When it’s not abuse: Mimics to include in the differential diagnosis

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Speaker Introductions

• Dr. Kristen Morris is a certified pediatric nurse practitioner with more than 15 years of experience. She has been in her current role as the program coordinator for Child Abuse Pediatrics since 2016, where she works with a child abuse pediatrician at Peyton Manning Children’s Hospital at St. Vincent Ascension in Indianapolis. Her role includes consult and evaluation of children where there are concerns related to any type of child maltreatment. She completed her DNP in 2013 from Valparaiso University and earned both her MSN and BSN from Indiana University at IUPUI. Her interests include providing education to other healthcare providers around recognition and evaluation of child maltreatment. She implemented a “No Hit Zone” environment within a year-long research study among staff in 2017. Most recently, she completed a year-long quality improvement project around the Safe Sleep policy at her hospital. She is currently the secretary of the Child Maltreatment SIG.

• Barbie Mulvaney is a certified pediatric nurse practitioner with the Indiana University School of Medicine Child Protection Program at Riley Hospital for Children. Her responsibilities include working as part of a multidisciplinary team providing inpatient and outpatient evaluations when child maltreatment is a consideration. She has worked in child maltreatment evaluations since 2010. Ms. Mulvaney completed her MSN at IUPUI School of Nursing, ASN from Ivy Tech Community College and a BCS in general studies, minoring in behavioral sciences from IUPUI. Current research interests include trauma-focused care, child sexual abuse, and abuse prevention. She is currently the co-chair of the Child Maltreatment SIG.

Disclosures

We have no disclosures.

Learning Objectives

• List alternative diagnoses for skin findings often mistaken for abuse.
• Differentiate skeletal trauma from dysplasia.
• Identify commonly misdiagnosed anogenital variations.
• Recognize potential diagnoses that may require collaboration with other subspecialists

Child maltreatment as a subspecialty: Pediatric Nurse Practitioners in Indiana

Our teams diagnose more than just maltreatment.

Case 1

CC:
Big bruise noticed by babysitter during diaper change. Mom says present since birth.
Case 1
PMH: 3 m/o former FT infant
ROS: Negative
PE: Non-blanching macule left abd., otherwise negative

Case 1
Maltreatment or Mimic?

Case 2
CC: “Bruises on back and arms” when mother got him out of crib this morning.

Case 2
PMH: 10 m/o former FT infant
ROS: Negative; has been healthy
PE: Pink-red warm blanching macules on upper arms and back, otherwise negative

Case 2
Maltreatment or Mimic?

Case 3
CC: 3y/o male awoke with “marks all over body”, refusing to bear weight or walk
Case 3
PMH: Recent “virus”; Fell out of bed
ROS: Stooling accidents recently
PE: Discoloration to multiple planes of body, feet edematous, refuses to walk or stand

Case 3
Maltreatment or Mimic?

Case 4
CC: 3 m/o fussy and right leg seems to hurt

Case 4
PMH: Former FT infant, healthy, IUTD
ROS: Refusing to bear weight on right leg since yesterday afternoon; 4 days prior had been ill with runny nose and vomiting, and had red marks in inner corner of both left and right eyes when MOC arrived home from work. Right eye resolved now.
PE: Left sclera with medial SCH, crying in pain with any movement during exam

Case 4
Maltreatment or Mimic?

Case 5
CC: “Cigarette burn marks on face”
Case 5
PMH: Healthy

ROS: Fever 100°F x 2 days

PE: Oval shaped inflamed papulosquamous lesions on face and abdomen

Case 5
Maltreatment or Mimic?

Case 6
CC: 15 m/o male with new patterned rash and no history of trauma

PMH: Healthy, no recent illness

ROS: Negative; no trauma

PE: Patterned marks on skin of lower back and thigh

Case 6
Maltreatment or Mimic?

Case 7
CC: Missing clump of hair
Case 7

PMH: Previously healthy 16-month-old female

ROS: Negative, healthy

PE: Vertex of scalp with missing hair and areas of varying lengths of hair

Case 8

CC: Upper chest bruise on 8-month-old with no history of trauma.

PMH: Born at term without complications

ROS: Seems “weaker than normal”, frequent URIs. No longer meeting developmental milestones.

PE: Dark pink non-blanching macules on upper left chest and neck, remainder negative.

Case 8

Maltreatment or Mimic?

RADIOLOGY:

• Skeletal survey:

INITIAL LABS:

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Case 9

CC:
6 w/o not moving right arm after fall from Dad’s arms onto carpeted surface today

Case 9

PMH: Born at term without complications

ROS: “Fussy” infant, otherwise healthy

PE: Fussy and cries with movement; sublingual frenula area red/purple & swollen; green-yellow non-blanching macule on left upper chest

Case 9

Maltreatment or Mimic?

Case 9

RADIOLOGY:
Skeletal survey:

Skin Findings Summary

Differentiating skin mimics from maltreatment
• History
• Physical exam
• Presence of or history provided of sentinel injury

Skin Findings Summary

Examples of Sentinel injuries:
1. Bruises
2. Subconjunctival hemorrhages
3. Intraoral injuries
Skin Findings Summary

Does it blanch??

- Blanching occurs with erythema (vascular dilation) as blood empties at point of pressure then refills

FACES
F: Frenula
A: Auricular area/angle of jaw
C: Cheek
E: Eyelid
S: Sclera

Case 10

CC: Not moving left arm (9 month-old) following fall off of adult bed one hour ago

Case 10

PMH: Former full-term infant exclusively breastfed

ROS: Negative

PE: Normal except pain with movement of left arm

Maltreatment or Mimic?
Case 10

RADIOLOGY:
• Skeletal survey negative (except for left humerus)
LABS:
• CBC, BMP, LFTs, Calcium – all WNL

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Case 10: Diagnosis

Harper et al., 2014; Lindberg et al., 2015

Case 11

CC:
Increased coughing and wheezing

• X-ray evaluation in ED revealed 3 subacute rib fractures

PMH: Recent 4 day PICU admit on vent for bronchiolitis; constipation since age 3 months
ROS: Corrective glasses since age 6 months for “lazy eye”, history of FTT, short stature
PE: Dysmorphic facial features, hypotonia

Maltreatment or Mimic?
Case 11

Rib fractures of 7th and 8th AL ribs; contour abnormalities
Thoracic dextrocurvature

Case 11

Wormian bones

Case 11

Gracile bone shape

Case 12

CC:
Vomiting after feedings

- X-rays completed as part of ED workup reveal numerous rib fractures in various stages of healing

Case 12

PMH: Two month-old former 36 week preemie received CPR at birth for apnea; projectile vomiting worsening in past two weeks

ROS: Has been healthy other than worsening vomiting after feeds

PE: Dysmorphic facial features, hypotonia, mild increased WOB
**Case 12**

**Maltreatment or Mimic?**

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**Case 12**

RADIOLOGY:
- Skeletal survey: Overall osteopenic gracile long bones, numerous fractures present.

LABS:
- CBC, CMP, thyroid studies WNL
- Alk Phos: 515 (nl range 104-345 U/L)

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**Case 13**

CC: Breathing fast
- Bruise on back noticed during ED evaluation

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**Case 13**

PMH: Two month old former FT infant
- ROS: 3 day history of rhinorrhea, otherwise healthy
- PE: Non-blanching blue-gray macule on upper right scapula, mild tachypnea

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**Case 13**

Skeletal survey with areas of periosteal reaction mid-diaphyseal locations of both tibia and humeri
Case 13

Maltreatment or Mimic?

Skeletal Findings Summary

1. Be concerned when child not moving an extremity
2. The absence of bruising does not mean there is not a fracture

3. Consider skeletal survey in young children less than 2 yrs. *and some older children*
4. Assess for history of or current sentinel injury

Case 14

CC: 6 y/o having pain with urination, and vaginal area itching x one week

Referral source: “Looks like a firecracker went off in her vagina”

PMH: Healthy, no recent illness
ROS: Negative except for one week history of some pain with urination and vaginal itching
PE: Friable appearing vulvar tissue

Maltreatment or Mimic?
Case 15

CC: Inner thigh bruising and pain with urination today

PMH: Healthy, no recent illness

ROS: Negative other than pain with urination after reported fall onto crib rail last night.

PE: 3 mm laceration right side of labia minora, bilateral upper thigh scattered blue-purple non-blanching macules c/w bruising

Case 15

Maltreatment or Mimic?

Case 16

CC: “She has two holes”

PMH: Healthy

ROS: Negative, no recent illness

PE: Band of tissue connecting labia minora across vaginal opening

Case 16

Maltreatment or Mimic?
Case 17

CC: Bumps on upper legs and inner thighs

PMH: 4 y/o with one week history of painless raised bumps near genital area. No other concerns.

ROS: Healthy, no recent illness

PE: Several firm, dome shaped papules with central umbilication present on anterior and medial thighs

Case 18

CC: 4 y/o with small amount of blood in panties and difficulty with urination since yesterday

PMH: Healthy, IUTD

ROS: No recent illness

PE: Red, inflamed appearing urethral projection

Maltreatment or Mimic?
Case 19

CC:
Diaper area bleeding and raw after returning from weekend visit at Dad’s house.

PMH: Former full-term infant
ROS: Negative; some recent constipation
PE: Excoriated and sloughing skin on inner buttocks and scrotum, otherwise negative exam.

Case 19

Maltreatment or Mimic?

Case 20

CC:
3 y/o toilet trained female screaming during urination at home after Mom picked her up from babysitter earlier.

PMH: Healthy, IUTD
ROS: Negative, no recent illness
PE: Red, inflamed laceration at superior insertion point of labia minora.

Case 20

Maltreatment or Mimic?
Case 20

Spontaneous utterance by child:

References

Anogenital Summary

1. It is “Normal to be Normal”
2. Redness is non-specific
3. Know how to assess genitalia

References

Conclusion

- When evaluating skin findings consider a broad differential diagnosis.
- Recognize that not all skeletal findings are due to trauma.
- Familiarize yourself with normal anogenital anatomy.
- Become familiar with your local resources for collaboration when there are concerns for child maltreatment.
- Utilize available resources from the AAP.

References

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