Sexual Abuse: Are These Findings Due to Recurrent Abuse?
Ann S. Botash, MD
Professor of Pediatrics

Dr. Botash has nothing to disclose.
Objectives

- Differentiate between normal and abnormal child abuse examination findings.
- Identify the key factors for quality documentation of child abuse cases.

CASE

- A 10-year-old female presents with suspicion of abuse by mom’s boyfriend’s 15-year-old son.
- Mom witnessed the 15 year old leaving the patient’s room early in the morning.
- Police were called and patient brought to ED.
- The girl disclosed penis to vagina contact that had been ongoing since she was 8 years old.
CASE

- History of menarche one year ago with regular menses, last period one month ago.
- History of LLQ pain and dysuria 3 weeks ago.

Emergency Department

Video recording of findings
Report of findings

- Tanner IV
- No tears
- Greyish discharge
- Hymen fimbriated with decreased tissue at 6 o’clock and notch at 5 o’clock
- Evidence collected
New tissue growth

Tanner IV

Hymen fimbriated

New growth of tissue along the hymen at 5 to 8 o’clock in the supine position

White vaginal discharge noted
Four Months Later

- Pt became “obsessed” with the older brother of the prior perpetrator (16 year old).
- Disclosed sexual activity with him x2 approximately 1 month prior to a new CARE appointment.
Close up of posterior hymen

Four months later

Documentation

- Tanner IV
- Thin clear white vaginal discharge
- Hymen is showing signs of early fimbriation with slightly decreased tissue at 6 o’clock in the supine position.
Appearance of Hymen Four Months After the Initial Event

Notch at 6 o’clock

Swab & notch at 6 o’clock

Follow-up from initial event and then 4 months later
What is this finding?

Can we define it?

Findings Diagnostic of trauma and/or sexual contact

- Acute trauma
- Residual (healing) injuries
- Injuries indicative of blunt force penetrating trauma (or abdominal compression)

(findings support a disclosure of sexual abuse, if one is given, and are highly suggestive of abuse even in the absence of a disclosure, unless a clear, timely, plausible description of accidental injury is provided by the child and/or caretaker).
Hymenal transection (healed).

An area between 4 and 8 o’clock on the rim of the hymen where it appears to have been torn through, to or nearly to the base, so there appears to be virtually no hymenal tissue remaining at that location. This finding has also been referred to as a ‘complete cleft’ in sexually active adolescents and young adult women.

Missing segment of hymenal tissue:

Area in the posterior (inferior) half of the hymen, wider than a transection, with an absence of hymenal tissue extending to the base of the hymen, which is confirmed using additional positions/methods.
Indeterminate findings:

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

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.

Critical Question...

Deep or Shallow Notch versus Transection?
Figure 3. Hymenal Membrane Characteristics

Figure 6. Transection at 6 o'clock in 7-year-old abused Hispanic girl (knee-chest view).

A notch that extended to the vestibule was termed a *transection* (Fig 6).
The extent of a notch was classified as superficial (less than or equal to half of the width of the membrane) or deep (more than half of the width).

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

How accurate is this?
Is there agreement between published research?
### Table 1. Accuracy Studies

<table>
<thead>
<tr>
<th>Source</th>
<th>Study Quality</th>
<th>No. of Participants</th>
<th>No. Abused</th>
<th>Age Range, y</th>
<th>Reference Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berenson et al., 2002</td>
<td>3</td>
<td>560</td>
<td>199</td>
<td>3-8</td>
<td>Child protection team: History of sexual abuse was based on a clinic interview including administration of a non-validated 8-item scale (Digital/Vaginal Penetration Rating Scale); scale did not include physical examination findings as a measure</td>
</tr>
<tr>
<td>Berenson et al., 2000</td>
<td>3</td>
<td>392</td>
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</tr>
</tbody>
</table>

(Children specifically evaluated to determine physical examination findings related to a history of child sexual abuse. See Table 2 for explanation of study quality. Berkoff, M. C. et al. JAMA 2008;300:2779-2792)

### Table 3. Accuracy of Signs for Genital Trauma Resulting From Sexual Abuse.

<table>
<thead>
<tr>
<th>Sign and Description</th>
<th>Sensitivity, %</th>
<th>Specificity, %</th>
<th>Positive Predictive Value, %</th>
<th>Negative Predictive Value, %</th>
<th>Positive Likelihood Ratio</th>
<th>Negative Likelihood Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>External bleeding</td>
<td>79</td>
<td>85</td>
<td>71</td>
<td>90</td>
<td>1.32</td>
<td>0.33</td>
</tr>
<tr>
<td>Internal bleeding</td>
<td>59</td>
<td>92</td>
<td>57</td>
<td>92</td>
<td>1.55</td>
<td>0.37</td>
</tr>
<tr>
<td>Swelling, edema</td>
<td>73</td>
<td>74</td>
<td>75</td>
<td>71</td>
<td>1.25</td>
<td>0.54</td>
</tr>
<tr>
<td>Pain</td>
<td>78</td>
<td>84</td>
<td>80</td>
<td>82</td>
<td>1.43</td>
<td>0.38</td>
</tr>
<tr>
<td>Ecchymosis</td>
<td>52</td>
<td>86</td>
<td>59</td>
<td>85</td>
<td>1.44</td>
<td>0.38</td>
</tr>
<tr>
<td>Hematoma</td>
<td>67</td>
<td>91</td>
<td>75</td>
<td>90</td>
<td>1.71</td>
<td>0.40</td>
</tr>
</tbody>
</table>

(See Table 2 for explanation of study quality. Berkoff, M. C. et al. JAMA 2008;300:2779-2792)
Table 7. Inferior and Posterior Hymenal Findings in Nonabused Population.

<table>
<thead>
<tr>
<th>Finding</th>
<th>No. of Participants</th>
<th>Specificity, % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bumps</td>
<td>202</td>
<td>95 (63-99)</td>
</tr>
<tr>
<td>Longitudinal intravaginal ridge (Berenson, 95)</td>
<td>134</td>
<td>90 (73-87)</td>
</tr>
<tr>
<td>Berenson et al., 95</td>
<td>202</td>
<td>92 (68-98)</td>
</tr>
<tr>
<td>Notch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hager et al., 2002</td>
<td>147</td>
<td>92 (75-88)</td>
</tr>
<tr>
<td>Berenson, 95</td>
<td>134</td>
<td>100 (69-100)</td>
</tr>
<tr>
<td>Berenson et al., 1992</td>
<td>202</td>
<td>100 (69-100)</td>
</tr>
<tr>
<td>Berenson et al., 1991#</td>
<td>466</td>
<td>98 (69-100)</td>
</tr>
<tr>
<td>Deep notch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myhrle et al., 2003</td>
<td>175</td>
<td>100 (69-100)</td>
</tr>
<tr>
<td>Superficial notch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myhrle et al., 2003</td>
<td>175</td>
<td>100 (68-100)</td>
</tr>
<tr>
<td>Transaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myhrle et al., 2003</td>
<td>175</td>
<td>100 (69-100)</td>
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<tr>
<td>Berenson and Stuck, 95</td>
<td>93</td>
<td>100 (69-100)</td>
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<td>147</td>
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<tr>
<td>Berenson et al., 1992</td>
<td>202</td>
<td>95 (69-100)</td>
</tr>
<tr>
<td>Width (narrowed hymen)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hager et al., 2002</td>
<td>147</td>
<td>79 (71-84)</td>
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*Abbreviation: CI, confidence interval.
*#This study includes repeat examinations on the same children at different age increments are shown.

Berkoff, M. C. et al. *JAMA* 2008;300:2779-2792
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**

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

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**What about pubertal girls?**

Results

- Posterior hymenal notches and clefts were more common among girls admitting past intercourse (13/27 [48%]) than in girls who denied intercourse (2/58 [3%]; \( P = .001 \)), but the mean width of the posterior hymenal rim was not significantly different between the 2 groups (2.5 mm vs. 3.0 mm; \( P = .11 \)).
- Two subjects who denied intercourse but had posterior hymenal clefts described a painful first experience with tampon insertion.
What can we say?

- Posterior hymenal findings are rare in prepubertal girls (abused and more rare in non-abused).
- A history of tampon use should be obtained because one comparative study suggests there may be an association with posterior hymenal findings.
- The presence of posterior hymenal findings is consistent with a history of sexual abuse.

Healing of hymenal injuries in prepubertal and adolescent girls: a descriptive study.

FIGURE 1 Case 1: An 8-month-old, assaulted 3 days before, has a V-shaped deep hymenal laceration at the 6 o'clock position (arrow) and fossa navicularis and posterior fourchette lacerations.

FIGURE 2 Case 1: Twenty-four days after assault.
Was there a notch 4 months ago?

New growth of tissue along the hymen at 5 to 8 o’clock in the supine position

Is it new?

Notch at 6 o’clock
Review the video

Is this different from the follow-up?

Documentation at Visits

1. Hymen fimbriated with decreased tissue at 6 o’clock and notch at 5 o’clock
2. New growth of tissue along the hymen at 5 to 8 o’clock in the supine position
3. Hymen is showing signs of early fimbriation with slightly decreased tissue at 6 o’clock in the supine position.
What we can say about this case:

- There is a posterior hymenal finding that is consistent with the history of sexual abuse.
- The finding appears unchanged since the initial examination although the exam midway through showed evidence of new tissue growth.
- Lack of consistency in documentation contributed to confusion over the findings and consistency might have helped to alleviate this.
- Photographs/video were key to further review.
- It is not possible to determine based on the physical findings alone whether the girl was re-abused.

References