Myths and Mimics of Child Abuse
Alicia Pekarsky, MD
Assistant Professor of Pediatrics
Child Abuse Referral and Evaluation Team
Upstate Golisano Children's Hospital
March 4, 2010

Objectives

- Differentiate between myths and findings that mimic abuse and findings that are suspicious for abuse.
- Discuss steps to improve the documentation of cases in order to facilitate review of the case by an expert.

Myth

- You can accurately date a bruise based on its color
Truth

- As a bruise heals it may exhibit many colors
  - Red, violet, black, yellow, green, brown
- No predictable order or chronology of color progression

Truth (in 1991)

- A bruise with yellow in it is > 18 hrs
- The other colors may appear from 1 hr after the injury until the resolution of the bruise
- Bruises of identical cause and age on the same person may not appear the same

Langlos and Bresham, 1991

Truth (today)

- Timing of yellow bruising is unclear
- Accuracy of physician determination is < 40%
- Interobserver reliability is poor
- Do NOT use color to date a bruise

Maguire, et.al., 2005
Factors that affect the rate of bruise resolution

- Amount of
  - extravasated blood
  - applied force
  - tissue damage
- Vascularity and location of the tissue
- Patient factors
  - Age
  - Skin color

Stephenson, 1997

Myth

- The skin overlying a fracture is typically bruised in cases of abuse

Truth

- Peters, et.al. identified 192 children with inflicted skeletal fractures
- Main outcome measure was presence of bruising and fracture in a single body region or extremity
- 43.3% of children with skull fractures had associated bruising
- 3.8% of children with tibia fractures
- 16.7% of children with fibula fractures

Peters, et.al., 2008
Bruising associated with fractures in child abuse

- Skull bone fractures are most frequently associated with bruising
- Extremity and rib fractures are least associated with bruising
- The absence of a bruise overlying a fracture does not decrease the likelihood of abuse

Peters, et al., 2008

Myth

- Sexual abuse is a common cause of genital bleeding

Truth

- Differential diagnosis of genital bleeding in a pre-pubertal child
  - Trauma
  - Genitourinary tract
  - Gastrointestinal tract
  - Dermatologic conditions
  - Infectious diseases
  - Oncologic processes
Straddle Injuries

- Accidental injury to the midline ano-genital structures
- Occur when a child straddles a firm object as he/she falls
- Compression of soft tissues against bones in pelvic outlet

Straddle Injuries

- Most cause damage to the soft tissues overlying the pubic symphysis, the labia, as well as the posterior fourchette and perineum.
- Compared with injuries caused by abuse, straddle injuries are often unilateral.
- They usually only cause damage to the external genitalia.

Straddle Injuries

- Because the hymen is recessed within the labia, accidental hymenal injury generally requires an object to penetrate through the labia to the more internally located hymen.
- Scrutinize the child and the caregiver’s history in this type of case.
## Suspicious Straddle Injuries

- Extensive trauma
- Non-ambulatory child
- Coexisting non-genital trauma
- Lack of correlation between history and physical findings

Dowd, et.al., 1994

---

## Lichen Sclerosis et Atrophicus

- Initial lesions are white or yellow papules
- Lesions coalesce to form plaques
- Skin becomes atrophic
  - Predisposition to hemorrhage after minor trauma

---

## Lichen Sclerosis et Atrophicus

- Typically occurs on the vulva and perianal region, producing a characteristic hourglass or “figure of 8” appearance.
- Might not be as apparent in very fair skinned individuals, which makes the diagnosis difficult.
**Lichen Sclerosis et Atrophicus**

- Most common symptoms
  - pruritus and soreness
- Fissures can cause pain or become infected
- Can cause labial adhesions in girls and phimosis in boys

Poindexter and Morrell, 2007

---

**Urethral Prolapse**

- Protrusion of the urethra through the external meatus
- Bleeding, pain, dysuria
- Most common in pre-pubertal black girls

---

**Urethral Prolapse**

- Use a cotton-tipped swab to elevate the potentially prolapsed urethra to expose the hymen in order to confirm that the rest of the anatomy is normal.
**GABHS Anogenital Infections**

- Auto-inoculate by manual transfer
- Vaginitis/Balanitis: erythema, edema, discharge
- Perianal: erythema, edema, pruritus
- Usually no fever

Koks, et.al., 1987

**Perianal GABHS**

- Group A Strep that is transmitted to the perianal area can cause extreme pruritus, which can cause more erythema and edema.

**Myth**

- A colposcope is necessary for a sexual assault examination
**Colposcope**

- A colposcope is a piece of equipment that is used for illumination and magnification.
- It is usually attached to a computer where digital images can be stored for documentation purposes.

---

**Truth**

- A colposcope is helpful, but not necessary
- Can use other light sources
  - Otoscope or flashlight
- Need to document your findings
  - Camera or drawing

---

**Myth**

- Victims of sexual abuse usually have physical exam findings
Truth

- Findings are extremely rare
  - Elasticity of the tissue
  - Duration of time since abuse
  - Many acts of abuse are not physically traumatic

Kellogg, 2005

Myth

- Some girls are born without hymens

Truth

- 1,131 female neonates were examined prior to discharge from the nursery
- All had hymens

Jenny, et al., 1987
**Myth**

- Females are born with an “intact” hymen

**Truth**

- The hymen is a ring of tissue at the orifice of the vagina
- Various configurations:
  - Annular, crescent, fimbriated, septate, cribiform and imperforate

**Annular Hymen**

- An annular hymen is hymenal tissue in a complete annular ring around the vaginal opening.
### Crescent Hymen
- In the supine position, the anterior portion of a crescent hymen lacks tissue, while the posterior portion has a thin crescent rim of tissue.
- The main difference between this and an annular hymen is that a crescent hymen lacks tissue under the urethra.

### Fimbriated Hymen
- Fimbriated hymens are seen in pubescent girls and older, secondary to the effects of estrogen.
- Fully fimbriated hymens have lots of redundant tissue.

### Septate Hymen
- With a septate hymen there a thin band of tissue extending across the vaginal opening.
- Passing a q-tip from side to side behind the band of tissue can confirm that it is a septate hymen, not a vaginal septum, which could indicate a duplicated GU system.
Cribiform Hymen

- A cribiform hymen has multiple, small perforations.
- This type of the hymen is much less common than the other variants.

Imperforate Hymen

- At birth, the central portion of the hymenal membrane is typically absent. This is a consequence of normal embryology.
- Persistence of the central portion of the hymen results in an imperforate hymen.

Hematocolpos

- Patients with imperforate hymens must undergo surgical incision.
- If they don’t, they will develop hematocolpos, which is an accumulation of menstrual blood behind the hymen.
- Some girls will report symptoms of cyclic, crampy abdominal pain that is consistent with menses.
### Cutaneous Mimics of Child Abuse
- Non-inflammatory conditions
- Inflammatory conditions
- Cultural practices

### Dermal Melanosis
- Slate grey or blue macules/patches
- Typically over the lumbo-sacral spine and buttocks
- Predominantly in black, Asian and Hispanic babies

### Patient KA
- Document all skin findings, including normal variants, during routine exams.
- The finding looked like Mongolian spots. However, it could have been bruising from inflicted trauma.
- Upon review of her medical records, we found a note that had identified these same lesions several months prior.
Patient KA

- Having this documentation is extremely important in order to provide timely information to Child Protective Services.
- In the absence of documentation of Mongolian spots on a prior visit, you might have to wait a couple of weeks to see if the lesions resolve.
- If the lesions were inflicted, the child may be abused again before you make a determination and report this to CPS.

Nevus Flammeus

- Vascular cutaneous markings create discrete areas of erythema.
- These marks occur on the head and are highly visible.
- They have a very classic appearance.
- The color changes with Valsalva maneuver.
- They blanch if stretched.

Striae

- Striae can be distinguished by their orientation along Langer lines and their symmetrical distribution.
- Langer lines mean that the long axis of the lesion is parallel to the lines of skin tension.
**Striae**

- Newer striae that are still pink to erythematous can be even more difficult to differentiate from inflicted trauma.
- A characteristic location for boys is the lower back.

---

**Impetigo**

- The most frequent mimic of child physical abuse
- Honey-colored crust
- *Streptococcus pyogenes* and *Staphylococcus aureus*
- Spreads if untreated

- Wheeler and Hobbs, 1988

---

**Impetigo**

- Lesions have a thin yellow crust and can be different sizes.
- If the same cigarette is used “on end” to burn someone’s skin, the lesions will be the same size or close to the same size every time.
Cigarette Burns

- Vary from circular bullae to deep, punched out craters with raised edges
- Center of the burn typically the deepest
- 8 mm in diameter
- Document the dimensions of the lesions using a tape measure.
- Photo document the lesions or draw with dimensions

Laxative Induced Dermatitis

- Child ingests laxative
- Laxative produces diarrhea
- Senna in diarrhea causes the dermatitis

Leventhal, et.al., 2001

Laxative Induced Dermatitis

- Desquamating lesions over the buttocks with some sparing over the perianal area
- Creates the appearance of an intentional immersion burn
- Diagnosis is based upon a careful history
Phytophotodermatitis

- Inflammation of the skin caused by the interaction of UV light and psoralens
- Limes, lemons, oranges, figs, celery, parsley, carrots and several flowers

Hill, et.al., 1997

Phytophotodermatitis

- Erythematous skin or even bullous lesions in the shape of the contact
- While handprints and other patterned lesions are suspicious for child abuse, it is extremely unlikely that a contact burn in the shape of hand could be inflicted.

Phytophotodermatitis

- Several days prior girl had tried on perfume that had Bergamot in it.
- One day prior to presentation, her mother noticed bullae on either side of her neck.
- On the day of presentation, the skin had begun to ulcerate.
Cold (Popsicle) Panniculitis

- Characterized by inflammation of the subcutaneous fat after exposure to cold
- Most often seen in infants and young children who suck ice or popsicles

Constriction Bands

- Marks on the legs of a 2-month-old infant looked like ligature marks.
- Evaluation of the baby’s clothing revealed tight elastic socks that matched the location of the lesions exactly.

Cultural Practices

- Some are treated as child abuse in our culture
  - Female genital mutilation
- Some are considered acceptable treatment in our culture
- Must know how the community has treated prior cases

Look and Look, 1997
Female Genital Mutilation

- Considered to be a form of abuse in the US
- Procedures that alter female genital organs for non-medical reasons
- Practiced globally
- Important issue here due to immigration

WHO Categories for Female Genital Mutilation, 1995

Female Genital Mutilation

- Type 1: clitoridectomy
- Type 2: excision
- Type 3: infibulation
- Type 4: other

WHO Categories for Female Genital Mutilation, 1995

Coin Rubbing (Cao Gio)

- Warm oil is applied to the skin
- Coin is vigorously rubbed on skin
- Stripes of petechiae in a geometric pattern

Hulewicz, 1994
**Coin Rubbing**

- Practiced widely throughout SE Asia.
- If you see a pattern such as this one in an individual who is NOT from this region, at least consider abuse.

**Cupping**

- Heated cup is placed against skin
- Trapped air cools and contracts
- Suction creates a confluence of petechiae

Look and Look, 1997

**Moxibustion**

- Chinese medical practice
- Burn small amounts of herbs near acupuncture points
- Direct vs Indirect

Look and Look, 1997
**Moxibustion**

- In one form of indirect moxibustion, a needle is inserted into an acupoint.
- Tip of the needle is wrapped in moxa and ignited.
- After the desired effect is achieved, the moxa is extinguished and the needle(s) removed.
- Currently the more popular form since there is a much lower risk of pain and burning.

**Failure of Midline Fusion**

- Congenital midline defect
- Failure of fusion
  - Can extend from fossa navicularis to anus
  - Isolated defects of the anal verge are most often confused with abuse
- Skin bordering the defect is smooth

Adams and Horton, 1989

**Pseudoverrucous Papules**

- Moist, round, flat topped lesions
- Multiple, each < 1 cm in diameter, located in the urogenital region
- Related to prolonged contact of skin with urine or stool

Marton and Haney, 2008
Pseudoverrucous Papules

- Tend to be approximately the same size.
- HPV lesions vary in size.
- Pseudoverrucous papules present with pain.
- HPV tends to present more frequently with pruritus.

Key Points

- Bruises cannot be dated accurately
- Skin overlying extremity/rib fractures is usually not bruised in abuse
- PE findings are rare in sexual abuse
- All females are born with a hymen
- Hymens have a variety of normal configurations, but should not be referred to as “intact”

Take Home Messages

- Document your exam, including normal findings
- Consider the mimics of physical and sexual abuse
- If unsure, ask for a child abuse consultation (and consider calling Child Protective Services)
Acknowledgements

- Dr. Ann Botash
- The Child Abuse Referral and Evaluation Team

References


References

References

Child abuse is the largest hidden epidemic in our country.