Bruises, Bumps and Burns: It’s More Than Skin Deep

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Speaker’s Disclosure

• The speaker of this CME activity has no relevant financial relationships with commercial interests to disclose.
Objectives

• Recognize the importance of a thorough cutaneous exam in the evaluation of child physical abuse

• Recognize patterned cutaneous injuries concerning for physical abuse

• Be familiar with cutaneous injuries that require further medical evaluation
“Those Who Don’t Cruise Rarely Bruise”

- Study examined frequency and location of bruising in 973 infants and toddlers of various ages and developmental stages
- Incidence of Bruising by Developmental Stage:
  - Pre cruisers: 11 of 511 (2.1%)
  - Cruisers: 18 of 101 (17.8%)
  - Walkers: 165 of 318 (51.9%)
- Take Home Messages
  - Bruising is rare in normal infants and precruisers
  - Bruising becomes more common in cruisers

Case 1

• 5 year old boy evaluated for concerns of physical abuse

• History is obtained from Mom with the child present

• Mom states that CPS came to her home and told her to bring the child because he reported at school that his “Dad hit him”

• Mom reports she does not have concerns of abuse but Dad does spank the child on the bottom
Case 1 (cont.)

• Past Medical History – Otherwise healthy

• Social History – Mom and Dad in the home, no prior CPS history

• CARE consult requested

• Diagnostic labs ordered
  • CMP, CBC, amylase, lipase
Case 1 (cont.)

- Physical exam with bruising noted to the left arm
  - Concerning for loop marks
Case 1 (cont.)

- On CARE evaluation...

- **FULL** skin examination revealed additional bruising not previously documented

- Additional photodocumentation was obtained

- Patient was interviewed alone and reported the injuries were from being hit with a belt
Case 1 (cont.)

- Would you get additional labs??
  - Consider PT, PTT and CK
  - Urinalysis (part of trauma panel) to look for +RBC → myoglobinuria

- Labs all within normal limits

- Skeletal survey??
Case 1 (cont.)

- Remember to do a full skin examination unclothed

- Remember to take a history from verbal patients when possible (separate from caregivers)

- Request photodocumentation (or obtain if possible if not on main campus for the patient file) for injuries concerning for abuse
15 mo with bruising to face and body

Case 2
15 mo with bruising

• 15 mo brought to Mom for unexplained bruising
• Mom picked up from babysitter the night prior
• Woke up this morning and saw bruising to face and body
• Physical exam:
  • Lungs: diffuse wheeze
  • Skin: see photos
• PMH – asthma
15 mo with bruising

• Describe the skin exam findings.

• What are you concerned about?

• What will you do next?
15 mo with bruising

- Screening labs
  - CMP, CBC, amylase, lipase - unremarkable
- Skeletal survey
  - Negative for skeletal injury

- Any additional tests?
  - CK – within normal limits
  - Facial bruising... Head CT – negative for intracranial injury
15 mo with PATTERNED bruising

• Summary
  • Patterned injury should raise concern for inflicted injury
  • Medical issues (the A, B, C’s) take precedence in a trauma... i.e. if your patient can’t breathe, don’t send them to skeletal and take photos and make them mad without fixing respiratory problem 😊
  • Even if you aren’t brought an object, look for injury patterns and recognize them to determine the cause of injury (also aids investigation)
Patterned Injuries

- Slap mark
- Loop mark
- Grab mark
  - Cheek
  - Upper arm
Case 3

- 3 year old with history of being hit in the eye with a shoe
- Past Medical History
  - unremarkable
- Review of Systems
  - Positive for easy bruising x1-2 weeks
Case 3 (cont.)

- Lab testing significant for platelet count 7K
- Hematology consulted for ITP
Abdominal Bruising

Cases 4-6
Case 4

- 2 year old female who presented with reported fall
- Reportedly fell off a toy car and hit her head while in the care of Mom’s boyfriend
- Mom noticed bruising so brought her to the ED
- Physical exam is notable for multiple bruises and abdominal tenderness
Case 4 (cont.)

• Screening labs are most notable for:
  • AST 7543 (H)
  • ALT 6116 (H)
  • CK 385 (H)
  • UA – large blood

• Head CT (non-contrast) – negative

• CT Abdomen and Pelvis (w/contrast)
  • Acute significant hepatic laceration
  • Moderate hemoperitoneum
  • Moderate severe ileus with fluid-filled bowel loops
Case 4 (cont.)

- Laparoscopic exploration and evacuation of the hemoperitoneum was performed
- An intraperitoneal laceration was identified in the pelvis
- CARE Team reported to the OR for forensic evidence collection and ano-genital examination under anesthesia
- Reports were made to CPS and law enforcement
Case 5

- 4 year old sent by CPS due to suspected physical abuse of his sibling
- 4 day history of abdominal pain and nausea
- Currently on antibiotics for an ear infection
- Physical exam is notable for:
  - Bruising of the gums
  - Bruising of the abdomen/flank area
Case 5 (cont.)

- Screening labs are most notable for:
  - AST 1645 (H)
  - ALT 1141(H)
  - UA – unremarkable

- Head CT (non-contrast) – negative

- CT Abdomen and Pelvis (w/contrast)
  - Acute liver laceration
  - Hemoperitoneum
  - Right adrenal hemorrhage

- Reports made to CPS and law enforcement
Case 6

• 4 year old male transferred from the PCP clinic for concerns of physical abuse
• Reported history of having been punched in the abdomen
• Sent home from school that day due to abdominal pain
• Physical exam is notable for:
  • Bruising to the right thigh
  • Bruising to the abdomen
  • Abdominal tenderness
Case 6 (cont.)

- (report from PCP) CT Abdomen
  - Abnormal small bowel dilatation and thickening suggestive of infectious or inflammatory process such as Crohn's disease (more likely infectious process)
  - The pelvis was not imaged and the appendix was not imaged

- Screening labs are most notable for:
  - AST 42
  - ALT 76 (H)
  - CK 37

- Head CT (non-contrast) – negative for intracranial injuries
Case 6 (cont.)

- Surgery recommended exploratory laparoscopy based on clinical findings and exam (+guarding)
- Open laparotomy was performed and showed
  - Small bowel injury
  - Hemoperitoneum
- Small bowel resection was completed
- Reports were made to CPS and law enforcement
Case 7

• 23 month old girl sent by CPS for evaluation of healing burn
• 1 week prior Mom heard patient crying from the bedroom while Mom was in the bathroom
• Mom finds patient crying with hair straightener on the floor next to her
• Mom left the hot straightener on a dresser near where the patient was found
Case 7 (cont.)

- Screening labs normal
  - CBC, CMP, amylase, lipase
- Skeletal survey was negative
- What do you tell CPS?
18 mo burn patient

Case 8
ED presentation

• Brought by Mom due to concern for a burn
• Mom heard him scream from the other room
• Found him between the wall and the bed
• Picked him up and noticed a burning smell
History (cont.)

- Black markings on his bottom per Mom
- Ran cold water on the area but marks wouldn’t come off
- Mom took him to the ED for medical evaluation
Physical Exam
Work Up

• What else do you want to know?
• What do you see?
• What are you going to do?
• Are you concerned for abuse/neglect?
Work Up (cont.)

- PE otherwise unremarkable
- CBC, CMP, amylase and lipase unremarkable
- EKG reported as normal
Conclusion

- No reports made to CPS
- Family was encouraged to make a report to the (CPSC) consumer product safety commission
Summary Points

• A full unclothed skin exam is required for cases of suspected physical abuse
• Patterned bruising such as slap marks, loop marks, or grab marks are diagnostic of inflicted injury
• Abdominal bruising should prompt further evaluation for occult abdominal trauma with consideration for the clinical history, lab results, and imaging findings
• Consider additional work up for burn injuries
  • Electrical – EKG
  • Scald or contact – UDS
  • Unexplained – skeletal survey <2 years old