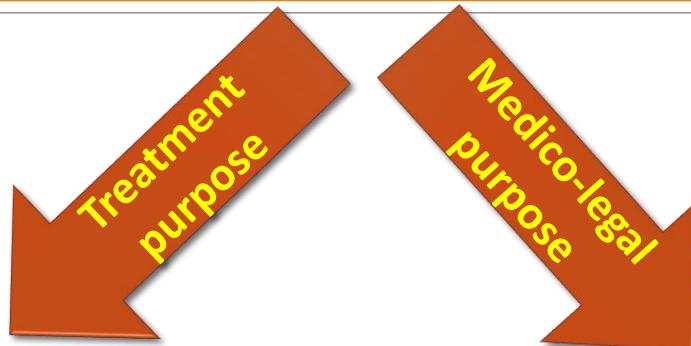




Examination: injuries  
(body, genitalia and anus)

# Examinations

Evidence collection  
(72hrs-96hrs)



## Medical

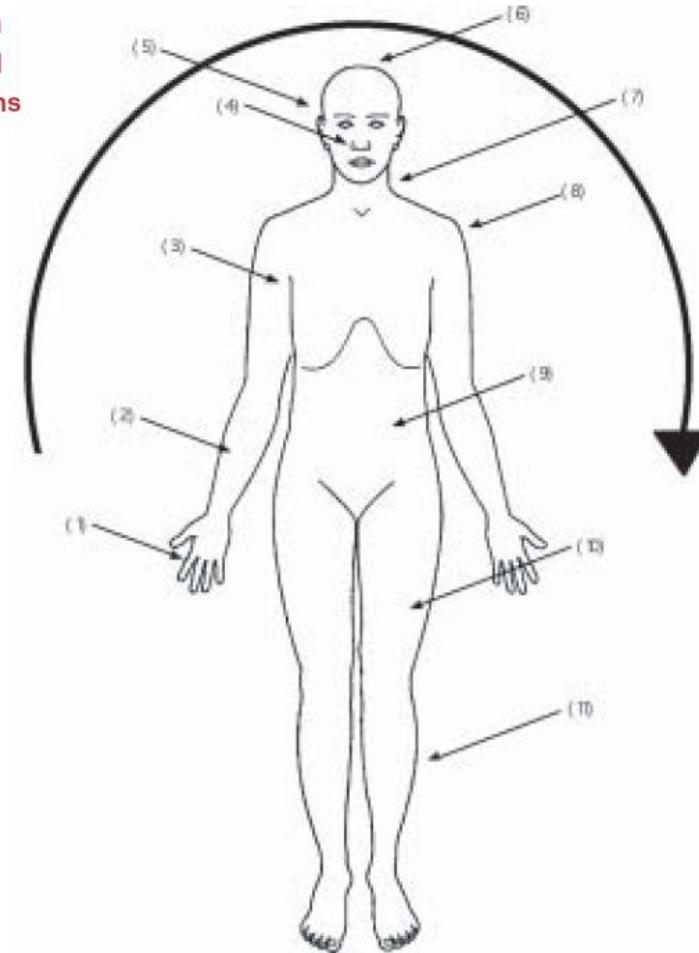
- General physical examination
- Systemic examination

## Medico-Legal (FORENSIC –Medical)

- Specific examinations
- Detailed examination of injuries
- Ano-Genital examination

# The “head-to-toe” physical examination

Figure 1 **Inspection sites for a “top-to-toe” physical examination of victims of sexual violence**



observation of general appearance and demeanor

Starts with hands : reassurance

Vital signs: pulse, blood pressure, respiration temperature.

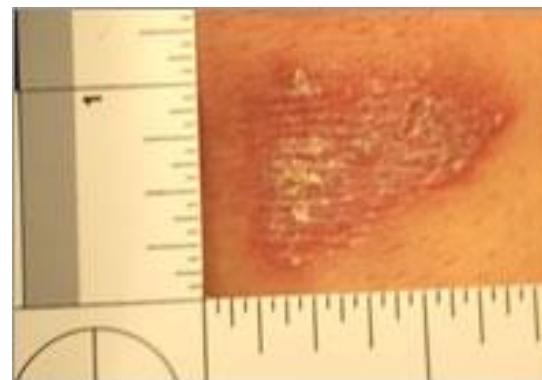
# Recording of injuries



Medium range photograph to show the injury



Close up



Close up with scale

Use of diagrams

Photographic recording

Measurements

Anatomical position

Exact position

Colour

Direction

Features

# Hands/forearms



# Injuries in upper arms

---



Fig. 89 Bite to arm.



Fig. 90 Fingertip bruising to arm.

# Injuries in face, ears, scalp

---



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# Oral petechia after forced oral copulation.

Courtesy: Malinda Wheeler, RN,  
MN, CFNP



# Injuries in the neck





Abrasion due to  
rough surface



Multiple injuries of blunt force



.81 Neck compression with clothing causing bruising.

# Injuries in breasts and trunk



Source: Knoop KJ, Stack LB, Storrow AB: *Atlas of Emergency Medicine*,  
2nd Edition: <http://www.accessemergencymedicine.com>

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# Abdomen

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Examination for bruising, abrasions, lacerations and trace evidence.

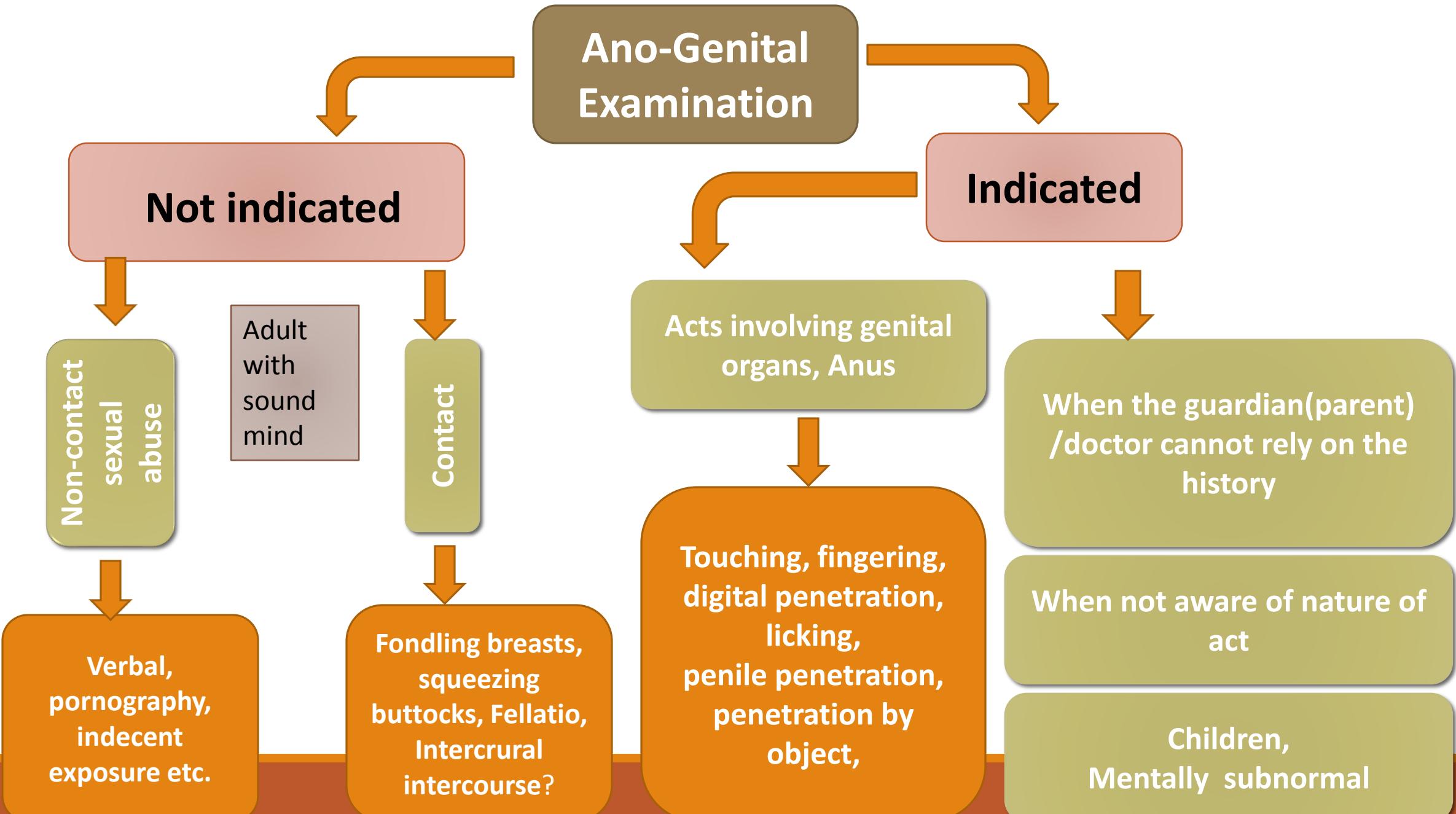
Abdominal palpation should be performed to exclude any internal trauma or to detect pregnancy.

# Back & Legs

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# The genito-anal examination



Lithotomic position

Other areas covered by clothing

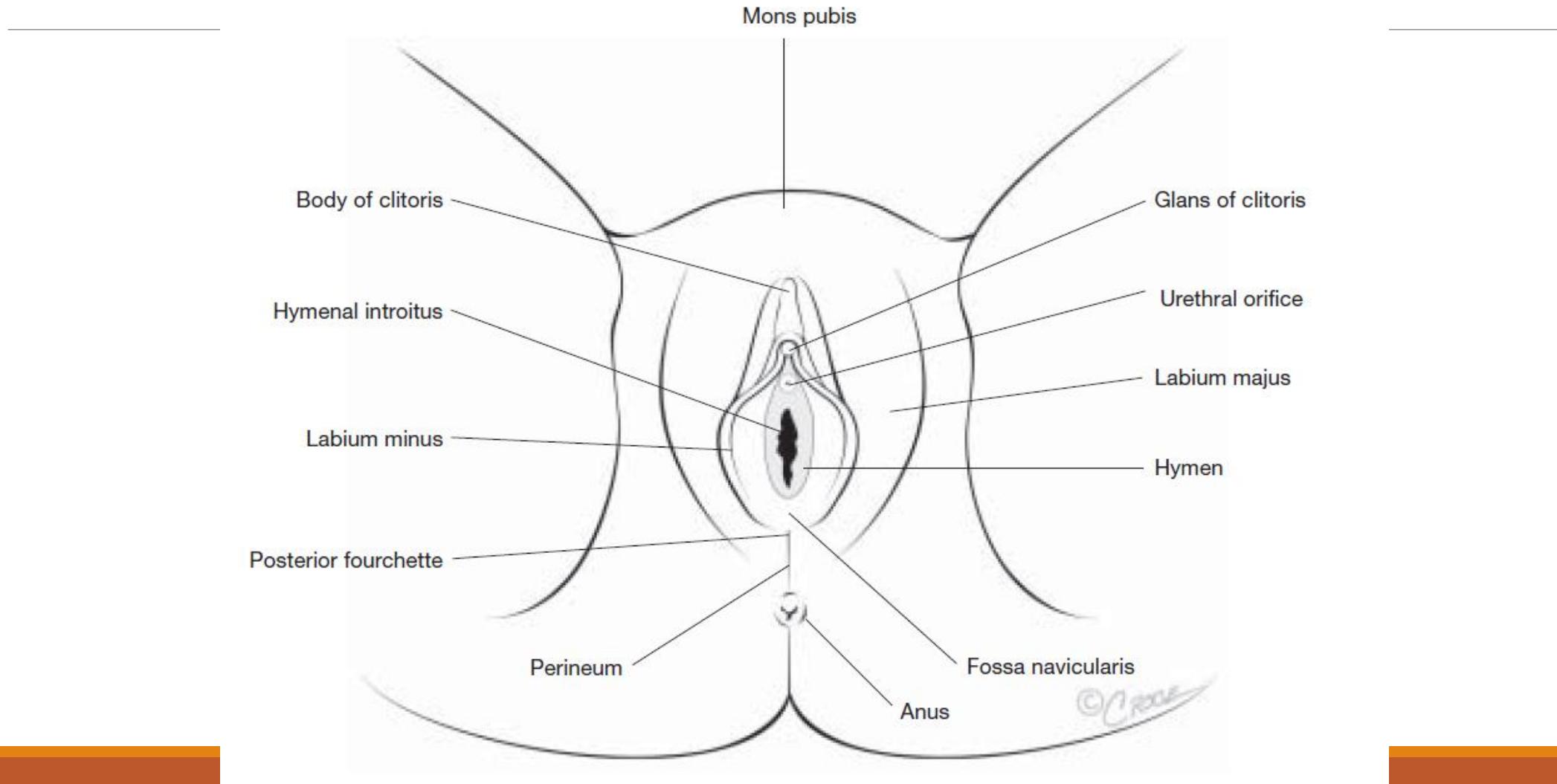
Lighting directed to vulva



analgesia/ anaesthesia may be required

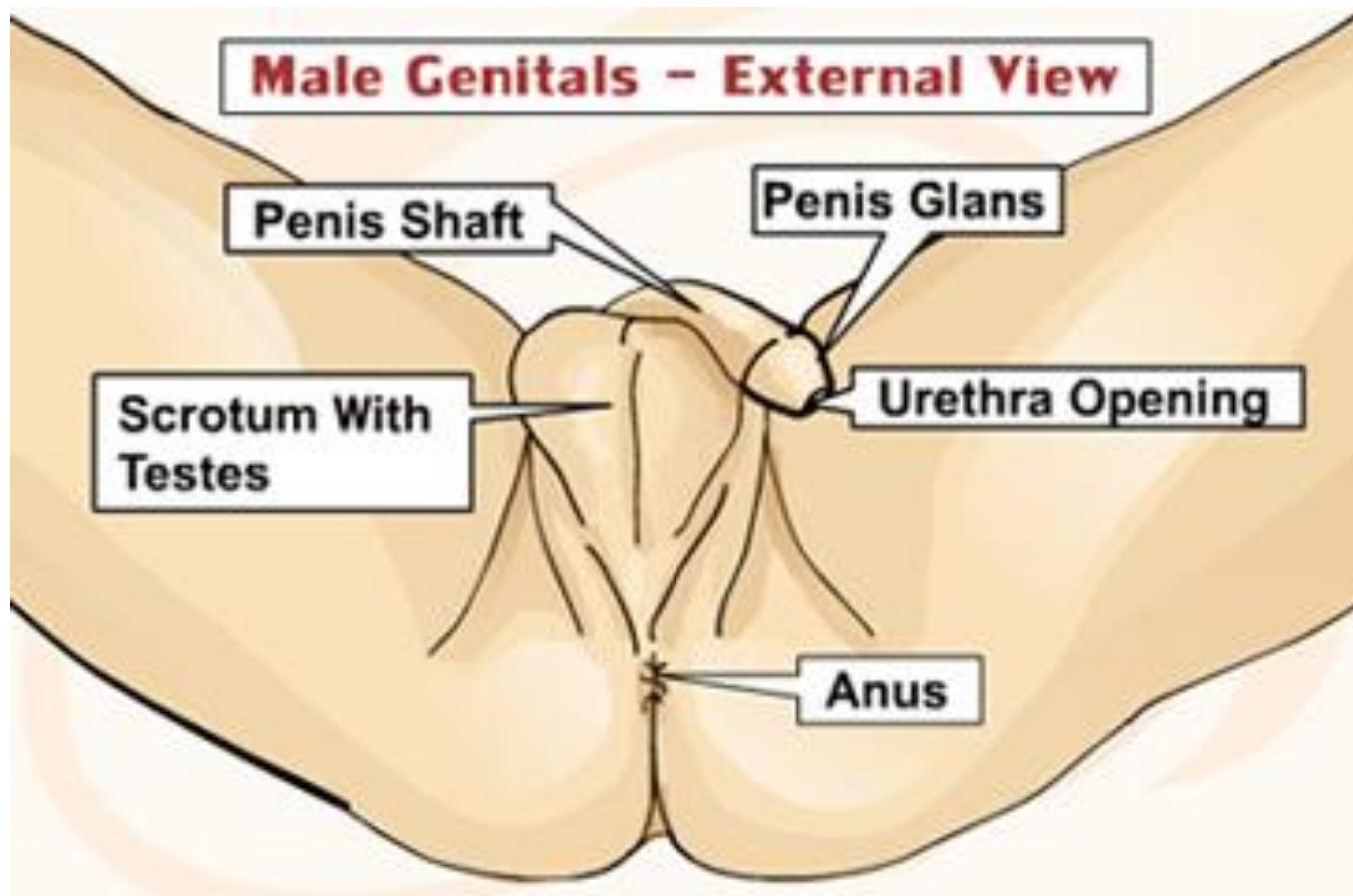
# Anatomy of External genitalia: Female

Figure 2 **Anatomical sites on the external genitalia of a mature female**



# Anatomy of external genitalia : male

---



# Methods of examination

## Supine Frog Leg Position



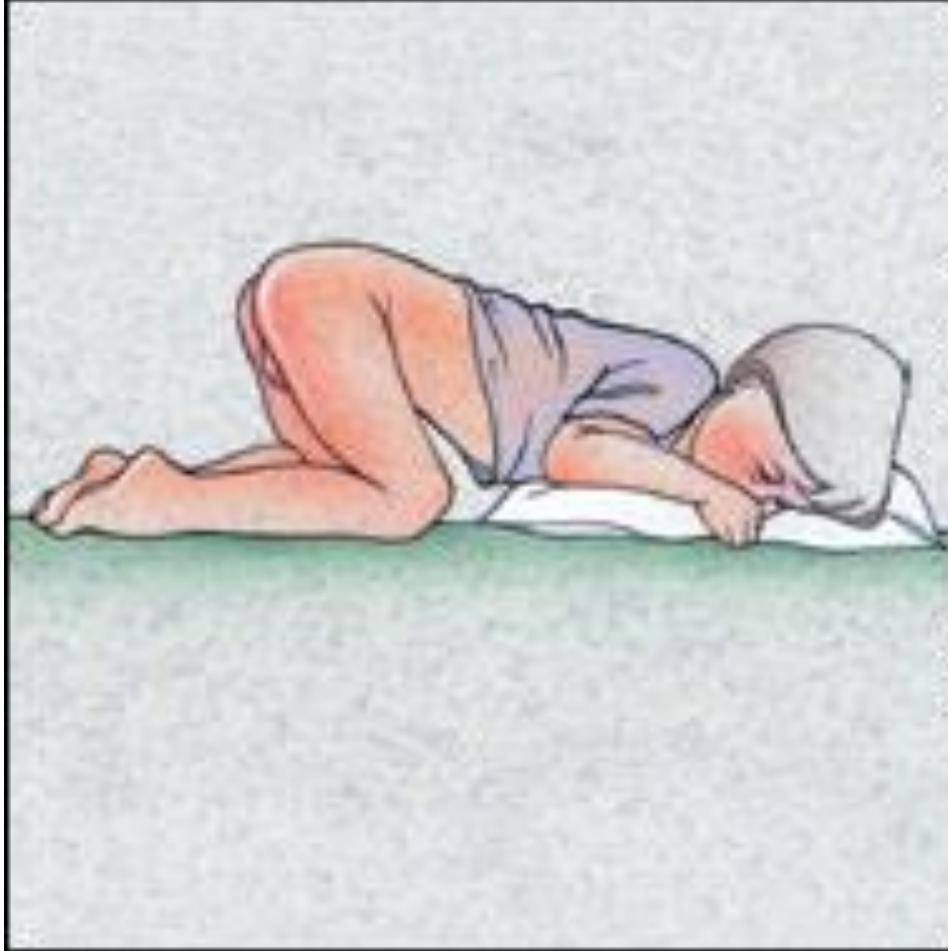
Illustrations by Marcia Hartsuck



Frog-leg position



Frog -leg positin on lap



Illustrations by Marcia Hartsock

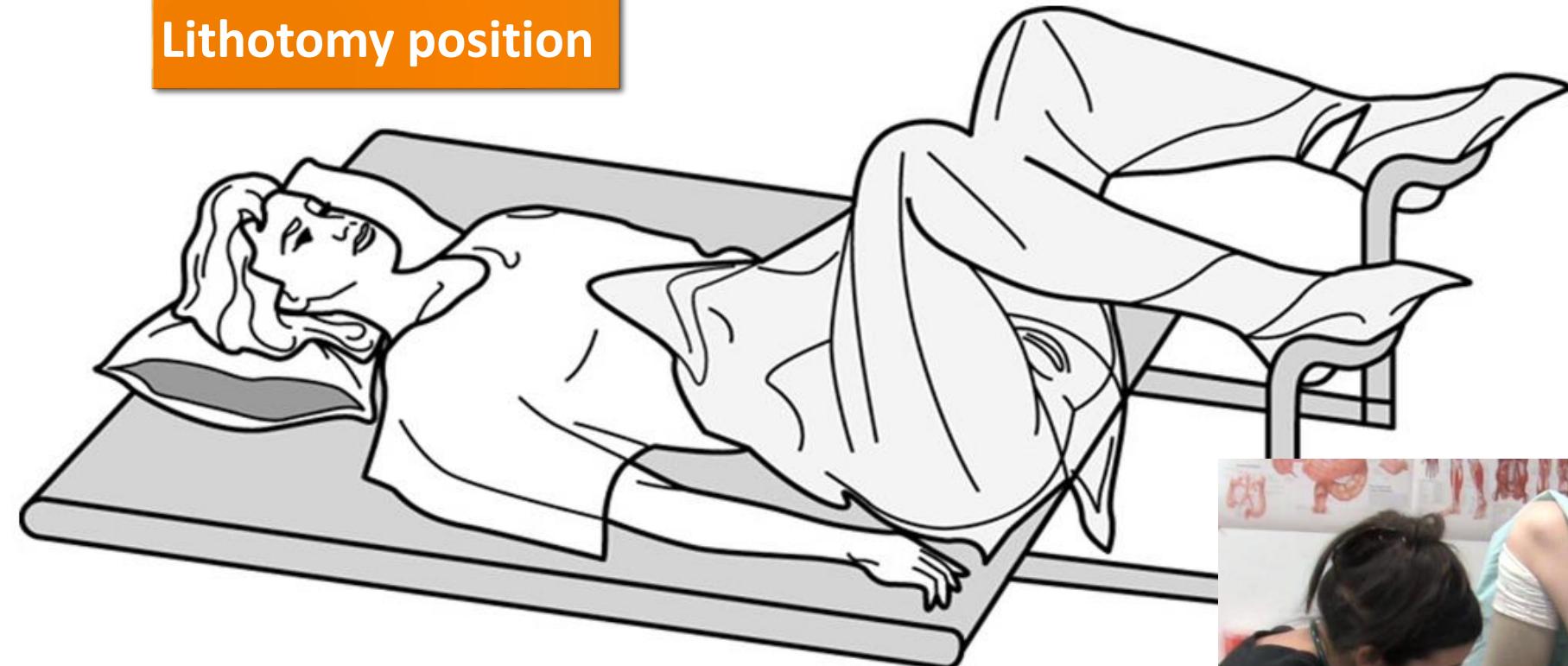
## Knee chest position

## Knee chest position



Prone Knee Chest Genital Examination Technique

## Lithotomy position



# Genital Examination

---

Place victim in lithotomy position.

Drape appropriately.

Explain procedure and assist victim to relax.

Let the examinee open the legs wide to increase examiner visibility.

Inspect the mons pubis and vaginal vestibule

Swabbing should be done before digital or speculum examination

A gentle stretch at the posterior fourchette to visualize injuries

Pulling labia towards examiner will improve visualizing of hymen

**FIGURE 1**

**Examination of  
prepubertal girl  
with traction on  
buttocks**



**FIGURE 2**

**Examination  
of prepubertal  
girl using labial  
traction**



# Hymenal examination

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Pulling labia towards examiner will improve visualizing of hymen and peri-urethral tissue

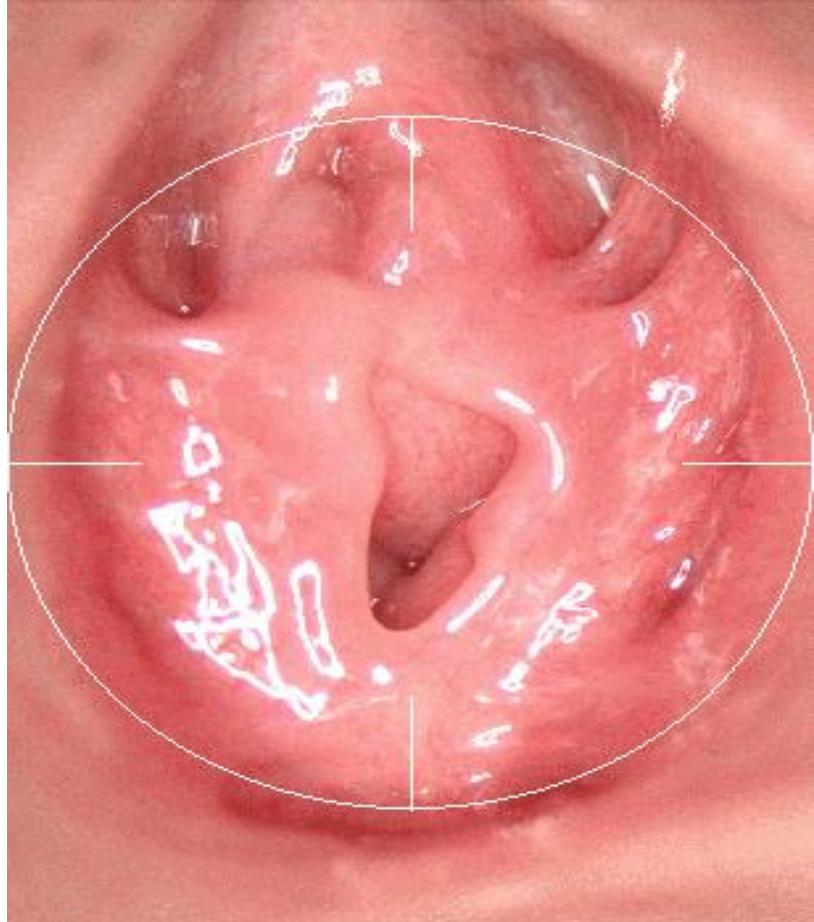


# Video-Colposcopy examination

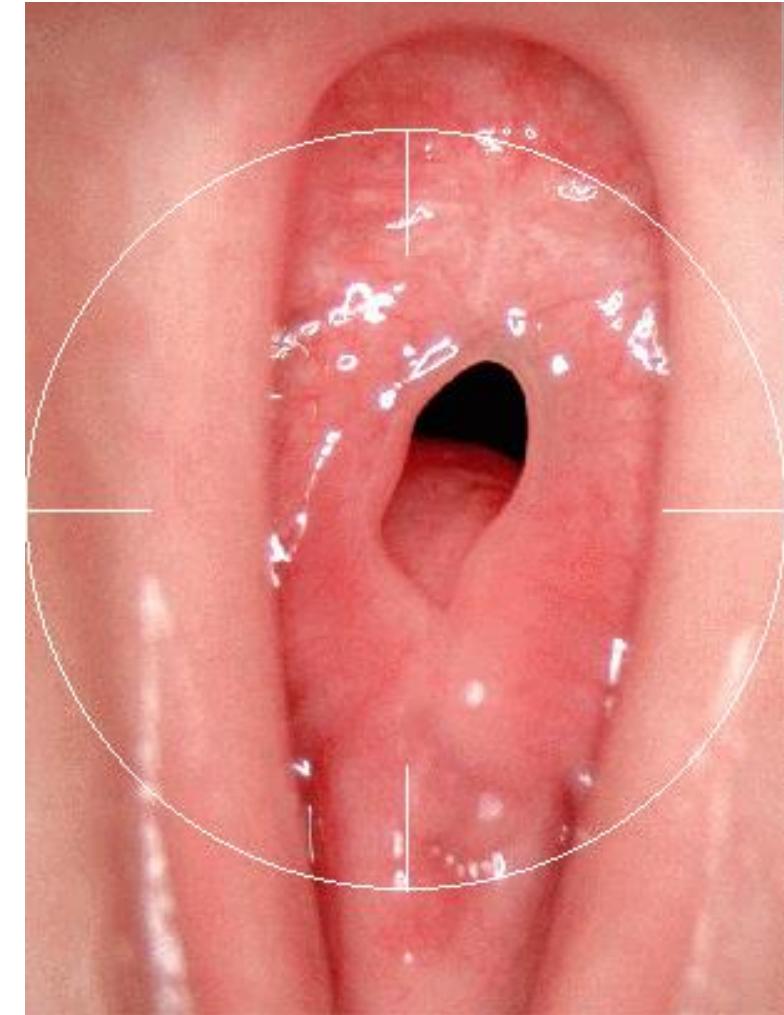


Take at least 2 photographs. If trauma is present, more photos may be required

# Supine Labial Traction Vs. Prone Knee Chest

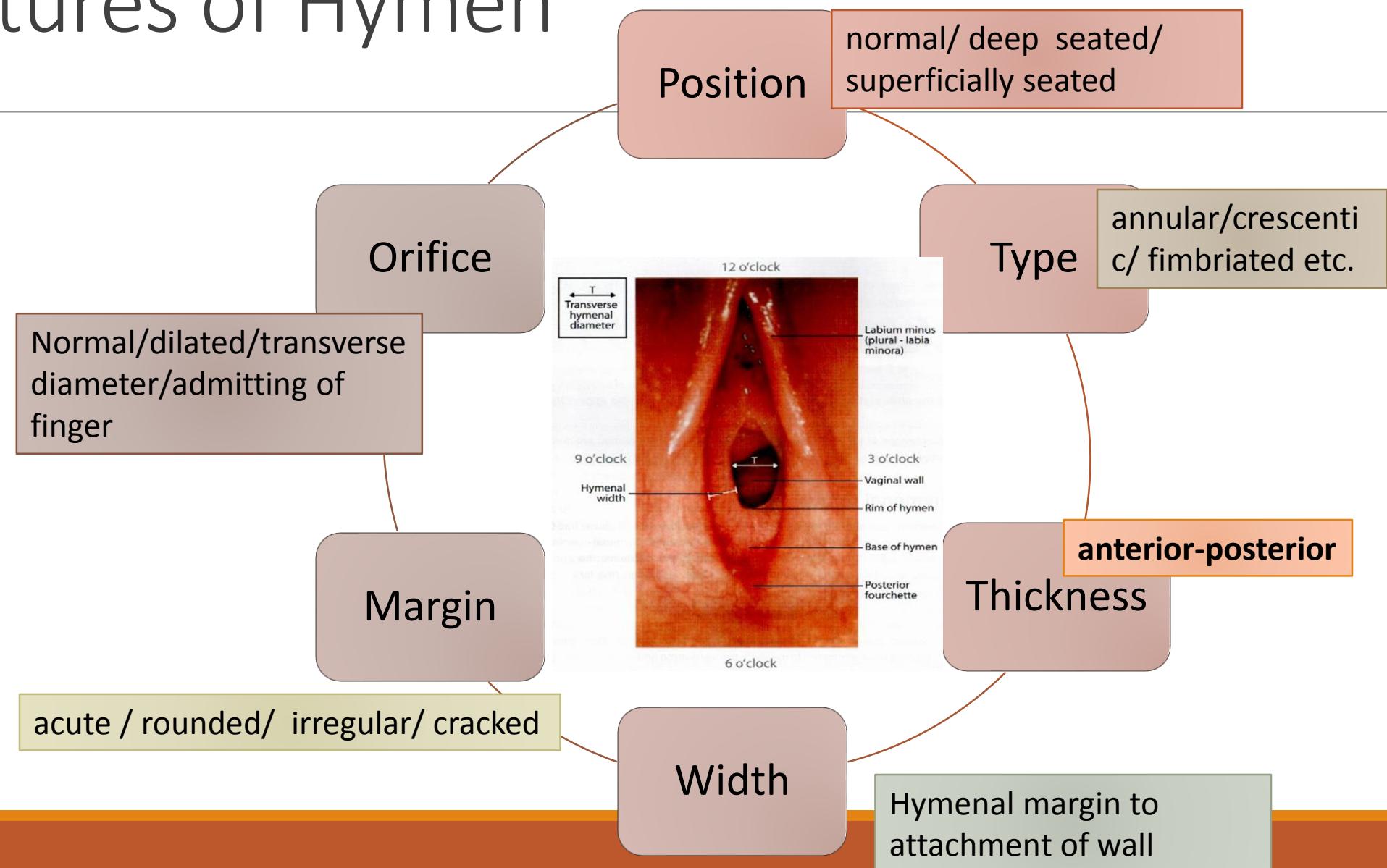


Supine Labial Traction



Prone Knee Chest

# Features of Hymen



# Normal hymens : Research findings



**Crescentic 29.2%**



**Redundant/ sleeve/ fimbriated 14.9%**



**B**

**Annular-53%**



**D**

**Septate-2%**

# Use of a moistened cotton swab



1A



1B

**1 A twelve-year old girl. 1A. Labial traction.**

**1B. The use of a moistened cotton for viewing deep notch at 4 o'clock position.**

## Foley Catheter Technique for Visualizing Hymenal Injuries in Adolescent Sexual Assault

---



The Foley catheter technique uses an inflated balloon in the distal vaginal vault to expand the estrogenized hymen to its full capacity so that the edge may be readily visualized for signs of trauma.



2A

A thirteen-year old girl.  
2A. Labial traction.



2B

2B. Foley catheter technique, allow  
visualization of the fimbriated hymen of this  
patient.

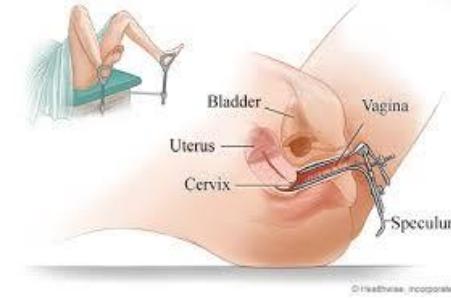


Figure 1. : Hymen of a 15-year-old nullipara after a sexual assault. Note what seems to be a small laceration at the 9-o'clock position



Figure 2.  
Hymen of the same 15-year-old girl as in Figure 1 with obvious laceration shown using the Foley catheter balloon technique.

# SPECULUM EXAMINATION:



Lubricate the speculum with water

select the smallest possible size speculum

Inspect vaginal walls for lacerations.

Inspect cervix and os.

# TOLUIDINE BLUE:

Nuclear stain

- intact skin has no nuclei

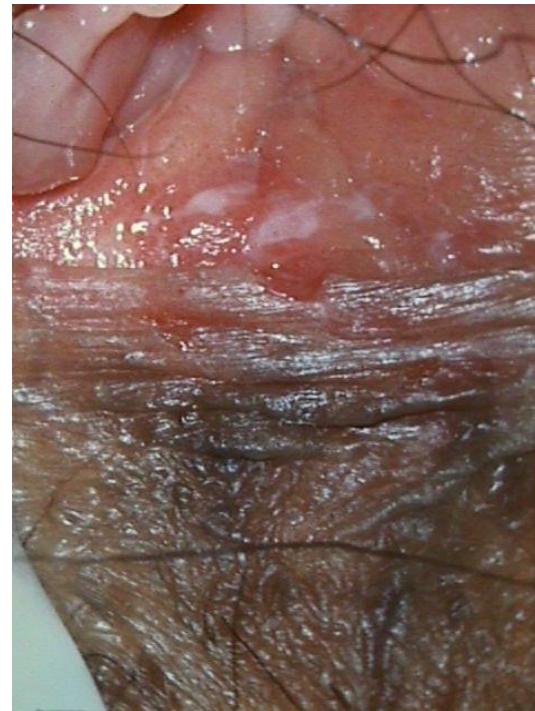
Abraded skin will expose the cells from the deeper layers of the dermis.

- blue stain will be picked up by those areas

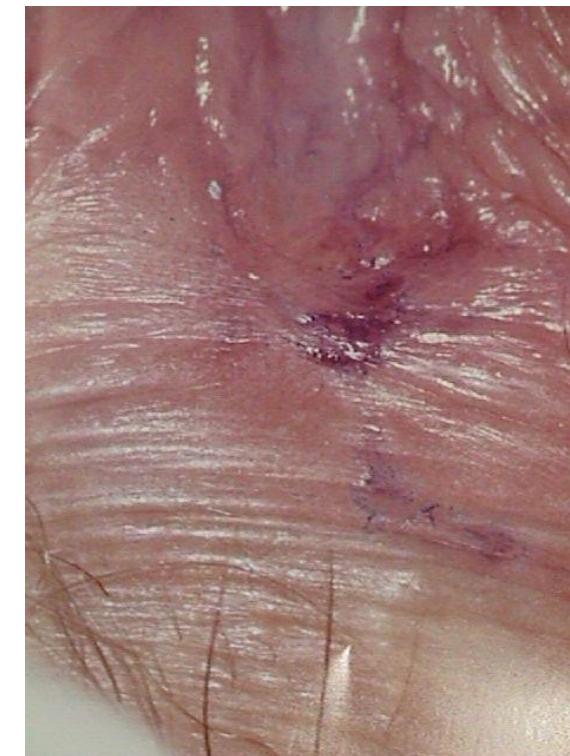
# Use of 'TOLUIDINE BLUE' to enhance injury visualization

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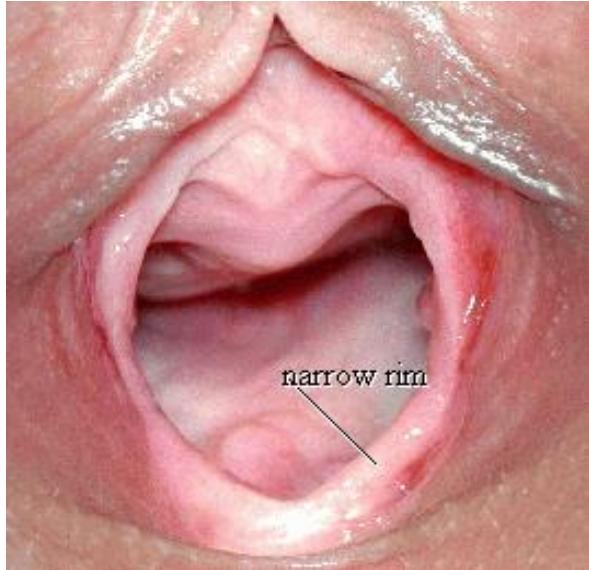
BEFORE TOLUIDINE BLUE DYE



AFTER TOLUIDINE BLUE DYE



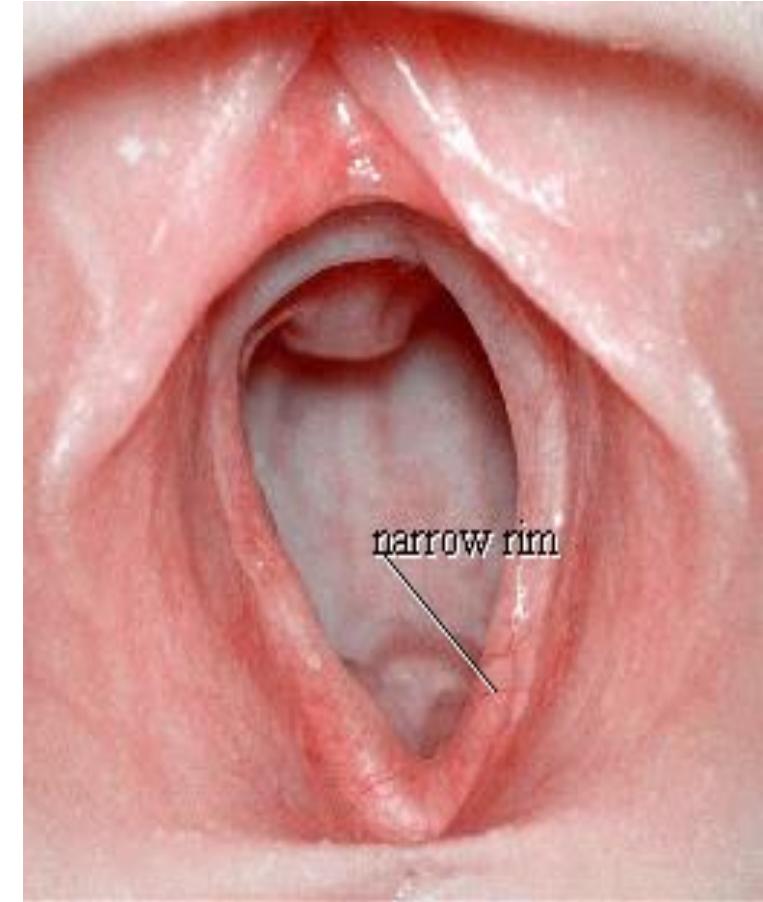
# Attenuated Hymen Non-Acute Injury



10 Yr. Old, narrow irregular-hymeneal rim. 5 episodes of penile penetration 1 year back



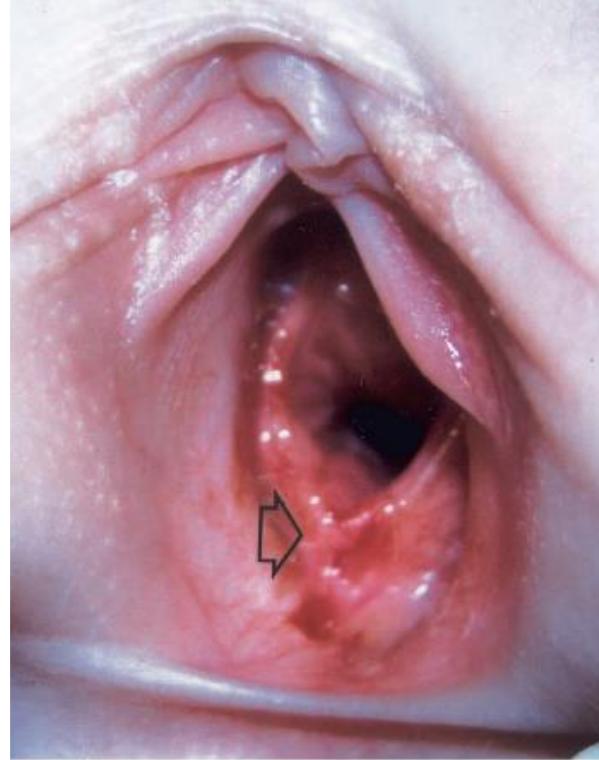
Labial traction      Prone  
**4 Yr. Old, narrow hymeneal rim - Gaping opening with exposure of intra-vaginal content**



**3 Yr. Old, narrow hymeneal rim - angular 6 o'clock**



Figure 3. Contusion to hymen after consensual intercourse.



Abrasion and tear in hymen of a child by digital fingering of an adult

Genital injury interpretation regarding consent is impossible and erroneous because both can result in injuries

Consensual & non consensual sexual intercourse

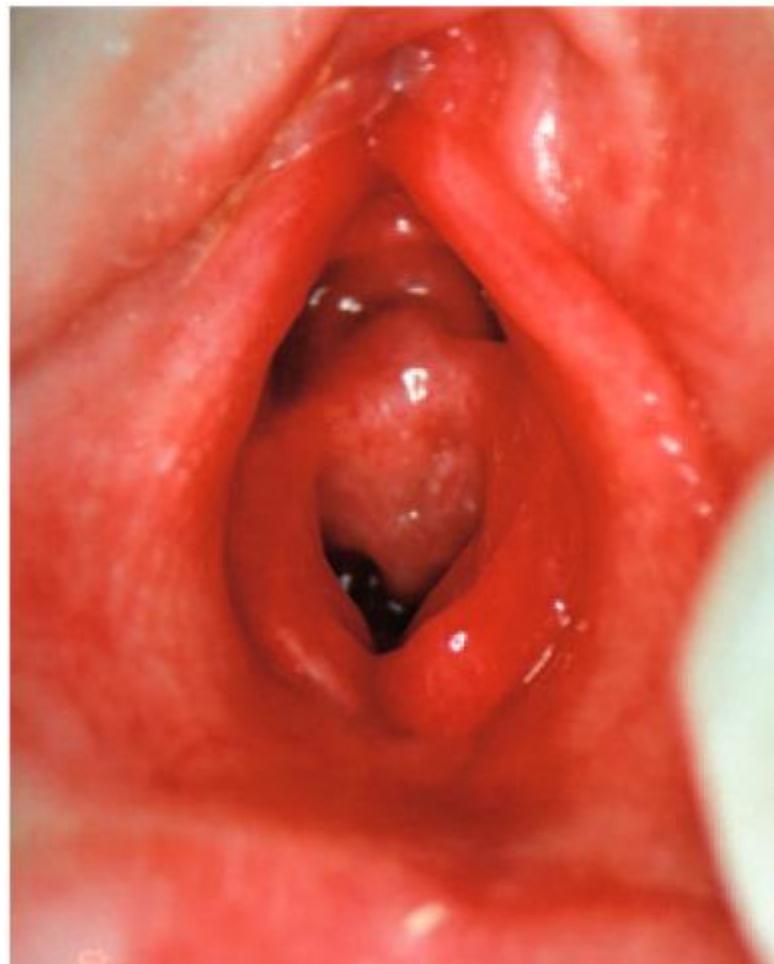
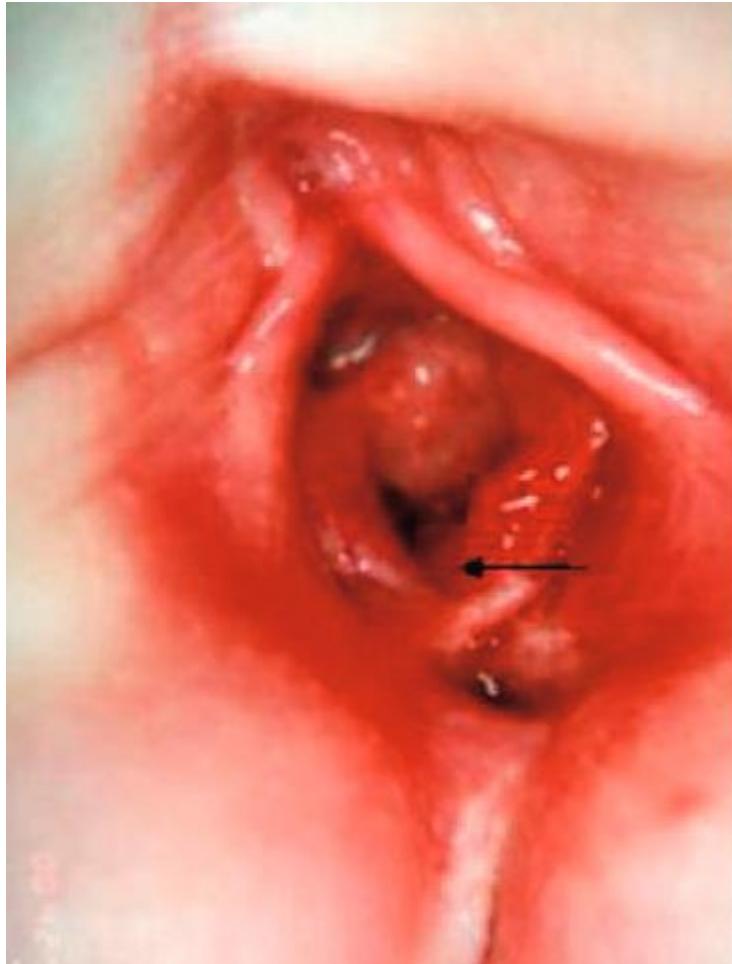


Figure 1: 8 month old child subjected assault penial penetration 3 days ago

Figure 2: 24 days later :small ridge with neovascularization

Infants and children injury interpretation is difficult with time

McCann, Miyamoto, Boyle, Rogers, Paediatrics 2007

Children & healing of hymenal membrane

Infants and children  
injury interpretation is  
difficult with time and  
opinion regarding digital  
or penile penetration is  
difficult to arrive

## Digital penetration of the hymen

Heppenstall-Heger et al  
*Pediatrics* 2003

**Fig 5.** Case 53, 6-year-old who disclosed digital vaginal penetration by cousin. Note partial tear of the hymen at 6 o'clock (arrow) and abrasion at the base of the hymen at 7 o'clock (below arrow).

**Fig 6.** Case 53, 12 days later, hymen and perihymenal trauma completely healed. Hymen is smooth-edged with a shallow notch or concavity at 6 o'clock.





**FIGURE 3**  
Case 2: A 14-year-old 12 hours after assault. Marked submucosal hemorrhages are present on the lower half of the hymenal membrane. Note the fresh-cut edge of a hymenal laceration at the 3 o'clock position. The patient was examined with the supine, labial traction method.



**FIGURE 4**  
Case 2: Twelve hours after assault. The submucosal hemorrhage seems to involve the entire posterior half of the hymenal membrane. The patient was examined with the prone, knee-to-chest position method.

In pubertal adolescents  
due to increased  
vascularity injury  
interpretation is difficult  
in the acute stage

McCann, Miyamoto, Boyle,  
Rogers, Paediatrics 2007

# Submucosal haemorrhage in acute injuries in adolescents

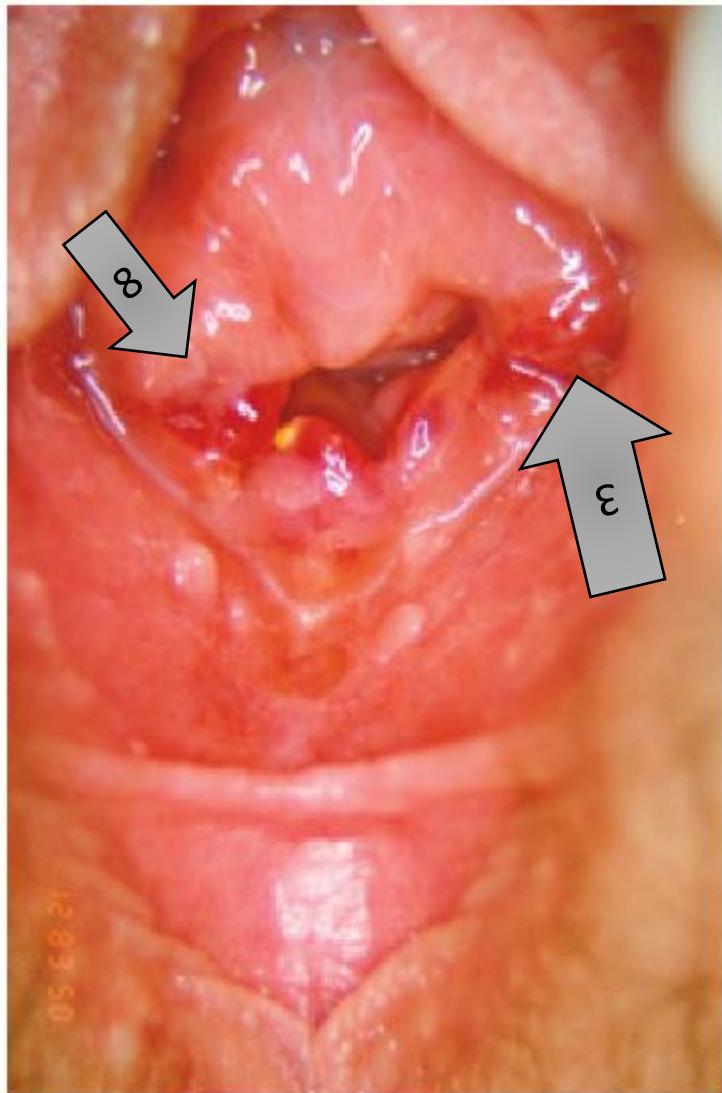


FIGURE 5

Case 2: Four days after assault. The major portion of the submucosal hemorrhage has resolved, exposing evidence of hymenal lacerations at the 3 o'clock and 8 o'clock positions. The patient was examined with the supine, labial traction method.

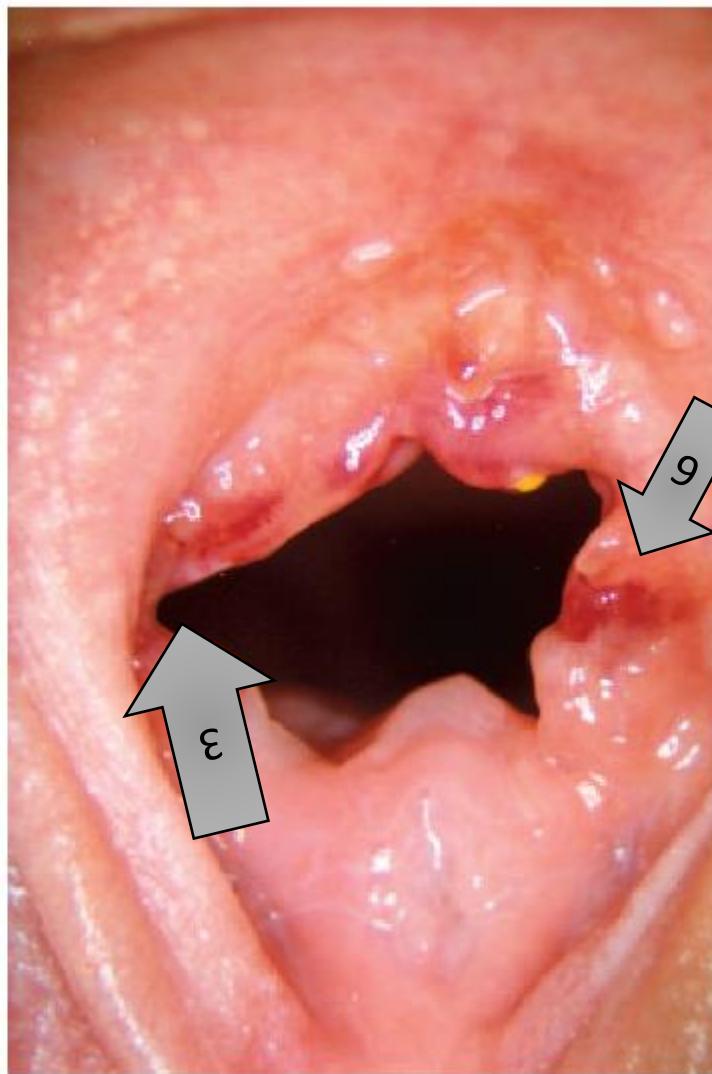


FIGURE 6

Case 2: Four days after assault. The lacerations at the 3 o'clock and 9 o'clock positions (supine) become more evident as the hymenal orifice opens during the prone, knee-to-chest position method.

4 days after assault,  
injuries are more  
clear : repeated  
examination may  
be necessary to  
interpret

McCann, Miyamoto, Boyle, Rogers,  
Paediatrics 2007

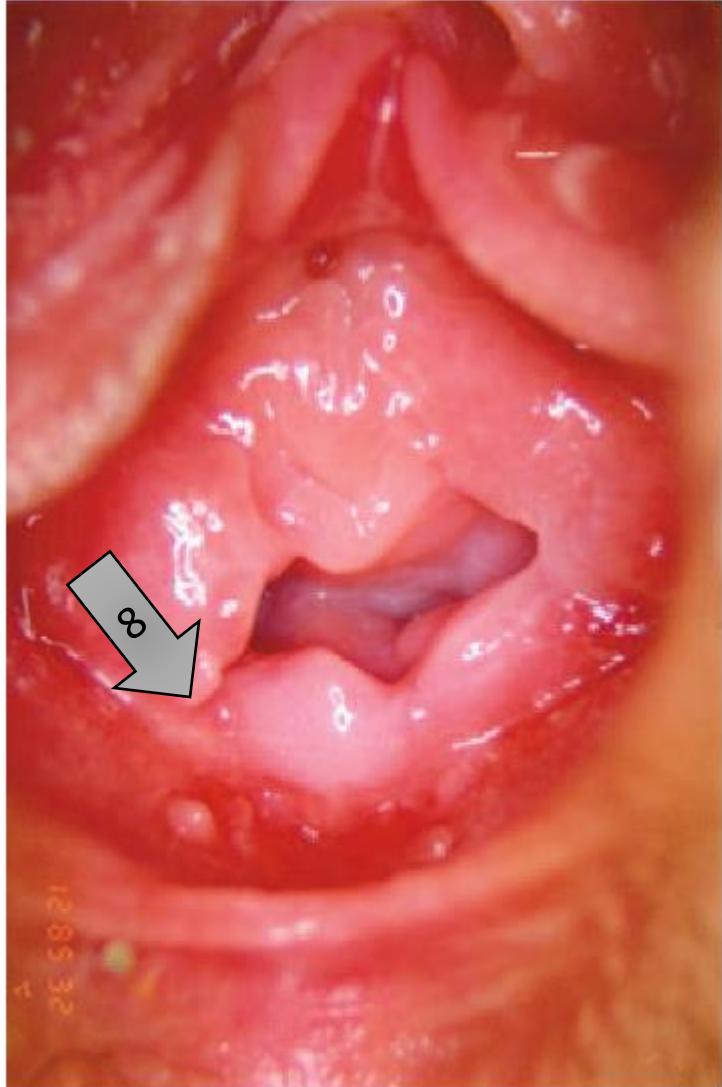


FIGURE 7

Case 2: Sixteen days after assault. Evidence of the acute injuries has disappeared, leaving only a cleft at the 8 o'clock position. The patient was examined with the supine, labial traction method.

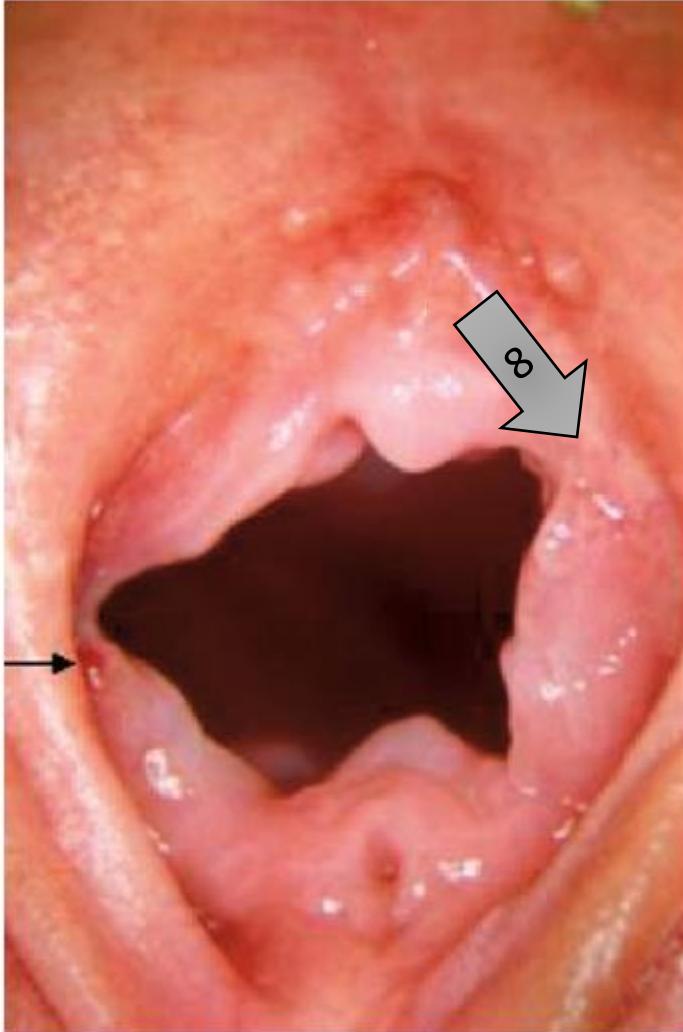


FIGURE 8

Case 2: Sixteen days after assault. The "starburst" appearance created by the multiple lacerations of the hymenal rim become apparent during this examination method. A small blood blister is present at the 2:30 position supine (arrow). The patient was examined with the prone, knee-to-chest position method.

With time the injuries heal and appear like starburst/ notches  
Delayed presentations will be difficult to interpret with normal anatomical variations

McCann, Miyamoto, Boyle, Rogers,  
Paediatrics 2007

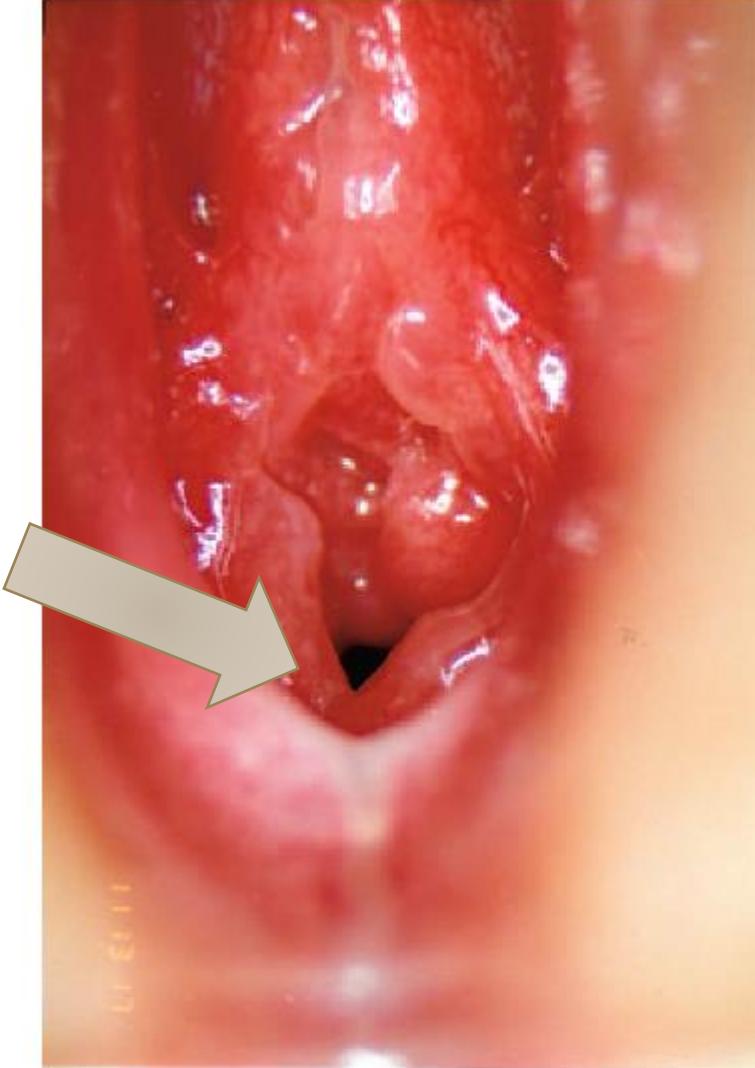


FIGURE 9

Case 3: A 9-year-old assaulted 3 days before. Deep V-shaped laceration is present at the 6:30 position. Fresh-cut edges of the wound are still visible. The patient was examined with the supine, labial traction method.



FIGURE 10

Case 3: Nineteen days after assault. The V-shaped laceration has smoothed off, leaving a "keyhole-type" appearance. Mounds on either side of the orifice formed by 2 intravaginal longitudinal ridge attachments. The patient was examined with the supine, labial traction method.

In pre-pubertal and pubertal age group hymenal injuries heal quickly and if examination is delayed, interpretation is difficult, unless done by an expert

McCann, Miyamoto, Boyle, Rogers,  
Paediatrics 2007

Pre-pubertal girls injuries heal quickly

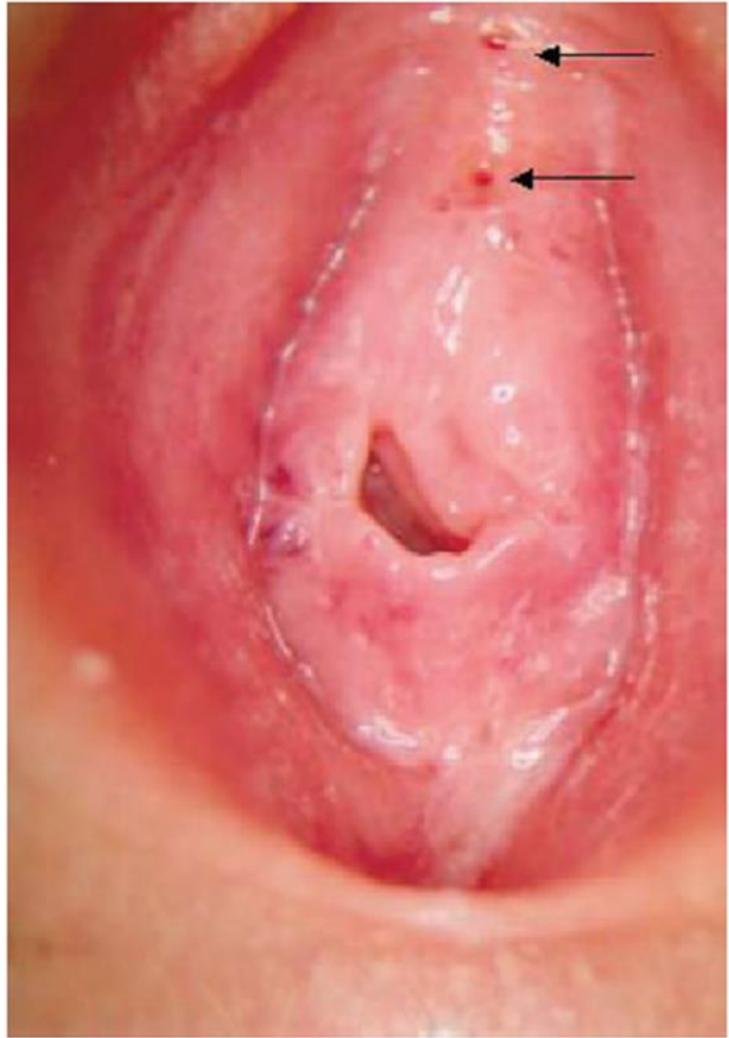


FIGURE 4

Case 2: a 12-year-old who was sexually assaulted by 2 teenaged boys 24 hours before the current examination. Two blood blisters (arrows) in the midline of the vestibule can be seen (supine labial traction method).

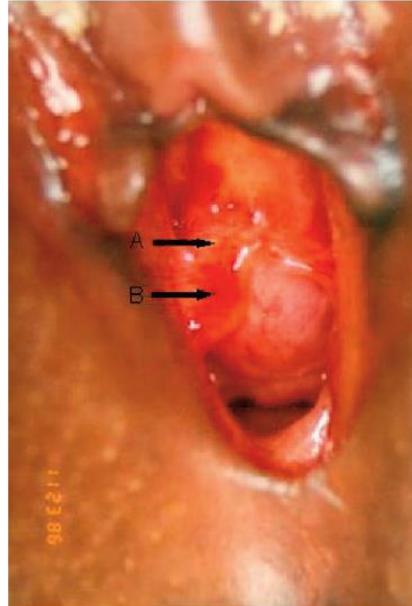


FIGURE 1

Case 1: a 4-year-old was sexually assaulted by her mother's boyfriend and examined on the same day. Petechiae (arrow A) and submucosal hemorrhage (arrow B) are present on the perurethral tissues within the vestibule (supine labial traction method).

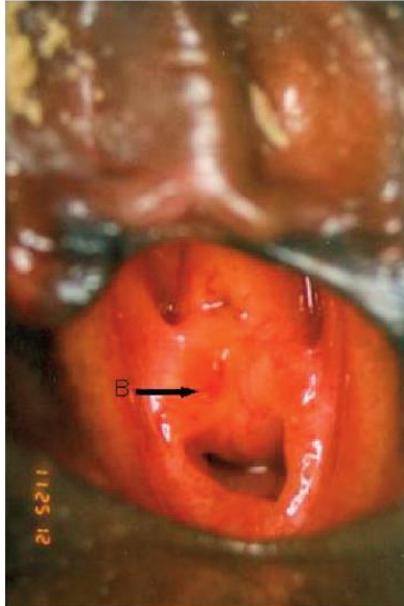


FIGURE 2

Case 1: 72 hours later. Petechiae have resolved, and the submucosal hemorrhages are fading (arrow B) (supine labial traction method).

In pre-pubatal and pubatal age group non- hymenal injuries are minute and heal quickly and if examination is delayed, interpretation is difficult, unless done by an expert

## Non hymenal genital injuries in sexual assault

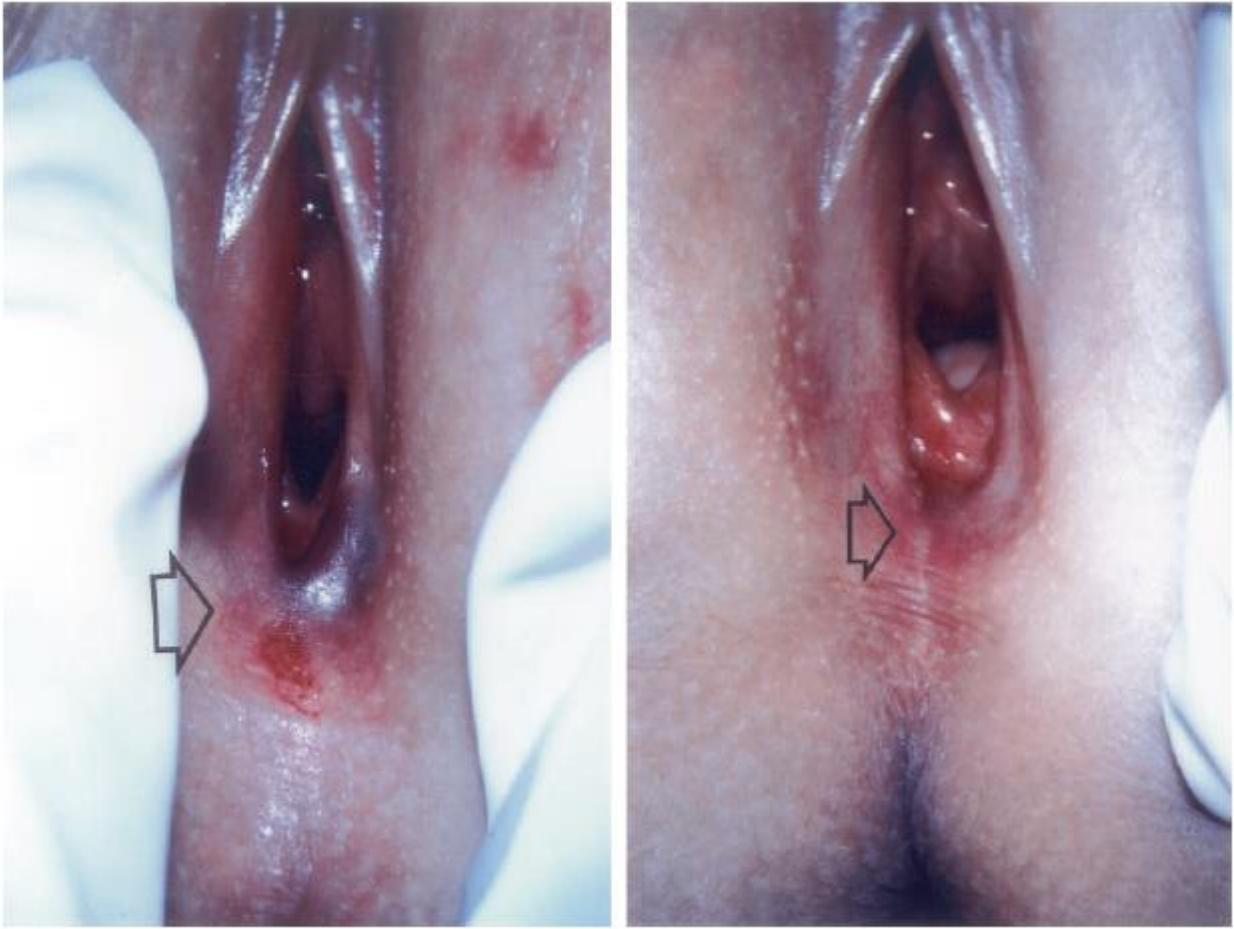


Fig 1. Case 45, 7-year-old with history of straddle injury in bathroom. Note (arrow) bruising and abrasion of PF and labia majora.

Accident falls may mimic sexual assault: injuries in the fossa navicularis and perianal fold. Therefore corroboration of history and injury interpretation is important

Accidental falls



Midline splitting  
injury from inline  
skating accident—  
8-year-old girl

Fig 3. Case 17, 5-year-old with straddle injury, laceration of the PF and FN.

Fig 4. Case 17, 8 days later after surgical repair. Large arrow indicates scarring of the PF. Small arrow indicates area of the FN that has not completely healed in 8 days.



# ANAL EXAMINATION

---

Examine the buttocks and peri-anal skin in lateral position

Photograph any visible trauma

Collect dried and moist secretions and foreign materials.

Inspect anal verge/ photograph/ colposcope

Cleanse peri-anal area with water or moistened gauze pad

Obtain rectal swabs

Reflex anal dilatation/ Dilated anus

# Anal injury following sodomy



Bleeding from anus, pain in the anus, anal mucosal tears, lacerations, rectal perforation and sphincter injuries also can occurs esp using of foreign objects

Injuries are seen at anal verge or entrance to anal canal: due to high vascularity injuries heal quickly

Anal injury following sodomy. Courtesy: Malinda Wheeler, RN, MN, CFNP.



## Anal injuries

Mucosal abrasions/  
lacerations in the anal fold.  
They are also seen in natural  
conditions such as  
constipation and even worm  
infestations

*Photo: Courtesy of the DOVE Program, Summa Health System*

Photograph of anal injuries taken approximately 12 hours after the event

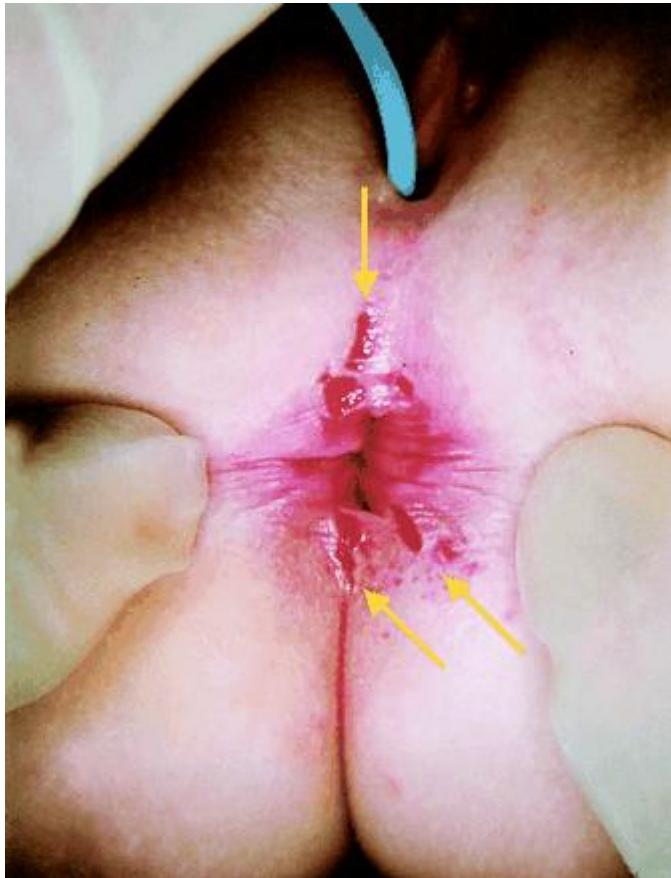
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A case of severe anal injury in an adolescent male due to bestial sexual experimentation  
Roger O. Blevins, RN MS  
*Journal of Forensic and Legal Medicine*

# Accidental injuries in anus may mimic child sexual abuse

---



Multiple fresh perianal lacerations run radially, extending from the anus at 5, 6, and 12 o'clock. Child pedestrian involved in low speed motor vehicle Boose, Pediatrics 2003

# Anal dilatation

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Figure 18.2 Anal penetration of a young child with dilatation, laceration, marginal tearing and skin tags. Dilatation alone is sufficient for a firm diagnosis of buggery.



Fig. 136 Laceration and haematoma of the anus, with mild laxity.



Fig. 137 Markedly dilated anus with no stool present.

# Normal and nonspecific ano-genital findings

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Hymenal tags

Hymenal bumps or mounds

Labial adhesions

Clefts or notches in the anterior half of the hymen

Vaginal discharge

Genital or anal erythema

Perianal skin tags

Anal fissures

Anal dilatation with stool in ampulla

# Findings that are diagnostic of penetrating trauma



**FIGURE 9**  
Case 3: A 9-year-old assaulted 3 days before. Deep V-shaped laceration is present at the 6:30 position. Fresh-cut edges of the wound are still visible. The patient was examined with the supine, labial traction method.



**FIGURE 10**  
Case 3: Nineteen days after assault. The V-shaped laceration has smoothed off, leaving a "keyhole-type" appearance. Mounds on either side of the orifice formed by 2 intravaginal longitudinal ridge attachments. The patient was examined with the supine, labial traction method.

Acute  
hymenal  
laceration

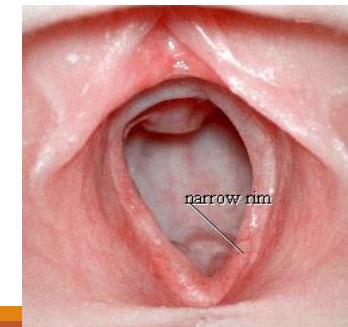
Healed  
hymenal  
laceration

Complete  
cleft

Ecchymosis  
of hymen

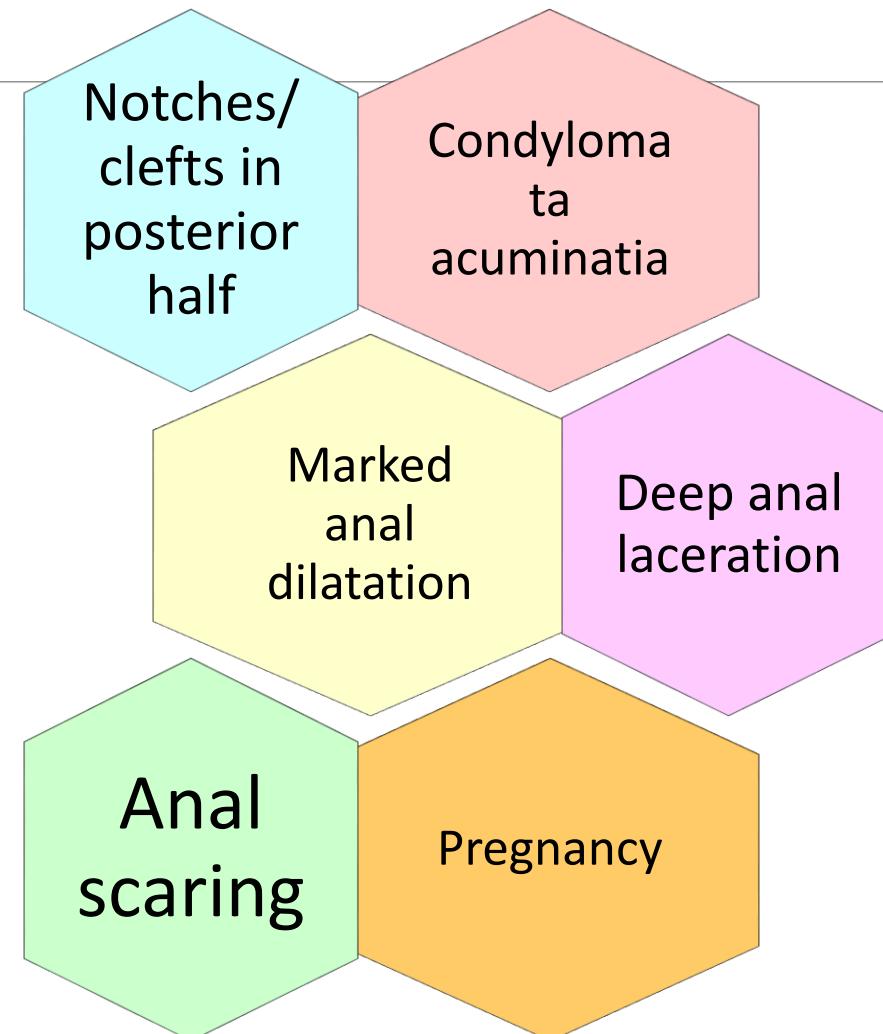
Absence  
of  
hymeneal  
tissues

Attenuat  
ion of  
hymen



# Findings that are consistent with abuse

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# Summary

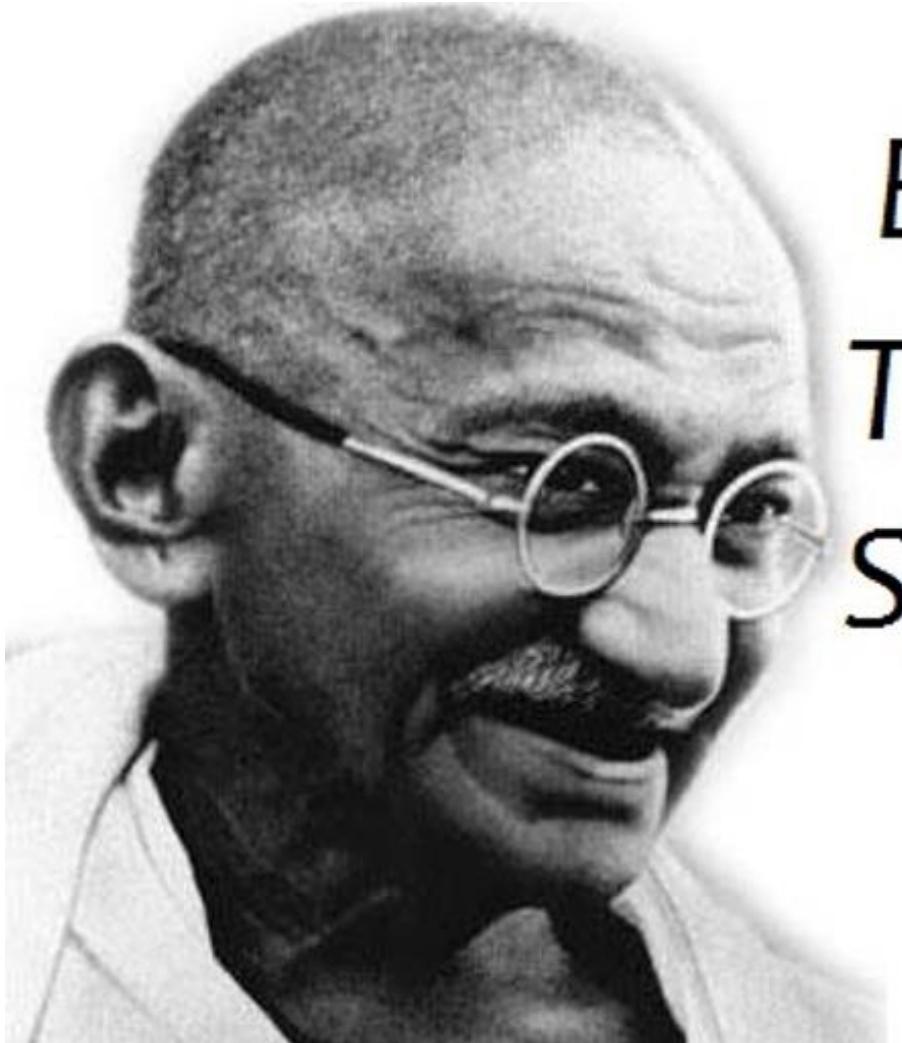
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- Examination general/ systemic/ injuries/ ano-genital
- Head to toe examination for injuries
- Recording of injuries
- Ano- genital examination techniques may vary:
  - Child
  - Adolescent
  - adult
- Genital injury interpretation is difficult unless with experience



# Develop an attitude of





Be The *Change*  
That You Want to  
See In The World.





Thank  
you