What's New and What's Old in Child Sexual Abuse

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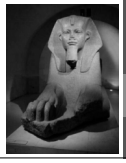
I have nothing to disclose.



Objectives

- Describe the highlights of a timeline of the literature regarding physical findings in child sexual abuse.
- Identify how recent articles affect how findings should be interpreted and documented.

"Why is sexual molestation of children the last frontier in child abuse? What are the major obstacles to identifying child sexual abuse?"."

Suzanne Sgroi, MD

Sgroi, S. (1975). Sexual molestation of children: The last frontier in child abuse. *Child Today,* May-June, 18-21.

The 1975 and 2011 Answers:

- Lack of recognition of child sexual abuse
- Failure to obtain adequate medical corroboration
- Reluctance to report

PLUS:

- Need for education of medical providers
- Confusion and misunderstanding/misinterpretation of findings
- Confusion over the medical provider role

"Medical examiners should avoid being relegated to the role of a *genital-check technician*, only examining the child after the history by the forensic interviewer."

Astrid Heger, MD

Heger,A. Twenty years in the evaluation of the sexually abused child: has medicine helped or hurt the child and family? (1996) Child Abuse and Neglect. 20(10): 893-897.

History

1970s
- Medical provider does a "forensic interview"
- OR Medical provider avoids taking a history

1990s
- Forensic interviewers
- "Genital technicians"

2011
- Extended Forensic Evaluations
- Medical History
- Behavioral history

Physical

1970s
- Genitalia examination minimized in medical education
- Limited resources for evidence collection or STI testing

1990s
- Photocolposcopy
- Standardization of terminology
- Reports of examination techniques
- Improved methods to decrease "trauma" of the exam

2011
- Telemedicine more widespread use
- Digital images
- DNA testing
- STI testing improvements (ELISA vs. NAATs)

Standardization of terminology

- Many terms were invented to describe the findings
- Interpretations were varied and dependent on examiner
- Misinterpretation could not be guaranteed
- Protocols were being written before scientific research was done
- Pressure to interpret findings
- No "certification" for providers or guidelines for expertise

Woodling (1981)

Findings of Acute Molestation:

Perineal, perianal or rectal contusions or ecchymoses
Perihymenal erythema
Spasm of the pubococcygeus muscle
Seminal products
Tense rectal sphincter
Anal fissures

Findings of Chronic Molestation:

Multiple hymenal transections, healed
Rounded hymenal remnants
Spacious introitus
Healed primary laceration at 6 o'clock
Capacity to relax pubococcygeus muscle
Leukorrhea, cervicitis
Reflex relaxation of the anal sphincter

Post-traumatic Changes

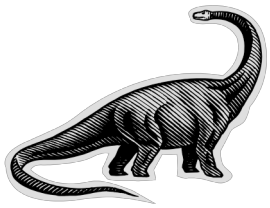
- Hymenal opening size (Cantwell, 1983, Hilton, 1988)
- Attenuated hymen (Emans, 1987)
- Hymenal height or volume (Kerns, 1992)
- Anal relaxation (Hobbs & Wynne, 1990)
- Labial fusion (McCann, 1988)
- Increased friability of the posterior fourchette (McCann, 1988, Emans, 1987, Kerns, 1992)
- Synechiae from hymenal ring to the labia (Emans, 1987)
- Vaginal discharge

Anal Relaxation

- Stool
- Sedation
- Death
- Neurologic problem
- Prolonged exam
- Voluntary?

Obsolete Historical Terms

- Hymenal concavities
- Angular or irregular features
- Irregular edges
- Hymenal carunculae
- Virgo intacto
- Hymenal clefts (?)
- Hymenal thickening (?)
- Attenuated hymen
- Gaping hymen



Approach to Interpretation

- Findings documented in newborns or commonly seen in nonabused children.
  - Normal variants
  - Commonly caused by other medical conditions
- Indeterminate findings: insufficient or conflicting data from research studies
  - Physical exam findings
  - STI diagnosis (eg. warts and Herpes)
- Findings diagnostic of trauma
  - Acute injury to areas other than the hymen or anus
  - Residual (healing injury)
  - Blunt force trauma (acute or healed injury to hymen)
  - Infections
  - Pregnancy or sperm

Adams' Update
Current Opinion in Obstetrics and Gynecology
2008, 20:435–441

"New" Terms

- Notch
- Transection
- Bump
- Perforation
- Hymen depth
- Female Genital Mutilation

- Normal: Shallow or superficial in the inferior rim of the hymen
- Indeterminate: Deep notches
- Diagnostic: Transection or missing hymen

How accurate is this?

Adams' Update
Current Opinion in Obstetrics and Gynecology
2008, 20:431–441

- Indeterminate findings:

Deep notches or clefts in the posterior/inferior rim of hymen, between 4 and 8 o'clock, in contrast to transections.

Adams' Update
Current Opinion in Obstetrics and Gynecology
2008, 20:431–441

Insufficient or conflicting data from research studies (may require additional studies/evaluation to determine significance). These physical/laboratory findings may support a child's clear disclosure of sexual abuse, if one is given, but should be interpreted with caution if the child gives no disclosure; report to Child Protective Services may be indicated in some cases.

- The accuracy of most genital findings to predict abuse is poor.
- Because the number of prepubertal girls with genital findings is low ("extremely infrequent findings"), there is a large Confidence Interval and therefore the absence of a finding (notch, transection, perforation) in the posterior hymen has little impact on the likelihood that a child has been abused.
- The presence of these findings supports the disclosure of sexual abuse but the rarity of the findings limits the ability to use the findings alone to make a diagnosis of abuse.

Non-acute examinations

Summary based on a systematic review of the literature on the diagnostic utility of nonacute physical examination findings for identifying sexual abuse in prepubertal girls

What can we say based on research?

- Posterior hymenal findings are rare in prepubertal girls (abused and more rare in non-abused).
- The presence of posterior hymenal findings is consistent with a history of sexual abuse.

Hymen Diameter: Then and Now

Cantwell, 1983

- Case series of 247 girls
- > 4mm diameter=abuse
- Doubled the number of identified cases due to physical findings

White, 1989

- 242 girls divided by risk
- 88% w/ hx of penile-vaginal penetration had a diameter >4 mm compared to 18% of children with no hx of penetration ($p < .001$)

Berenson, 2000

- Case control study;Tanner staging
- Transhymenal diameters from slides
- Tissue between edge of hymen and vestibule at 6, 3 and 9 o'clock measured
- Less than 1.0mm of hymenal tissue was detected at 6 o'clock only in those with a hx of penetration (100% specificity,1-2% sensitivity)

How Was the Hymen Measured?

- Pugno (1999)- Width between 3-9 o'clock, labial separation just enough to permit visualization,with and without traction in lateral recumbant and knee-chest , precision millimieter scale and comparison scale
- Berenson (2000)-labial traction, stirrups, photographs, when a light reflex was observed at 6 o'clock it was used to estimate the lower border.
- Ingram (2001)--as much labial traction as could be applied, the measurement was made with a measuring device, which consisted of a circular transparency 1 cm in diameter marked in 2 mm increments or the ocular grid of the colposcope.

Ingram (2001)

- Low risk group, high risk group, penetration group=no significant difference
- Conclusion: we do not recommend measuring the hymens of young girls being evaluated for sexual abuse by the method we have used.
- Nonpredictive (method) of nearly all markers of sexual abuse except for three markers of potential genital trauma:
  - hymenal tears or lacerations,
  - hymenal clefts 5 to 7 o'clock,
  - narrowing of the posterior hymenal rim.

Myhre (2003)

- Normal variants in 195 preschool non-abused girls
- New terms: Transitional, tulip, keyhole, fossa navicularis pallor
- 32 girls had an outward folding hymenal edge
- The history provides the single most important finding when diagnosing sexual abuse

Tulip

- Wide hymenal diameter?
- Rolled hymen?
- None of these?

Narrow Hymenal Rim?

Hymenal diameter is affected by age, circulating estrogen, size of child, genetics, relaxation, technique, position, and probably also sexual abuse.

Perpetuating Virgo Intacto

- Underhill (1978): " Virginity was confirmed by the finding of a complete hymenal ring in only 16 of the 28 patients (60%)"
- Woodling (1981): "A glass pipette, French catheter, or Glaister rod may be introduced into the hymenal orifice to deduce the extent of hymenal dilatation, which in most virgo intacto girls is considerably less than the circumference of the erect penis….Some women are born with a congenitally incomplete hymen…"

Mythbusters:

- Jenny: 1987
  - 1131 infants; all were born with hymens
- Mor: (1988)
  - >25,000 newborns, all born with hymens
- Adams: (1999)
  - "It's normal to be normal"
- Kellogg: 2004
  - Pregnant adolescents; "normal does not mean nothing happened"
- Kellogg: 2009
  - Repetitive penile penetration often have no evidence

Anderst (2009)

- The number of reported penetrative events does not correlate with findings.
- 506 patients included in the study, expert review and agreement included in the methods
- History of bleeding associated with hymenal findings, but majority who reported bleeding did not have findings diagnostic of penetrative trauma.

Timing of the Exam: Then and Now

1990s

- Focus on collection of evidence in prepubertal children
- Studies used microscopic and trace evidence and acid phosphatase (Christian 2000) or p30 Antigen (Young 2006)
- Forensic evidence collection unlikely to yield positive results after 24 hours.

2011

- Focus on the timing of the examination
- Findings like bruising or other trauma to the genital area resolves quickly
- The medical exam is a reassuring event that begins the healing process

Watkeys (2008)

- No child should have to wait more than 12 h for an examination following a disclosure of alleged abuse within the previous 7 days.
- Post pubertal girls are more likely to have significant genital signs if they are examined within 7 days of the last episode of sexual abuse.
- Anal findings are more likely to be seen if patients are examined within 7 days of the last episode of abuse.

Labial Fusion: Then and Now

1980's

- A marker for sexual abuse? (Berkowitz 1987, McCann 1988, Muram 1988)
- Treatment was often the rapid "bandaid" approach—manual separation

2011

- Re-epithelialization of vulvar skin secondary to:
  - Lichen sclerosis
  - Graft vs host
  - FG cutting
  - Infection (herpes, other)
  - Sexual abuse
- Treatment with estrogen cream or emolients and improved hygiene (Van Eyk 2009) vs. betamethasone (Mayoglou 2009)

Labial Fusion Treatment

- Risks for use of either estrogen or steroids topically
  - Short-term side effects of topical estrogens:
    - breast budding, rash or irritation, and vaginal bleeding.
  - Short-term side effects of betamethasone:
    - erythema, folliculitis, pruritus, vesiculation, fine hair growth, and skin atrophy.
- Chronic pharmacological treatment of labial fusion using either estrogens or betamethasone has unknown but potentially serious side effects:
  - Adrenal suppression, growth suppression, and possibly cancer in chronic steroid use
  - Risk of cancer in chronic estrogen use

Colposcope

Photodocumentation Pros

- Reduces need for repeat exams.
- Enables peer review (therefore potentially improving interpretation).
- Teaching purpose.
- Provides "evidence" for court.
- Enables provider to show the child she is "normal."
- Aid for visualization.

Photodocumentation Cons

- Patient perception of the photos.
- Usually demonstrates "no physical evidence."
- "Magic Machine" perception of investigators.

Heger,A. Twenty years in the evaluation of the sexually abused child: has medicine helped or hurt the child and family? (1996) Child Abuse and Neglect. 20(10): 893-897.

Other issues

- UTI and sexual abuse
- Genital warts and sexual abuse
- Urethral prolapse
- Gardnerella
- Other STIs

Take Home Points

- What's old is old!
- Use newer terminology in documentation.
- Recognize literature that can be used as a mythbuster.
- Hymenal diameters might eventually be useful as a screening tool.
- Earlier exams are important but exams beyond 72/96 hours are just as important for documenting physical findings.
- The history is the key!

Thank you!