



# CHILD ABUSE

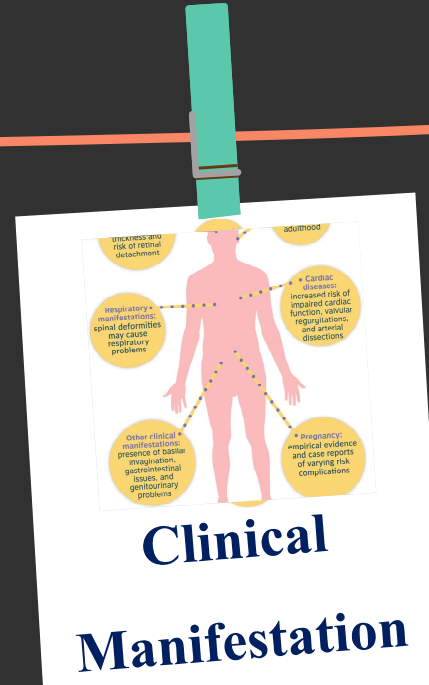
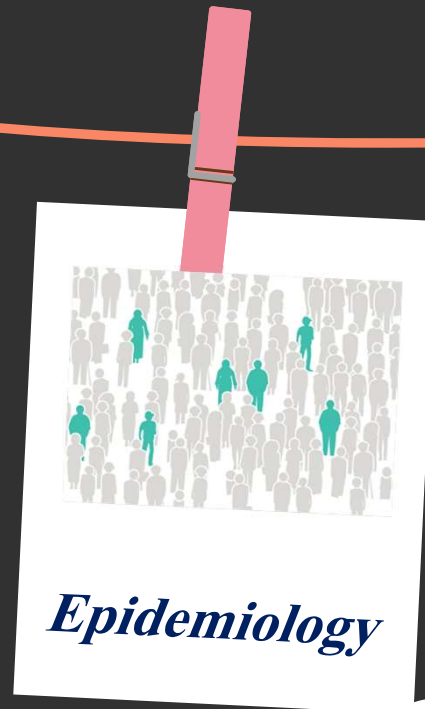
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# Contents



## Introdution:

- ✓ The abuse and neglect (maltreatment ) of children are pervasive problems worldwide, with short- and long-term physical and mental health and social consequences.
- ✓ Child healthcare professionals have an important role in helping address this problem.
- ✓ In addition to their responsibility to **identify** maltreated children and help ensure their **protection** and health, child healthcare professionals can also play vital roles related to **prevention**, **treatment**, and advocacy.



## Definition:

- Physical child abuse may be broadly defined as injury (any recent act or failure to act ) inflicted upon a child by a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse, or an act or failure to act which presents an imminent risk of serious harm.”
- Specific definitions can vary widely among countries, as well as among different ethnic and religious groups



## Neglect:

Neglect is the **most prevalent** form of child maltreatment. It may manifest in many ways, depending on which needs are not adequately met.

- ☐ Inadequate food
- ☐ Poor hygiene
- ☐ Inadequate supervision
- ☐ Educational needs



# Epidemiology



# EPIDEMIOLOGY:

- Child abuse and neglect are **not rare**. WHO has estimated that **18% of girls** and **8% of boys** experience **sexual** abuse, **23%** of children report being **physically** abused.
- In addition, many children experience emotional abuse and neglect.





# EPIDEMIOLOGY

- In the United States and resource-rich European countries, the estimated prevalence of physical abuse at any time during childhood ranges from 5 to 16 percent

# Risk Factors



# Risk Factors:

## Child characteristics

- ✓ Speech and language disorders, learning disabilities, conduct disorders
- ✓ Failure to thrive
- ✓ Congenital anomalies, intellectual disability, or chronic or recurrent illnesses
- ✓ hyperactivity children
- ✓ Prematurity and low-birth weight
- ✓ Unplanned pregnancy
- ✓ Unwanted child

## environment

- ✓ Unrelated adolescent or adult male caregiver in the household
- ✓ Acute or chronic family stressors (eg, divorce or interpersonal conflict, illness, or job loss)
- ✓ Living in poverty
- ✓ Social isolation (distant or absent extended family)

- ✓ Young or single parents
- ✓ lower levels of education
- ✓ poor knowledge of child development
- ✓ Caregiver was abused or neglected as a child
- ✓ Substance or alcohol abuse
- ✓ Poorly controlled psychiatric illness (eg, psychosis, depression)

## Caregiver features

# Clinical manifestation



Bruises



Burns



Fractures



Trauma(brain,abdomen,...)

# Clinical manifestation

- Bruises are the **most common** manifestation of physical abuse.
- Features include:
  - (١) bruising in a preambulatory infant
  - (٢) bruising of less exposed areas (buttocks, genitalia)
  - (٣) shape of an object or ligatures around the wrists
  - (٤) multiple bruises, different ages



## MARKS from INSTRUMENTS

Belt buckle



Belt



Looped cord



Stick/whip



Fly swatter



Coat hanger



Board or spatula



Hand/knuckles



Bite



Sauce pan



Paddles



Hair brush



Spoon



## Clinical manifestation

Burns may be caused by inadequate supervision.

Immersion burns show **clear delineation** between the burned and healthy skin and **uniform depth**. They may have a **sock or glove** distribution.

**Symmetric** burns are suggestive of abuse burns **buttocks** & **perineum**.

Burns from hot objects such as radiators, metal grids, hot knives, and cigarettes ( ddx : Impetigo ) leave **patterns** of the objects.

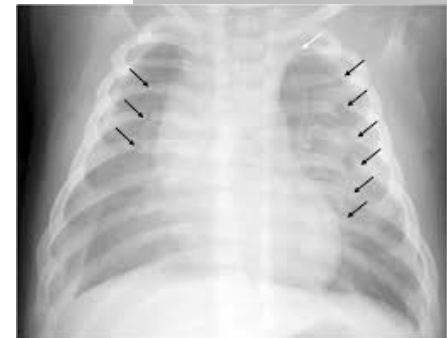






## Clinical manifestation

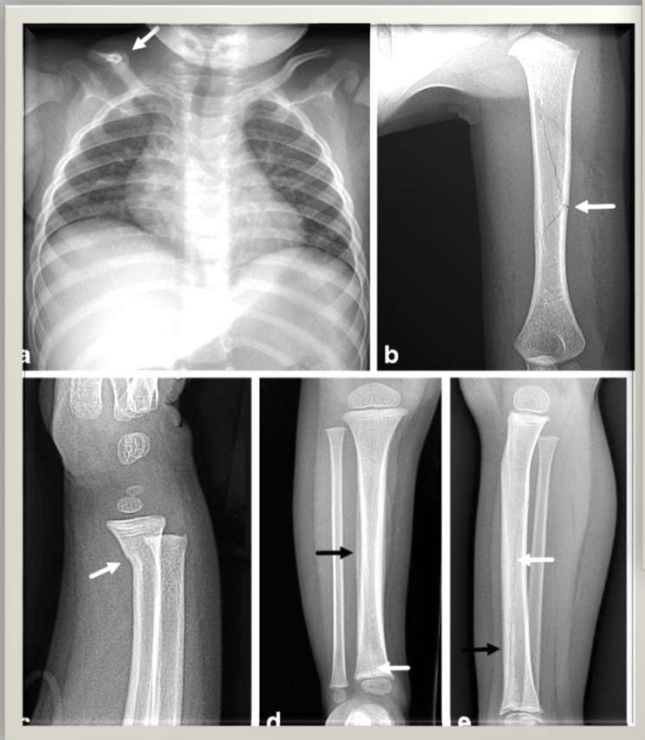
- Fractures suggest abuse include **metaphyseal** lesions , **posterior rib** fractures, **scapula**, **sternum**, and **spinous processes** that require more force than a minor fall or routine handling .
- In abused infants rib , metaphyseal , and skull fractures are most common .
- Femoral and humeral fractures in non ambulatory infants are very worrisome.



## Clinical manifestation

- Multiple fractures in various stages of healing are suggestive of abuse.
- Clavicular, femoral, supracondylar humeral, and distal extremity fractures in children **older than 2 yr** are most likely noninflicted unless they are **multiple or accompanied by other signs of abuse**.

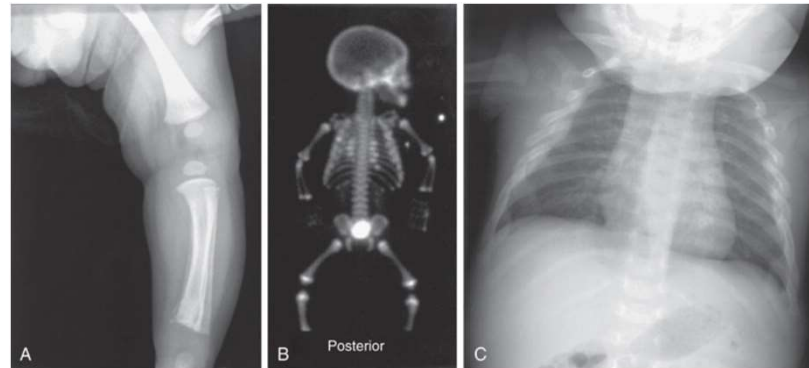




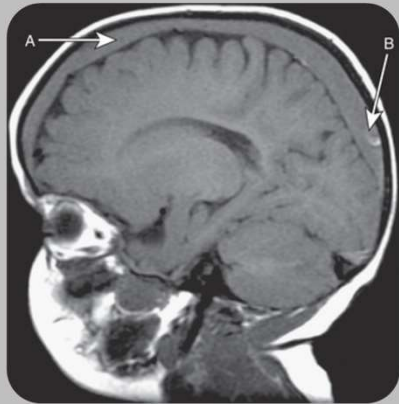
# Radiologic Findings

High Specificity:

- Classic metaphyseal lesions
- Rib fractures, especially posteromedial
- Scapular fractures
- Spinous process fractures
- Sternal fractures



## Abusive head trauma (AHT):

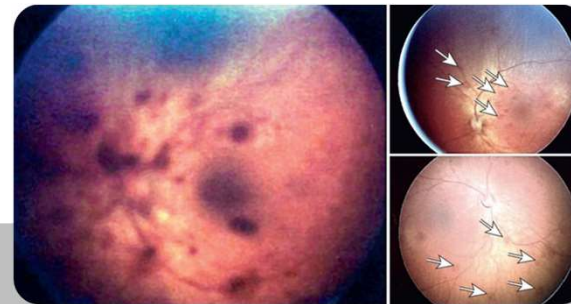


## Abusive head trauma (AHT):

- Abusive head trauma (AHT) may be caused by **direct impact, asphyxia, or shaking**.
- Subdural hematomas , retinal hemorrhages, and diffuse axonal injury suggest AHT, especially when they occur together .
- Signs and symptoms may be **nonspecific** : lethargy, vomiting (without diarrhea), changing neurologic status or seizures, & coma.

## Abusive head trauma (AHT):

- AHT is best evaluated by initial and follow-up **brain CT**.
- MRI is best obtained 5-7 days after an acute injury.
- When AHT is suspected, **injuries elsewhere** (skeletal & abdominal) should be ruled out.
- **Retinal hemorrhages** are an important marker of AHT.
- Hemorrhages that are multiple, involve >1 layer of the retina, extend to the periphery are suspicious for abuse.



## Abdominal trauma:

- Abdominal trauma accounts for morbidity and mortality in abused children.
- A forceful kick can cause hematomas of solid organs ([liver](#), [spleen](#), [kidney](#)) from compression against the spine.
- Intraabdominal bleeding may result from trauma to an organ or from shearing of a vessel.





## Abdominal trauma:

- The manifestations of abdominal trauma are subtle. Bruising of the abdominal wall is unusual.
- Delayed perforation may occur days after the injury; bowel strictures or a pancreatic pseudocyst may occur weeks later.
- Screening should include **liver and pancreatic enzyme** levels, and testing **urine** for blood. Children with lab results indicating injury should have abdominal CT performed.



## Oral lesions:

Oral lesions may present as bruised lips, bleeding, torn frenulum, and dental trauma or caries (neglect).



# Management

Consultation  
& Report



History &  
Physical Exam



Treatment



## Assessment of possible Abuse & Neglect

After complete evaluation and [treatment of the child's urgent medical needs](#), the evaluating clinician should determine the [level of suspicion](#) for child abuse (ie, whether the injuries appear to have been inflicted or unintentionally acquired). Whenever possible, this determination should be made in [consultation](#) with a multidisciplinary child abuse team (eg, social worker, nurse, and child abuse specialist).



## Assessment of possible Abuse & Neglect

- The identification of suspected abuse at the initial evaluation is critical to **treat the injuries** and to **protect** the child from a subsequent, perhaps more serious injury.
- Children returned to their families/primary caregivers without intervention after an event of maltreatment have an 11 to nearly 50 percent chance of a second event



# Management and reporting

**Hospitalization** may also be warranted for the treatment of certain conditions (eg, burns, ingestion, or intracerebral injury) and may also be indicated for the safety of the child. In addition, children currently sharing a household with an abused child require prompt evaluation for possible abuse.



# Assessment of possible Abuse & Neglect

- ✓ A thorough **history** should be obtained from the parents via separate interviews.
- ✓ Verbal children should be interviewed separately.
- ✓ Open-ended questions (Tell me what happened?) are best. Some children need more directed questioning (How did you get that bruise?). Leading questions must be avoided (Did your daddy hit you?).
- ✓ A thorough **physical examination** is necessary. Careful documentation is essential.



## Assessment of possible Abuse & Neglect

- ☐ For abuse : What is the evidence for concluding abuse? Have other diagnoses been ruled out? What is the mechanism of the injury? When did the injury occur?
- ☐ For neglect : Do the circumstances indicate that the child's needs have not been met? Is there evidence of actual harm? Is there evidence of potential harm?





# Assessment of possible Abuse & Neglect

- A child's **safety** is a main concern.
- What is **contributing** to the maltreatment?
- What **interventions** have been tried, with what results?
- What is the **prognosis** ?
- Is the family **motivated** to improve the circumstances?
- Are there **other children** in the home who should be assessed for maltreatment?



## Assessment of possible Abuse & Neglect

- When **questions** of abuse arise, a thorough evaluation must assess the plausibility of the given **history**, findings on **physical examination**, the possibility of undiagnosed explanatory **medical conditions**, and the presence of additional **occult injuries** that further contribute to the diagnosis of abuse.

## Red flag history for child physical abuse

- Caregiver offers no history or specifically denies history of trauma despite severe injury
- Implausible history for degree or type of injury\*
- Unexplained or excessive delay in seeking care
- Injury attributed to in-home resuscitation efforts
- Caregiver histories that change with retelling or conflict with versions from other observers
- Severe injury explained as self-inflicted or blamed on other young children or pets

\* Examples of implausible histories include major trauma attributed to a "fall down the stairs" or other short fall, such as a fall from a sitting position, or an injury mechanism that requires the child to have capability beyond his or her developmental level (eg, severe scald burns in a 12-month-old attributed to the patient "turning on the hot water faucet").

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## Red flag injuries suggesting physical child abuse in infants and young children

| Injury             | Patient age   |   |   |   |
|--------------------|---|---|---|---|
|                    | <6 months   | 6 to 12 months  | 1 year old  | 2 to 3 years old  |
| Soft tissue injury | Frenulum tears or unexplained oral injuries (teeth, lips, palate) | Frenulum tears or unexplained oral injuries (teeth, lips, palate) | Frenulum tears or unexplained oral injuries (teeth, lips, palate) | Frenulum tears or unexplained oral injuries (teeth, lips, palate) |
|                    | Isolated subconjunctival hemorrhage outside of the newborn period |   |   |   |
|                    | Any bruise  |   |   |   |
|                    |   | Unexplained bruises in non-cruising children                      |   |   |
|                    |   | Bruises of the trunk, ear, neck, jawline, or cheek                | Bruises of the trunk, ear, neck, jawline, or cheek                | Bruises of the trunk, ear, neck, jawline, or cheek                |
|                    |   | Patterned bruising  | Patterned bruising  | Patterned bruising  |
| Burns              | Unexplained burns   | Unexplained burns   | Unexplained burns   | Unexplained burns   |
|                    | Burns in the shape of a heated object                             | Burns in the shape of a heated object                             | Burns in the shape of a heated object                             | Burns in the shape of a heated object                             |
|                    | Immersion burns   | Immersion burns   | Immersion burns   | Immersion burns   |
|                    | Burns of the perineum <b>and</b> lower extremities                | Burns of the perineum <b>and</b> lower extremities                | Burns of the perineum <b>and</b> lower extremities                | Burns of the perineum <b>and</b> lower extremities                |



|                        |  |  |  |  |
|------------------------|--|--|--|--|
| <b>Fractures</b>       | Multiple fractures in different stages of healing                                | Multiple fractures in different stages of healing  | Multiple fractures in different stages of healing  | Multiple fractures in different stages of healing                      |
|                        | <b>Any</b> fracture other than skull or clavicle fractures in the newborn period | <b>Any</b> fracture other than skull fracture<br>Skull fractures without history or other than simple linear parietal type | <b>Any</b> rib fracture<br>Humerus fracture, other than supracondylar<br>Fractures of other long bones<br>Fracture without trauma history or presenting with evidence of healing | Fracture without trauma history or presenting with evidence of healing |
| <b>Intracranial</b>    | <b>Any</b> subdural hemorrhage/hygroma   | <b>Any</b> subdural hemorrhage/hygroma   | Unexplained subdural hematoma without history of high-energy trauma (eg, motor vehicle collision, long-distance fall)  |  |
| <b>Visceral injury</b> | <b>Any</b> visceral injury   | <b>Any</b> visceral injury   | Traumatic visceral injury unexplained by motor vehicle collision or verified history of accidental high-energy blow to the abdomen*  |  |

In the absence of significant, independently verified trauma mechanisms like motor vehicle collisions, the listed injuries by age should prompt further evaluation for physical child abuse. Other injuries not listed may also warrant further investigation. Refer to UpToDate content on recognition of physical child abuse.

\* Proximal hollow-viscus and pancreatic injuries are more common in abuse than accidental trauma in young children and justify additional scrutiny of the given history.



## Assessment of possible Abuse & Neglect

- When evaluating the child who is suspected of being physically abused, it is also important to remember that findings that appear to indicate abuse may result from other causes.
- Familiarity with the medical conditions and cultural practices that mimic child abuse and careful medical, laboratory, and radiologic evaluation can facilitate arrival at the correct diagnosis, initiation of appropriate therapy, and avoidance of the consequences of an unfounded report of suspected child abuse





## Bruises:

- Bruises are the most common type of injury in abused children. However, nonabusive traumatic bruising is also common once infants are cruising or walking.
- In addition to abusive and nonabusive traumatic bruising, the differential diagnosis of bruising includes a number of medical disorders, including:
  - Bleeding disorders
  - Vitamin K deficiency
  - Salicylate ingestion
  - Immunoglobulin A vasculitis (Henoch-Schönlein purpura) and other vasculitides
  - Dermal melanosis (formerly Mongolian spots)
  - Hemangiomas

# Bruises:

the following bruising characteristics should raise suspicion for child abuse:

- Any bruising in infants **younger than six months** of age
- **More than one bruise in a premobile infant** and more than two bruises in a crawling child
- Bruises located on the **torso, ear, neck, or buttocks**
- Bruises with a pattern of the striking **object** (eg, slap, belt, or loop marks ;spoons; spatulas; or other objects)
- **Human bite** marks

**Loop mark**





# Fractures:

Fracture present:

- Nonabusive trauma
- Osteogenesis imperfecta
- Pathologic fracture due to osteopenia caused by limited mobility in children with cerebral palsy or other neuromuscular disease
- Congenital insensitivity to pain
- Pathologic fractures from metabolic bone disease, including rickets, vitamin C and copper deficiency, cholestatic liver disease, or neoplasm



# Fractures:

Fracture absent:

- Normal bone variants
- Periosteal reaction from drugs, infection, or infantile cortical hyperostosis (Caffey disease)



## Burns:

The differential diagnosis of burns in possible victims of child abuse includes abusive and nonabusive burns, phytophotodermatitis, and impetigo



## Conditions with multisystem manifestations:

- ✓ Multisystem manifestations suggestive of trauma (eg, fractures, subdural hematomas, and retinal hemorrhages) without an explanatory history increases the chance of child abuse.
- ✓ Conditions that may be confused with multisystem trauma are **rare** but include osteogenesis imperfecta (OI), Menkes disease, Ehlers-Danlos syndrome, and congenital insensitivity to pain.



## Diagnostic evaluation for suspected physical child abuse

| Patient characteristic  | Order/action   |
|---|--|
| <b>INITIAL EMERGENCY EVALUATION</b>   |  |
| <ul style="list-style-type: none"> <li>All patients</li> </ul>  | <p><b>Report to child protective services (where applicable)</b></p> <p><b>Consult (directly contact consultant):</b></p> <ul style="list-style-type: none"> <li>Social work</li> <li>Child abuse specialist/team</li> <li>Trauma surgery</li> </ul>                                     |
| <ul style="list-style-type: none"> <li>Infant &lt;6 months old, regardless of physical findings</li> <li>Infant 6 to &lt;12 months old with external head injuries on examination OR skull fracture OR fracture highly suggest of abuse (eg, rib fractures or metaphyseal fractures)</li> <li>Child of any age with signs suggesting intracranial injury</li> </ul> | <p><b>Perform neuroimaging:</b></p> <ul style="list-style-type: none"> <li>Head CT*</li> </ul>   |
| <ul style="list-style-type: none"> <li>All children &lt;2 years old</li> <li>Child &lt;5 years old AND (neurologically impaired OR distracting injury OR suspicious index fracture)</li> </ul>  | <p><b>Perform skeletal survey radiographs</b></p>  |
| <ul style="list-style-type: none"> <li>Infant &lt;6 months of age</li> <li>Older child with trunk bruising or significant injury (eg, fracture, intracranial hemorrhage)</li> </ul>   | <p><b>Screen for abdominal injury:</b></p> <ul style="list-style-type: none"> <li>AST</li> <li>ALT</li> <li>Lipase</li> </ul> <p><b>AST OR ALT &gt;80; lipase &gt;100:</b></p> <ul style="list-style-type: none"> <li>CT abdomen with intravenous contrast (no oral contrast)</li> </ul> |



- Child with bruising or bleeding<sup>†</sup>

#### Screen for bleeding disorder:<sup>Δ</sup>

- CBC with platelets
- PT, INR, aPTT
- VWF antigen
- VWF activity
- Factor VIII level
- Factor IX level
- Factor XIII level (if intracranial bleeding)
- D-dimer (if intracranial bleeding)
- Fibrinogen (if intracranial bleeding)

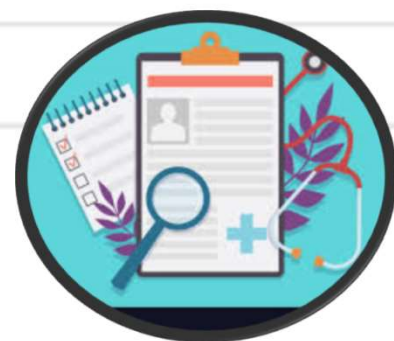


- Children with suspected drug exposure, poisoning, or symptoms suggesting drug toxicity

- Serum and urine toxicology screen<sup>◇</sup>

## FURTHER EVALUATION

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>Child with intracranial bleeding</li> </ul>   | <p><b>Screen for metabolic disease:</b></p> <ul style="list-style-type: none"> <li>Urine organic acids</li> <li>Plasma amino acids</li> </ul>  |
| <ul style="list-style-type: none"> <li>Child with suspected abusive head trauma, periorbital bruising, or eye injury</li> </ul>              | <p><b>Identify retinal hemorrhages:</b></p> <ul style="list-style-type: none"> <li>Ophthalmology consult within 72 hours<sup>§</sup></li> </ul>  |
| <ul style="list-style-type: none"> <li>Child with concern for abuse due to fracture(s)<sup>¶</sup></li> </ul>                                | <p><b>Screen for metabolic bone disease:<sup>¶</sup></b></p> <ul style="list-style-type: none"> <li>Serum calcium and phosphorus</li> <li>Serum alkaline phosphatase</li> <li>Intact parathyroid hormone level</li> <li>25-OH vitamin D level</li> </ul> <p><b>When osteogenesis imperfecta is suspected:<sup>¶</sup></b></p> <ul style="list-style-type: none"> <li>COL 1A1, COL 1A2, IFITM5 gene sequence</li> </ul> |
| <ul style="list-style-type: none"> <li>Male infant &lt;6 months old with fracture<sup>¶</sup></li> </ul>                                     | <p><b>Screen for Menkes disease:<sup>¶</sup></b></p> <ul style="list-style-type: none"> <li>Serum copper level</li> <li>Serum ceruloplasmin level</li> </ul>   |
| <ul style="list-style-type: none"> <li>Child with symptomatic neurologic injury</li> </ul>   | <p><b>Evaluate for cervical spine soft tissue and additional brain injury:</b></p> <ul style="list-style-type: none"> <li>At 2 days, MRI of cervical spine and brain</li> </ul>  |
| <ul style="list-style-type: none"> <li>All children with continued suspicion of physical child abuse after the initial evaluation</li> </ul> | <p><b>Evaluate for healing initially undiagnosed fractures:</b></p> <ul style="list-style-type: none"> <li>At 2 weeks, repeat skeletal survey radiographs; omit skull, lateral spine, and pelvis views</li> </ul>  |



## References:

- UPTODATE 2023: Child Abuse
- Nelson Text Book of Pediatrics 2020.





