Child Abuse – Or Not?
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Medical Mimics of Abuse

Objectives
1. Discuss common and uncommon mimics of physical abuse
2. Discuss common and uncommon mimics of sexual abuse
3. Apply your knowledge of mimics in your practice

Differential Diagnosis of Abuse

Accidents are the most common mimic of physical abuse
Many medial mimics have been described
Important to think about differential diagnosis in every case
Just like every other medical problem

Approach

Physical Abuse
- Abuse by category of injury
Sexual Abuse
- Common clinical scenarios
- Focus on what comes up, what is interesting

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My patients
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AAP
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No longer identifiable
Physical Abuse

Case
2 month old breast fed Hispanic baby
Removed from home due to grab marks on his back
Juvenile court judge orders CAC evaluation

Bruises and Marks

Case
Marks - no change in 10 days
Dermal melanosis (Mongolian Spots)
Sounds simple – yet sometimes so confusing
Baby, now bottle fed, returned home
Mother provided with pictures, explanation letter

Dermal Melanosis
Melanocytic migration interrupted
Present in more than 80%
Black
Asian
Hispanic
10% Non-Hispanic Caucasian
Visibility varies at different times
Fade over years
Case

14 year-old girl has awakened with new bruises for 5 days. She thinks it's a hex. Her father is incarcerated for DV. Bi-polar stepmother thinks the girl's boyfriend is hurting her. The girl denies this. The school calls CPS and they ask for an urgent medical evaluation at the local CAC.

Case

History - minor injuries only
Physical - only the bruising
Lab
H&H normal
WBC normal
Platelet count < 9000
Idiopathic Thrombocytopenic Purpura

Coagulation Disorders

Increased bruising in accident-prone locations
Major bruise/minor trauma
Bruising generally not patterned
Ongoing bruising in protected care
FH sometimes helpful (hemophilia)

Henoch Shonlein Purpura (HSP)

Vasculitis
Skin
GI tract
Kidneys
Joints
Folk Remedies

Coining
Southeast Asian
Special oil applied to 'sick' body part
Rubbed with coin until marks occur
'Bad winds' released

Cupping
Primarily southeast Asian, Russian
Glass cup is heated or suction device is used
Cup placed on ill body part, suction creates erythema, petechiae
Case

7 year-old boy in for elective surgical repair of something
Recovery room nurse notes grab marks and buttocks bruising
You are asked to evaluate

Parents unaware of marks, stunned
Didn't wash off with soap
Hunch – you grab an alcohol swab
Off they come!

Inks, Dyes, Markers

Betadine
Kids or siblings with markers
New clothing (blue jeans)
Think of it
Always try to wash it off with alcohol

Sucking Marks

Venkata RN & Woolley C. Arch Dis Child. 2015;100(4):415
Medical Mimics of Bruises

- Dermal melanosis (Mongolian Spots)
- Hemangiomas
- Ehlers Danlos Syndrome
- Incontinentia pigmenti
- Coagulation disorders
- Vitamin K deficiency
- Anticoagulant ingestion

Burns

HSP
Erythema multiforme
Phytophotodermatitis
Drug reactions
Folk Remedies
Dyes, stains, markers
Extravasation
Stretch marks

Case

27 month old with cystic fibrosis referred for a dunk burn

Skeletal survey without fractures
Further questioning
Loose stools? – awoke with one in diaper
Any laxatives in home? – yes, ate entire pack of chocolate ExLax last night

It's All About the History

Case

Head to toe physical otherwise normal
Skeletal survey without fractures
Further questioning
Loose stools? – awoke with one in diaper
Any laxatives in home? – yes, ate entire pack of chocolate ExLax last night

Phytophotodermatitis

Phototoxic skin reaction to psoralens
Lemon, lime, celery, others
Erythema, blisters, hyperpigmentation
May appear in delayed fashion
Phytophotodermatitis

Patients of Rich Kaplan MD

Hobo Spider Bite

Bite can be painless when occurs
Painful later
Erythema, necrosis
May or may not have systemic symptoms
Dramatic lesion, no history

Case

In clinic you ask the child what happened to her hand.
"It was just like that after I tried on mommy’s work gloves!"
Diagnosis – latex allergy
A quick call to the police is made...

It’s All About the History

Case

6 year old girl with ‘burn’ on hand
Reported by neighbor night before
Police arrested mom
Child placed in shelter care
CPS refers to you next day

Case

18 month old seen for cigarette burns
Parents smoke
Lesions spreading
Bullous Impetigo

- Staph aureus that produces an exfoliating toxin
- Starts as bullae, spreads
- Different sizes, shapes
- Favors buttocks, axilla, neck

Medical Mimics of Burns

- Epidermolysis bullosa
- Scalded skin syndrome
- Impetigo
- Laxative exposure
- Spider bites
- Chemical exposures (bleach)
- Contact dermatitis
- Numular eczema
- Folk remedies
- Car seat upholstery
- Car belt buckle
- Hair tourniquet syndrome

Fractures

Case

- 2 month old with oblique femur fracture
- No explanation
- Radiology calls about the skeletal survey
Follow-up skeletal survey – CML
Mom admits to frustration during diaper change
Abuse and medical conditions can co-exist!

Case

Osteogenesis Imperfecta

At least 8 and up to 14 different types (4 main ones)
Described mechanism fits fracture type but described force insufficient
Multiple fractures may be a clue
Only 10% had more than 2 fractures in one study


Osteogenesis Imperfecta

Inherited disorder of connective tissue
90% have problem with collagen type 1 synthesis, genes COL1A1 and COL1A2 mutations
6-7 of 100,000 people have OI
Wide range of severity

Screening for OI

Physical Exam of Child
- Blue sclera
- Ligamentous laxity
- Dentinogenesis imperfecta
- Short stature

Family History
- Blue sclera
- Ligamentous laxity
- Dentinogenesis imperfecta
- Short stature
- Easy fractures as children
- Early hearing loss
- Early osteoporosis

Screening for OI

Radiographic Findings
- Osteopenia
- Wormian bones (> 8-10)
- Thin long bones, cortices
- Thin ribs
- Bowing

Osteogenesis Imperfecta

If good clinical screening yields clues
- Genetics consult
- Blood DNA testing

Weak Bones

Nutritional rickets
- Osteopenia of prematurity
- Disuse osteopenia

Nutritional Rickets

Vitamin D Deficiency related most common type
- Popular defense theory
- We would expect clinical or radiologic evidence of rickets, if this was causing the fractures

Cupping and Fraying
Osteopenia of Prematurity

Calcium and phosphorus dynamics not ideal
Miss most important time of supply from mom
Absorption ability decreased
Availability a struggle after birth

“Disuse” Osteopenia

Cerebral palsy
Other neuromuscular disorders
Lack of weight bearing
Also at higher risk of abuse

Case

6 month old referred to your hospital for new onset seizure
Head CT – occipital skull fracture, no soft tissue swelling
No history to explain, baby not yet rolling
Normal cutaneous
Review with radiologist (always do this)

Normal Radiologic Variants

Physiologic periosteal elevation
Nutrient vessels
Accessory sutures
Ossification centers (acromial process)
Physiologic Subperiosteal New Bone Formation (SPNBF)

Result of rapidly growing long bone
Infants 1-6 months of age
Femur, humerus, tibia, (radius, ulna)
Smooth, and usually bilateral and symmetric
< 2 mm thick

Nutrient Vessels

Accessory Sutures

Sternal Ossification Centers

Medical Mimics of Fractures

Birth trauma
Radiologic normal variants
Infections
Osteomyelitis
Congenital syphilis
Osteopenia of prematurity
Disuse osteopenia
Osteopenia from drugs
Rickets
Vitamin D deficiency
Endocrine, renal, liver disease
Skeletal dysplasias
Infantile cortical hyperostosis
Mence’s syndrome
Neoplasms
Langerhans cell histiocytosis
Other

Sexual Abuse
There's Blood In Her Underwear!!

It's Not Always From the Vagina!

Case

4 year old seen by her pediatrician
Blood in underwear
Discharge
Pain for three days
Mom, grandma sure it's sexual abuse
No suspect in mind

Case - "Blood Down There!"
External erythema
Normal anatomy
No bleeding site identified
Culture obtained due to discharge

Group A Strep!

Group A Strep Vulvovaginitis

Anogenital Strep

Hallmarks - erythema, pain
Possibly fever, sore throat, discharge
Not always dramatic
Culture, rapid strep (warn lab)
Rx as for strep throat

Lichen Sclerosis et Atrophicus

Autoimmune
Prepubertal children, postmenopausal women
Hallmarks
Scratching
Minor trauma – bruising, bleeding
Figure 8 of atrophic skin
Lichen Sclerosis et Atrophicus

Treatment
Hygiene
Antihistamines
Topical steroids
Chronic, recurrent condition – proactive management

Case

8 year old African American girl presents to your CAC with ‘vaginal bleeding’
She has dysuria, blood has been found in her underwear
Her mom is sure that the father sexually abused her
There is no disclosure

Urethral Prolapse

Cause – unknown
Risk factors – things that increase intraabdominal pressure
Hallmarks
Bleeding, sometimes dysuria
80-90% occurs in prepubertal Afro-American girls
### Urethral Prolapse

**Treatment**
- Sitz baths
- Estrogen cream
- Surgery if strangulates

### Hemangiomas

**Irritation, ulceration, pain**
- **Bleeding**
- **Infection**

### Hemangiomas

### Straddle Injury

**In general:**
- Unilateral
- Anterior
- External
- Known event

### Withdrawal Bleeding

**Newborn**
- Pediatric providers all over this one
- Day of life 5 most common
- Can last about a week
- Birth control pill ingestion
- Ask about hormones in the home

### Sarcoma Botryoides

- Bunch of grapes appearance
- Rhabdomyosarcoma
- Embryonic muscle cells
- Genitourinary tumor
- Infants and children
- Recurrent unexplained bleeding:
  - Exam under anesthesia
Differential Diagnosis ‘Vaginal’ Bleeding

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<th>Infections</th>
<th>Vaginal foreign body</th>
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<tr>
<td>Group A Strep</td>
<td>Urethral Prolapse</td>
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<td>Shigella</td>
<td>Trauma</td>
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<td>Salmonella</td>
<td>Accidental</td>
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<td>Ingested bcp</td>
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<td>Tumors</td>
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There’s Discharge Down There!!

It’s Not All STDs!

Case

8 year old with discharge and blood
ED - Dad ‘strange’, exam ‘weird’
Recent sleepover with same age male cousins
Parents think the cousins sexually abused her

Cousins on the mend from
Low grade fever
Stomach cramps
Blood tinged diarrhea
Patient had just developed loose stools
Culture – Shigella!
Shigella, Salmonella, Yersinia known for bloody discharge

Gardnerella Vaginalis

Nonspecific vaginitis from bacterial overgrowth
Gardnerella is normal flora in gi tract
Not a sign of sexual abuse by itself

Vaginal Foreign Bodies

Common occurrence
Infection prone (Staph)
Recurrent odiferous discharge
Sometimes bloody
Flush out
Take care if long term, high up
May epithelialize
Non-Venereal Infectious Causes of Vulvovaginitis

- Shigella
- Salmonella
- Yersinia
- E. Coli
- Enterococcus
- Pin worms
- Gardnerella
- Group A Strep
- H. Influenza
- Neisseria meningitides
- Strep pneumonia
- Staph aureus
- Foreign body with infection
- Other

Case

12 year old girl goes to ED with pain 'down there' and dysuria
Clinical diagnosis of HSV
Mom is told this means sexual abuse
Mom's long term BF has hx of 'herpes'
DCFS tells him to move out

She's Covered With Blisters Down There!

IT'S NOT ALL HERPES!

Case - The Rest of the Story

Referral to child protection team
Denial of SA from child
Boyfriend's 'herpes'
Recent sleepover with girl friends
Our PCR did grow HSV
Family back together after much trauma
It's all about the history!

Case - Key Points

Herpes is not a clinical diagnosis
Must unroof lesions, send for culture or PCR
Type (1 or 2) not helpful

Other Mimics of Herpes

- 'Herpeiform Aplheu'
- Knife Like Ulcers - Crohn Disease
Case - Key Points

Herpes is transmitted many ways
- Autoinoculation
- Innocent inoculation
- Sexual inoculation
There is a differential diagnosis for genital blisters
Must culture/do PCR to show it is herpes

Acute Genital Ulcers

Sudden onset of genital ulcers (of any cause)
Most common causes
- Herpes
- Apathosis
- EBstein Barr Virus

Apathosis

Condition characterized by the formation of apthae (ulcers on mucous membranes)
- Oral apthosis
- Genital apthosis
No identified infectious cause
Can recur ('complex apthosis')

Kissing Ulcers

Nonspecific
- Common in EBV

Bechel Disease

Vasculitis, immune mediated
Rare in children
Oral and genital ulcers
Uveitis
Arthritis
Other

Medical Mimics of Genital Vesicles and Ulcers

<table>
<thead>
<tr>
<th>STDs</th>
<th>Vulvar apthosis</th>
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<tbody>
<tr>
<td>HSV</td>
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<td>Hand Foot &amp; Mouth Disease</td>
<td>Carcinomas</td>
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<tr>
<td>Other</td>
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</table>
There's Bumps Down There!

It's Not All HPV – But a Lot of It Is

Case

2-5/12ths year old sees PCP after mom finds blood in the diaper
Diagnosis of irritated genital warts, referred
Not concerned about sexual abuse prior to the blood, warts

Molluscum Contagiosum

Common in children
Spreads like wildfire
More confusing if agminated (bunched together)
Not a sign of SA by itself

Pearly Penile Papules

Small skin colored structures
More common if uncircumcised
Occur in 8-48% overall
Not related to sexual activity
Not infectious
Vestigial of penile spines in animals?
Vestibular Papillomatosis

Fleshy projections of the genital epithelium
Not related to sexual activity
Not infectious
Female counter part to PPP

Other Things

Many things can be confusing

Case

10 year old girl with acute sexual abuse
14 year old brother put his penis in her ‘butt’
Brought to the ED
Anogenital exam - injury into rectum
You and the surgeon are called in

Case

You arrive first (!)
No history of bleeding
Colposcopy

Sperm in the Urine

Frantic call from the lab
Sperm in the UA of a little girl!
Random patient you know nothing about
Things to think about

Correct specimen?
Is it mother’s urine?
Parasite? (Myxosporidium)
Big head with vacuoles
It could be sexual abuse

Erythema Multiforme

Hypersensitivity reaction
Tends to follow infections (HSV), medications
Target lesions, red raised papules
Can resolve leaving hyperpigmentation

Moxibustion

Primarily Chinese, SE Asian
Heated moxa root (mugwort) put on ailing body part
Stimulates circulation