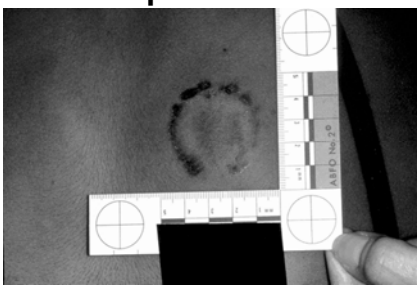
Color	Age
Blue, purple, or black	From 1 hour to resolution
Yellow	Older than 18 hours
Red	Indeterminate

What bruises "mimic" child maltreatment?

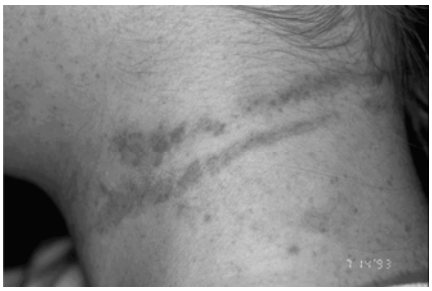
Bruises That Mimic Child Maltreatment

- Accidental injuries
- Birthmarks: "Mongolian spots"
- Bruises secondary to coagulopathies
- Folk remedies

Elliptical Shape :Your Impression?



Neck: Your Impression?



Case Discussion: Burns Linked With Abuse

What types of burns are suspicious for child maltreatment?

- Immersion burns
- Patterned contact burns
- Cigarette burns

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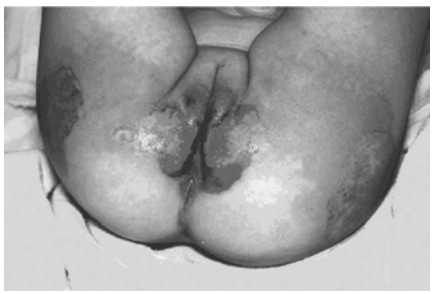
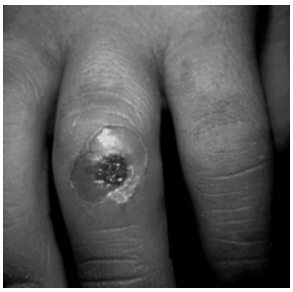
Immersion Burn



Inflicted Cigarette Burns



Case Progression

- Historical red flags identified:
  - Inconsistent/evasive history
  - Delay in seeking medical care
  - Father admits to alcohol addiction.
- Detailed physical exam shows:
  - Unusual location for accidental bruises
  - Ruptured frenulum
  - Right thigh bite mark: 3 cm width

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Case Outcome

- Child protection notified
- Laboratory tests normal
- Skeletal survey normal
- Admitted to hospital for full medico-social evaluation
- Services consulted:
  - Ophthalmology
  - Child Abuse Team

Case Study 3: "Arm Pain"

- Mother noticed four days ago that one-year-old daughter was not moving right arm.
- No history of trauma, previously healthy
- Child alert, sitting in mom's lap, no increased work of breathing, skin is pink.

Initial Assessment

PAT:

- Normal appearance, normal breathing, normal circulation

Vital signs:

- HR 122, RR 40, BP 90/70, T 36.9°C, O_2 sat 95%

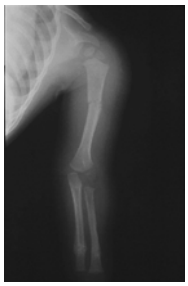
- General impression: stable

Detailed Physical Exam

- Head: No hematoma
- Neck: No marks
- Lungs: Clear
- Abdomen: Soft, non-tender, no masses
- Neuro: Normal motor exam and gait
- Extremities: Tender upper and lower right arm

X-Ray

What is your diagnosis for this patient?



Case Discussion

- Xray findings suggestive of abuse:
  - Metaphyseal chip (bucket handle fractures)
  - Rib fractures
  - Multiple fractures in different stages of healing
  - Long bone fractures in children not yet standing
- Non-abuse sites:
  - Distal radius + ulna (incl FOOSH-Salter-Harris II)
  - Distal humerus (supracondylar)
  - Clavicle
  - Mid-tibia
  - Growth-plate (Salter-Harris)

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Twist of the Limb

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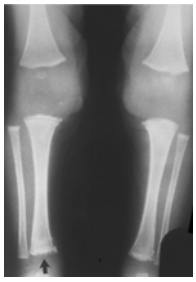

Differential Diagnosis: What Else?

- Osteogenesis imperfecta
- Hypophosphatasia
- Rickets
- Leukemia
- Primary and metastatic bone tumor

Summary

- For each case of child maltreatment reported, ***two*** go unrecognized.
- Follow the guidelines of:
  - Listen, Look, Explain, Evaluate, Record, Report
- Follow a multidisciplinary approach:
  - Clinicians, social services, law enforcement