Disclosures

- In the past 12 months, I have had no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial service(s) discussed in this CME activity.

Objectives

- Identify bruising concerning for abuse.
- Plan the medical evaluation for children of different ages with bruising or other skin findings concerning for abuse.
- Choose the correct evaluation for occult trauma.
- Correctly select, order and interpret the significance of radiology studies.
- Understand when to make a referral to child protective services.
Case 1: Presentation

- 2 yo brought to ED for unexplained bruising
- In the care of relatives while mom was out of town
- Aunt noted increased bruises after visit with dad

Case 1: Medical History

- No reported injury history
  - When asked what happened, patient said the names of some cousins and of dad’s wife, but no disclosures
  - No history of bleeding issues or past easy bruising for patient or family
Which characteristics of the history and exam are concerning for physical abuse?

A. Age of the child – 2 years old
B. Developmental ability – mobile
C. Location of bruising
D. Absence of accidental trauma history
E. A & B
F. C & D
G. A, B, C & D

What other labs, radiologic studies do you want to order?

A. No further work up
B. Skeletal survey
C. LFT
D. Bleeding labs
E. Skeletal survey + LFT
F. Skeletal survey + LFT + Bleeding labs
G. LFT + Bleeding labs

Case 1: Medical Evaluation

- Bleeding labs, abdominal trauma labs, skeletal survey were done
  - Skeletal Survey: Normal
  - AST/ALT/Lipase: Normal
  - CBC: Platelets 17K → 6K
- Diagnosis: Idiopathic Thrombocytopenic Purpura (ITP)
Case 2: Presentation

- 5-week-old baby brought to local ED for bleeding and “sore” under tongue

Case 2: Other Exam Findings

- Physical exam showed several small non-blanching marks concerning for bruising

What labs/radiologic studies would you order?

A. No additional testing  
B. Skeletal Survey  
C. Skeletal Survey, Head CT  
D. Skeletal Survey, Head CT, Bleeding Labs  
E. Skeletal Survey, Head CT, Bleeding Labs, LFT

Case 2: Additional Medical Evaluation

- Bleeding labs normal  
- Head CT normal  
- LFTs normal
Case 2: Skeletal Survey Results

- Classic metaphyseal lesions (CMLs) of distal right femur and proximal right tibia

What is the mechanism or underlying cause of CML’s?

A. Metabolic bone disease/rickets
B. Brittle bones
C. Yanking, jerking, pulling on extremity
D. Torque/twisting force
E. Axial load

Case 2: Investigative History

- Oral injury:
  - Dad reported he “swiped” a hair out of her mouth with a finger, then fed and saw a small “spot” of blood on bottle
  - More significant bleeding after later feed
  - Tripped while carrying and holding a binky in her mouth – no bleeding
- Bruising:
  - Mom thought birthmarks → resolved at 2 week follow up
- Fractures:
  - Mom reported seeing dad “yank” baby’s legs during diaper changes a few weeks prior
What is your diagnosis?

A. Concern for physical abuse
B. Child physical abuse
C. Screening for maltreatment
D. Bruising, fractures, oral injury

How would you convey your concerns to DCF?

- Think, pair, share:
  - Concerns for baby’s safety?
  - Risk for baby?
  - Possible interventions, services?
  - Next steps?

The case worker asks you if you can date the bruises? How do you answer?

A. 0-1 days old
B. 1-3 days old
C. 3-5 days old
D. > 5 days old
E. There are bruises of multiple ages
F. Bruises cannot be dated by visual assessment alone
Case 3: Presentation

- Sibling disclosed PGP hit 7 year old patient when acting out
- PMH: negative

- 8 year old sibling said dad choked him and held him down
- PMH: negative

Do these siblings need additional evaluation?

A. No additional evaluation
B. Bleeding labs
C. LFT
D. Skeletal survey (SS)
E. Bleeding labs, LFT
F. Bleeding labs, LFT, SS

What additional next steps or services may be helpful?

- Think, pair, share
  - Consider forensic interview
  - Discussion about physical discipline
  - Therapy resources
  - Safety
Case 4: Presentation

- 4-month-old boy presented to ED with chief complaint of a “rash”
- ED provider c/o rash, infection or trauma

What is the most likely cause of these findings?

A. Allergic reaction
B. Assault by a dog
C. Human bite injuries
D. Eczema with infection
E. Sepsis
F. Leukemia

Case 4: Follow Up

- 4 month old with injuries from human bites
- Appearance of hyperpigmented marks to back unchanged at follow up 2 weeks after initial presentation
The hyperpigmented skin findings on the back are most typical of:

A. Bruising  
B. Eczema  
C. Allergic reaction  
D. Healing bite marks  
E. Dermal melanosis

Case 5: Written communication

- Medical documentation is a form of written communication  
  - We are trained to use it as a method of communication between medical providers  
- In cases of child abuse and neglect, documentation as an additional purposes:  
  - To clearly communicate a diagnosis of abuse (or alternative diagnosis)  
  - To provide the rational or support for this diagnosis  
  - And to discuss the significance of the diagnosis

Case 5: Written communication

- 2-year-old girl in care of stepfather while mother is at work  
- Mother returns home to find her child in the living room with marks on her skin  
- Stepfather states that he does not know what happened  
- Mother finds a broken hairbrush in the living room  
- Mother brings the child to the Emergency Room and the girl has the following findings on exam...
Case 5: Written communication

- Take out your pens!
- As I show you the following physical findings, write down
  - How you would document and describe them

- Think about...
  - Your diagnosis based on the information provided
  - The rational for your diagnosis and the significance of the findings and diagnosis

PMH: healthy, no prior hospitalizations or surgeries; no bleeding problems, no prior injuries/ED visits

FHx: mom healthy, father healthy, no sibs; no h/o bleeding disorders/problems

SHx: mom and dad divorced, both remarried; no hx with CD/LE

ROS: +vomiting, +acting tired

What additional tests would you order?

A. Head CT
B. Head CT, Skeletal Survey
C. Head CT, Skeletal Survey, LFT
D. Head CT, Skeletal Survey, LFT, Bleeding Labs
Case 5: Written communication

- All additional tests/studies are normal/negative for occult injury or other underlying medical conditions.
- Write down a diagnosis/impression as you would if you were seeing this child in the ED
- Write down a rationale for your diagnosis

Diagnosis:
- Child physical abuse
- Patterned bruising to head, arms, torso

Rationale: 2-year-old otherwise healthy girl with patterned bruising to multiple planes of her face and body. The pattern and extent of bruising is not typical of normal childhood play/activity. Appearance of some injuries is typical of being hit with open hand and a brush. These injuries are indicative of repeated incidents of blunt force trauma and consistent with the diagnosis of child physical abuse.

Significance: Placing an abused child back into an abusive home setting without addressing the cause of the abuse places the child at great risk of future harm and/or death.

Take away points
- Indicate your diagnosis in clear manner (i.e. Diagnosis: Child Physical Abuse)
  - There is a big difference between diagnosing “Concern for Child Physical Abuse” or “Suspicion of Child Physical Abuse” and diagnosing “Child Physical Abuse”
  - May change response of investigators and child protection services (CPS)
Case 5: Written communication

- Take Away Points
  - Rationale: Here you want to succinctly convey why you think it is child physical abuse
    - Provide support for your diagnosis in words that are understandable to medical and non-medical professionals
    - Can put qualifiers: given the currently available information, further investigation is needed, given the information available at this time...
  - Explain what the significance of the diagnosis is and list your recommendations
    - Risks, safety implications, long term outcomes and need for therapy, medical follow up

Case 5: Written communication

- Be aware that your documentation may be used in court
  - Read through to check for errors, make changes
  - Use spell and/or grammar checks in electronic medical records
  - Also record any disclosures by documenting what questions are asked and exactly what the children say
  - May not remember months or years later when called to testify
  - Documentation is a way to preserve a record of the factors that were used in making a diagnosis

Brief Case: Patterned bruising

- History: Fell down stairs
- Diagnosis: Child physical abuse
- Rationale: 1 year old with facial bruising. History not consistent with accidental mechanism. Has multiple parallel linear bruises to face typical of a slap mark. Consistent with diagnosis of child physical abuse.
- Further Work Up: Bleeding d/o labs, LFT, CT head, SS
Brief Case:
Patterned bruising

History: Spanked

Diagnosis:
- Child physical abuse

Rationale:
- 8 year old with patterned bruising (loop marks). Typical of being hit with belts or cords (flexible object), consistent with diagnosis of child physical abuse. Recommend use of nonphysical forms of discipline.

Further Work Up:
- Forensic interview, SCAN follow up

Case 6: Presentation

- 6 year old boy returns from dad and stepmom’s care with bruising and scratches
- Had itching/hives after visit to the zoo
- Unknown cause of bruising, maybe rough housing with similar aged stepbrother (not witnessed)

Does this child need additional evaluation?

A. No additional evaluation
B. Bleeding labs
C. LFT
D. Skeletal survey (SS)
E. Bleeding labs, LFT
F. Bleeding labs, LFT, SS
**Case 6: Medical Evaluation**

- No labs or radiologic imaging performed
- Meds: Adderall, no medications that would cause easy bruising/bleeding
- No history of easy bruising/bleeding
  - Does bruise frequently- typically on arms, legs, bony prominences
  - Seems more than usual to mom

**Case 6: Investigative Information**

- No disclosures by siblings
- No new information from dad or stepmom (unsure of how bruises occurred)
- Motor development: very active for age, running/jumping/climbing/etc

**What is your diagnosis?**

A. Concern for physical abuse  
B. Child physical abuse  
C. Bruising  
D. Concern for supervisinal neglect  
E. Normal exam, no concerns
Case 6: Written Documentation

- **Diagnosis:**
  - Concern for physical abuse vs supervisory neglect
  - Autism spectrum disorder, global developmental delay with language impairment, ADHD

- **Rationale:**
  - Bruising and abrasions are nonspecific (not patterned, not in locations with high specificity for physical abuse); could be accidental though inflicted injury cannot be excluded (by adult or another child)
  - Vulnerable child, more than expected in 24-hour period raises concern for abuse vs lack of supervision since no history is known.

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Brief Case: Skull Fracture with History

- 4-month-old
- Witnessed fall off bed
  - Rolling both ways
- Left parietal skull fracture
- No bruising on exam
- CT head and SS negative apart from known linear parietal skull fracture

**Diagnosis:** 4-month-old with isolated linear parietal skull fracture after witnessed fall off bed. History provided is a plausible explanation for this injury. No additional evaluation or report indicated at this time.

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Brief Case: Skull Fracture without History

- 8-month-old with swollen boggy scalp
- No known trauma history
- Multiple care environments
- Pulling to stand, cruising
- No bruising on exam
- CT and SS with left parietal skull fracture, otherwise negative

**Diagnosis:** 8-month-old cruising infant with isolated left parietal skull fracture; no known history of trauma.

- Indeterminant injury: consider supervisinal neglect, inflicted injury can not be excluded
- Report to DCF
- Repeat SS in 2-3 weeks
Case 7: Presentation

- 2 yo male presents with multiplanar bruising
- Patient at daycare on Friday, no bruises when mom picked up
- Mom and child spent weekend at mom’s boyfriend’s house
- Found on floor Monday AM by boyfriend after reported fall off bed
- Vomit in bed

Does this child need additional evaluation?

A. No additional evaluation
B. Bleeding labs
C. LFT
D. Skeletal survey (SS)
E. Head CT
F. Bleeding labs, LFT
G. Bleeding labs, LFT, SS, CT

Case 7: Lab and Radiologic Findings

- AST: 578
- ALT: 698
- Abdominal CT: Grade 3 Liver Laceration
- CBC WNL
- PTT elevated 37.5
- Factor 9 low at 40, repeat low at 36
  - Mild hemophilia B
What is your diagnosis?

A. Concern for physical abuse  
B. Child physical abuse  
C. Bleeding disorder  
D. Concern for supervisinal neglect

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Case 7: Conclusions

- Bleeding Disorders Do Not Protect Children From Abuse

Quick Note on New AAP Bleeding Disorder Clinical Report

- Absence of a family history of a bleeding disorder or bleeding/bruising symptoms does NOT rule out a bleeding disorder
- Key components for evaluation:
  - History
  - Location(s) and pattern(s) of bruising
  - Mobility and developmental status of child
Quick Note on New AAP Bleeding Disorder Clinical Report

- In an immobile child:
  - Suspicious bruising should result in a simultaneous evaluation for abuse and bleeding disorders

Quick Note on New AAP Bleeding Disorder Clinical Report

- Initial tests for suspicious bruising:
  - Evaluates for conditions more common than 1 in 500,000
  - If abnormal results or further testing desired, consult hematology
Quick Note on New AAP Bleeding Disorder Clinical Report

- Changes you may wish to make in practice:
  - Simultaneous evaluations for bleeding disorders and abuse in immobile children
  - Use of data to guide the necessity of an evaluation for bleeding d/o
  - Use of data to guide which bleeding d/o tests to perform
QUESTIONS?!?!?

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