Medical Findings in Child Sexual Abuse

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Welcome to myQIportal

Welcome to myQIportal, a program of the Midwest Regional Children's Advocacy Center, in partnership with the Children's Hospital of The King's Daughters. This quality improvement project is an American Board of Pediatrics approved Performance in Practice (Part 4) Module for Maintenance of Certification. The intent of the myQIportal project is to improve documentation and diagnostic accuracy of child sexual abuse evaluations.

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Case control study of findings from sexual abuse

• 192 girls, age 3-8 with history of digital/vaginal penetration age & race matched to 200 girls with no suspicion of abuse
• Photographs reviewed by 2 examiners blinded to history
• 2.5% of children had findings strongly suggestive of sexual abuse

A comparison of clinical history & medical findings

• Heger et al. *Child Abuse Negl*. 2002;26:645-659
• 5 year prospective study of 2384 children referred for evaluation of sexual abuse
  – 95.6% of children who disclosed had normal exams
  – 99.8% of children referred with behavioral/abuse exposure were normal
  – 6% girls who reported penetration had abnormal genital exams
  – 1% boys with anal penetration had abnormal exams
Normal does not mean Nothing Happened

• Retrospectively analyzed 36 adolescents, ages 12.3-17.8 years, who were pregnant at time or shortly before sexual abuse examination
• Reviewers blinded to medical history other than pregnancy
• 2/36 had findings diagnostic of penetrating trauma

Healing of Hymenal Injuries in Prepubertal and Adolescent Girls: A Descriptive Study

• Multi-centered retrospective study of photo-documentation of the healing process of hymenal injury of 113 prepubertal girls (accidental, abuse, or unknown) & 126 sexual assault pubertal girls
Conclusions of study

- The hymenal injuries healed at various rates
- Petechiae present on hymen up to 48 hours in prepubertal & 72 hours in pubertal girls
- Only deeper lacerations left evidence of the previous trauma
- Abrasions and "mild" submucosal hemorrhages disappeared within 3 to 4 days
- "Marked" hemorrhages persisted for 11 to 15 days
- The final "width" of a hymenal rim was dependent on the initial depth of the laceration
- No scar tissue was identified on the hymen

Healing of Nonhymenal Genital Injuries in Prepubertal & Adolescent Girls: A Descriptive Study

- Multi-centered retrospective study of photo-documentation of the healing process of hymenal injury of 113 prepubertal girls (accidental, abuse, or unknown) & 126 sexual assault pubertal girls
- Initial exam done within 1 hour to 3 days of injury
- Average follow-up 9.9 months for pre and 3.7 months for pubertal girls
- Most common injuries in prepubertal girls were bruising, petechiae, submucosal hemorrhages & lacerations
- Most common injuries in pubertal girls were petechiae, submucosal hemorrhages & lacerations
Conclusions

• Female genital injuries heal rapidly & usually with little evidence of the previous trauma
• Less severe injuries disappeared in 2-3 days
• More severe injuries took 2 weeks to resolve
• Two findings for approximating age of injury
  – No petechiae found beyond 24 hours
  – Blood blisters which usually appeared at follow-up, were associated with more severe injuries, & indicated that injury occurred within past month

Has this prepubertal girl been sexually abused?

• Berkoff et a. *JAMA* 2008;23:2779-2792
• Systematic review >1500 articles & book chapters
• 11 articles; 2 with prepubertal girls with & w/o history of sexual abuse
• Inclusion criteria
  – Contain data about pubertal status and/or age
  – Provide sufficient data for statistical analysis
  – Using well described/reproducible exam technique
  – Reference standard to determine whether child was sexually abused
Results

• Only 2 articles allowed for sensitivity, specificity, and +/- LRs; 95% CIs
• Statistically significant findings:
  – Presence of vaginal discharge (LR, 2.7)
  – Hymenal opening > 6.5 mm in knee chest (LR, 2.0)
• Unknown sensitivity due to small # of children & wide CIs
  • Transections in posterior hymen (LR, 3.1)
  • Deep notches (LR, 5.2)
  • Hymenal perforations (LR, 3.1)

“Take Home Message”

• Study focused on Non-acute genital findings in prepubertal girls
• Diameter of hymenal opening may lack precision & not clinically useful
• Deep notch in inferior hymen, transection of hymen, & perforation of hymen were NOT found in studies of non-abused children and “suggests genital trauma from sexual abuse”
Girls Who Disclose Sexual Abuse: Urogenital Symptoms & Signs after Genital Contact

- Retrospective chart review of 161 girls age 3 to 18 who disclosed direct genital contact
- Used open ended questions
- If reported symptoms – “Did it bother your body, your feelings, or both?”

Results

- 72% of girls the time interval between last contact and exam was ≥ 2 weeks
- Many reported multiple types of genital contact
  - 33% oral/object genital
  - 72% digital-genital
  - 55% genital-genital
60% reported > 1 symptom

- 53% genital pain, 37% dysuria, 11% genital bleeding
- Statistically significant results
  - Parents/guardians reported fewer symptoms
  - Symptoms of dysuria & genital pain more common with genital-genital contact
- Regression Analysis: genital-genital contact is strongest factor predictive of symptom reporting

Anal findings in children with & without probable anal penetration

- Retrospective blinded review of all children evaluated for possible sexual abuse from January 1, 2005 to December 31, 2009
- Medical records & clinical images of 1115 included
  - 84% girls, mean age 9.67
  - 16% boys, mean age 6.26
  - 47% examined within 72 hours
198 children had probable anal penetration

- 155 detailed/consistent history or acknowledgment of abuse + anal pain, painful defecation, or anal bleeding
- 26 witnessed observation
- 12 sperm found in anal canal
- 2 images of age
- 2 perpetrator confession
- 1 anal gonorrhea

Bivariate analysis

- Significant positive association with anal penetration and
  - Anal soiling ($p = 0.046$)
  - Fissure ($p = 0.000$)
  - Laceration ($p = 0.000$)
  - Total anal dilation ($p = 0.000$)
Logistic Regression & Stratification Analysis

• Positive association with anal penetration
  – Soiling
  – anal lacerations
  – Anal fissures

• Total anal dilatation significantly correlated with
  – A history of anal penetration in girls
  – In children examined in prone-knee chest
  – In children without anal symptoms

Author’s Conclusions

“Due to limitations in the study design, this finding (total anal dilatation) should be interpreted with caution in the absence of a clear disclosure from the child.”
Pediatric Genital Injury: an analysis of the National Electronic Injury Surveillance System

- Casey et al. Urology 2013;82:1125-1130
- 20 years of data from US Consumer Product Safety NEISS seen & recorded by EDs
- Genital injuries 0.6 % of all pediatric injuries
- 0.35 genital injuries/1000 children/year
- 57% girls, 43% boys
- Mean age of injury 7.1 years
- Laceration (43%) > contusion/abrasion (42%) > foreign body & hematoma (3%)
Predictors for positive findings in abused children

- Short time since sexual abuse
- Pain at time of sexual abuse
- Bleeding during &/or after abuse
- Physically intrusive type of abuse

The Evaluation of Sexual Abuse in Children
Nancy Kellogg, MD and the Committee on Child Abuse and Neglect

- Findings that are concerning include:
  1. abrasions or bruising of the genitalia
  2. an acute or healed tear in the posterior aspect of the hymen that extends to or nearly to the base of the hymen
  3. a markedly decreased amount of hymenal tissue or absent hymenal tissue in the posterior aspect
  4. injury to or scarring of the posterior fourchette, fossa navicularis, or hymen
  5. anal bruising or lacerations
Findings that are diagnostic of sexual abuse

- The presence of semen, sperm, or acid phosphatase found in or on body of a child
- Pregnancy
- A positive culture for *N. gonorrhoeae* or *C. trachomatis*; or a positive serologic test for syphilis or HIV infection if perinatal transmission has been excluded for the STDs, even in the absence of a positive history

7th Revision Medical Evaluation of Suspected Child Abuse: 2009 Update*

- Findings documented in newborns or commonly seen in non-abused children
- The presence of these findings neither confirm nor discount a child’s clear disclosure of abuse
  - Normal variants
  - Findings caused by other medical conditions

*APSAC Advisor Winter 2010
Found in newborns or common in non-abused children:

- Periurethral or vestibular bands
- Intravaginal ridge or column
- Hymenal bumps or mounds
- Hymenal tags or septal remnants
- Linea vestibularis
- Cleft or notch of anterior (superior, above 3 - 9 o'clock) hymenal rim
- Shallow/superficial notch or cleft in inferior rim of hymen (below 3 - 9 o'clock line)
- Externally hymenal ridge
- Congenital hymenal variants
- Diastasis ani (smooth area)
- Perianal skin tag
- Hyperpigmentation of skin of labia minora or perianal tissues in children of color
- Dilated urethral opening with labial traction
- “Thickened Hymen” (may be due to several causes)

Findings commonly caused by other medical conditions (formerly “non-specific findings”):

- Erythema (redness) of vestibule, penis, scrotum or peri-anal tissues (irritants, infection or trauma)
- Increased vascularity of vestibule & hymen (irritants, or normal non estrogenized state)
- Labial adhesion (irritation or rubbing)
- Vaginal discharge (infectious & non-infectious causes)
- Friability of posterior fourchette or commisure (irritation, infection or examiner's traction)
- Anal fissures (constipation or perianal irritation)
- Venous congestion or pooling perianally (child's positioning or constipation)
Conditions mistaken for abuse

- Urethral prolapse
- Lichen sclerosus et atrophicus
- Vulvar ulcers (may be caused by various viruses, i.e., EBV, influenza, or by conditions such as Bechet or Crohn’s Disease)
- Failure of midline fusion aka perineal groove
- Rectal prolapse (often caused by infection-Shigella)
- Complete dilation of internal and external anal sphincter revealing the pectinate line
- Partial dilation of anal external sphincter with internal closed causing appearance of deep folds in the perianal skin
- Marked erythema, inflammation & fissuring of the perianal or vulvar tissues due to Group A strep

Indeterminate Findings

- Insufficient or conflicting data from research studies or no expert consensus
- These physical/laboratory findings may support a clear disclosure, if one is given, but should be interpreted with caution if the child gives no disclosure.
- Deep notches or clefts in the posterior hymenal rim that extend through more than 50% of the width
- Deep notches or complete clefts in the hymen at 3 or 9 o’clock in adolescent girls
- Smooth, non-interrupted hymenal rim between 4 & 8 o’clock which appears to be less than 1 mm wide in prone knee chest position or using water to float the edge in supine position
Findings Diagnostic of Trauma and/or Sexual Contact

• The following findings support a disclosure of sexual abuse even in the absence of disclosure unless the child or caregiver provide a clear, timely plausible description of accidental injury

• Photographs or video recording of these findings should be reviewed by an expert in sexual abuse evaluation for a second opinion to ensure accurate diagnosis

Findings Diagnostic of Trauma &/or Sexual contact:

• Acute trauma to external genital/anal tissues:
  – Acute lacerations or extensive bruising of labia, penis, scrotum, peri-anal tissues, or perineum - (may be from unwitnessed accidental trauma, or from physical or sexual abuse)
  – Fresh laceration of posterior fourchette, not involving hymen - (must be differentiated from dehisced labial adhesion or failure of midline fusion; posterior fourchette lacerations may be caused by accidental injury or consensual sexual intercourse in adolescents)
Injuries indicative of blunt force penetrating trauma (or from abdominal/pelvic compression injury)

- Extensive bruising on the hymen
- Laceration (tear, partial or complete) of the hymen, acute
- Perianal lacerations extending deep to the external anal sphincter (not to be confused with partial failure of midline fusion)
- Hymenal transection (healed). An area between 4 and 8 o’clock on the rim where it appears to have been torn through, to or nearly to the base, so there appears to be no hymenal tissue remaining at that location.
- Missing segment of hymenal tissue in the posterior half of hymen, wider than a transection & confirmed by other positions/methods.

Transection

An area where the hymen has been torn through to the base so there is no hymenal tissue remaining between the vaginal wall and fossa or vestibular wall

Absence of the Hymen

Wide areas in the posterior half of the hymenal rim with an absence of hymenal tissue, extending to the base of the hymen which is confirmed in knee chest position
Four cases of children run over by a slow moving vehicle
Two had anal injuries

Presence of Infection

Positive confirmed culture for gonorrhea from genital area, anus, throat, outside neonatal period
Confirmed syphilis, if perinatal transmission is ruled out
Trichomonas vaginalis in a child ≥ 1 yr. with organism identified by culture or in vaginal secretions by wet mount exam
Positive culture from genital/anal tissue for Chlamydia, if child ≥ 3 yrs. At the time of diagnosis, by cell culture or CDC approved method
Positive serology for HIV, if perinatal transmission, or transmission from blood products or needle contamination has been ruled out
Diagnostic of sexual contact

- Pregnancy
- Sperm identified in specimens taken directly from a child’s body
Conclusions

• Child sexual abuse is common
• Medical findings are rare
• Consensus for interpreting physical exam findings is important
• More research is needed
• Remember – a CLEAR DISCLOSURE by a child is the most important criteria for determining abuse even in the absence of signs of injury