



G23 Postmortem Genital Examinations and Evidentiary Protocol With Colposcopy

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This paper proposes to describe a sequential methodology and evidentiary protocol for the postmortem genital examination of sexual homicide victims. To this end, salient findings from baseline studies of postmortem genital anatomy, and the effects of postmortem changes, will be discussed.

A methodology for the genital exam of homicide victims by forensic nurse examiners to assist in the determination of concomitant sexual assault was first described in 1998 (Crowley, AAFS). This earlier protocol has been further defined during ongoing accumulation of baseline studies of genital anatomy and the nature of the anogenital tissues in the postmortem interval. This clinical research is done in collaboration with Brian Peterson, M.D., of Forensic Medical Group, Fairfield, CA. Further study will compare this baseline group with cases that present with genital trauma. Study of the nature and patterns of injuries found in sexual homicide victims will allow comparisons to those types of injuries previously noted in living victims of sexual assault. The use of colposcopy is well established as a component of the medical legal exam of living victims of both adult and child sexual assault. Patterns of injury have been described and findings compared to a control group of women who engaged in consensual sex (Slaughter, Brown, Crowley, and Peck, 1997).

Examination solely via gross visualization yields a paucity of genital trauma (10-30%) in living rape victims. Similarly, during the autopsy, gross visualization alone may preclude the more subtle findings of genital trauma that usually constitute injury in sexual assault. The use of colposcopy for the evaluation of postmortem cases by this author has demonstrated its usefulness and efficacy as an adjunct to the examination. The colposcope affords magnification at different settings, photographic capability via standard 35mm SLR or digital imaging, and if desired, video capacity. Photocolposcopy provides a mechanism for photodocumentation; this increases reliability and facilitates peer review. Higher magnifications afforded by the colposcope (e.g., 15X) allow careful study of the effects of the postmortem interval and other variables on the genital tissue. Other equipment used in the postmortem genital examination in addition to the colposcope, include camera(s), various lenses, various sizes of vaginal speculums, anoscopes, Wood's Lamp +/- Alternate Light Source, sandbags, and disinfectant.

Materials and Methods: 28 postmortem patients (25 females; 3 males) were evaluated using a protocol that included colposcopy. Causes of death included suicide, accidental, and natural. All cases were examined with the mobile system of technology described by Crowley (AAFS, 2001). The postmortem interval varied from <24 hours (fresh) to 1 month (decomposed). Ages ranged from 32 months to 90 years old. Photographs were available for review on 18 of these cases, all females. Ages in this group ranged from 32 months to 89 years old, with a mean age of 47.9 years. Two of the 18 (11%) were pre-pubertal. Seven were in their 20s-40s (39%), and 9 (50%) were ? 50 years old. Two of the 18 were photographed only with macrophotography. Sixteen were photographed with colposcopy, at a fixed magnification rate of 7.5X, 15X, or both. In some cases, 35mm photographs were available for comparison to the colposcopic photos. Cases were assigned an ID number and entered into a modified version of the Sexual Homicide Database. Salient data include age, ethnicity/race, date/time body found, date/time of examination, cause of death, past medical history, reproductive status, and exam techniques. Eleven anatomic sites were evaluated on female cases: labia majora, labia minora, posterior fourchette, fossa navicularis, perineum, hymen, peri-urethral area, vagina, cervix, anus, and rectum. The genital findings were categorized by a system developed by Crowley and Peterson, to describe the nature of any postmortem changes to the anogenital tissues.

The Sexual Homicide Evidentiary Protocol is a sequential methodology for conducting the postmortem genital evaluation of the suspected victim of a sexual homicide. Specific features will vary by state/local jurisdiction. Prior to the actual autopsy, it is advisable to clarify individual roles and responsibilities in areas of potential overlap. If possible, conduct the genital examination and collect anogenital specimens prior to the general autopsy. This may be done after the medical examiner has conducted a preliminary overview of the body and noted gross features, such as clothing. This will allow prompt collection of biological evidence and avoid obscuring the genital area by leakage of body fluids through the vaginal opening. Salient features of the protocol include:

- Review of available data and historical information; much information may be missing at the time of the autopsy.
- General physical examination and general description of nongenital trauma.
 - a. Head/oral: items for Sexual Assault Evidence Kit and photographs, as appropriate.
 - b. Scan of body with Wood's Lamp and/or Alternate Light Source
 - c. Bite mark evaluation: documented on traumagram, in a manner consistent with ABFO guidelines, i.e., location, shape, color, size, type of injury
 - d. General description of nongenital trauma. Note "*Defer to Medical Examiner's Report.*"
- Sexual Assault Evidence Kit and Clothing: integrated into general and anogenital examination, to



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ensure consistency and completeness.

- **Genital/Anal Examination:** includes collection of foreign matter/ debris, pubic hair combings, evidentiary swabs/slides, reference standards, and lab. After patient has been positioned for genital examination, as many sites as possible should initially be evaluated using gross visualization.
- **Colposcopic examination:** Use labial separation and/or labial traction to visualize and photograph the following anatomic sites: **labia majora, posterior fourchette, labia minora, hymen, fossa navicularis, perineum, and peri-urethral** area. Inspect all aspects of the hymenal borders. Insert vaginal speculum; inspect and photograph the **vagina** and **cervix**. Use the colposcope to visualize & photograph the perianal area, including the anal verge and anal folds. Insert an anoscope into the **anus** to inspect the **rectum**; collect rectal forensic swabs and make appropriate slides. For the male, the following sites should be evaluated: penis (glans, foreskin, shaft), urethra, scrotum, anus, and rectum. Adjuncts used to augment the examination should be documented. These include a 1% aqueous solution of Toluidine Blue Dye and balloon-covered swabs. Positive dye results show up as deep, linear staining in areas of denuded tissue. Both techniques should be done after collection of evidentiary samples. The dye should not be applied to mucosal surfaces.
- **Specimen** packaging, storage, and chain of custody: Properly code and package all swabs, slides, and specimens. Employ measures to ensure that there is no cross-contamination of specimens.
- **Documentation** of the examination includes medical-legal forms, photodocumentation, narrative reports, summary of findings, and a discussion of the nature and pattern of genital findings. Documentation may require modification of existing medical-legal forms. Conventional terminology, i.e., blunt vs. sharp trauma, should be incorporated into the description of traumatic findings. It will be useful to develop a taxonomy, similar to that used by Crowley and Peterson (2001), to describe the nature and pattern of postmortem changes to the anogenital tissues at various postmortem intervals.

Suspect examination: a medical-legal examination of the suspect is suggested. Protocols for this will vary by jurisdiction. In addition to routine collection of reference and evidentiary samples, the Alternate Light Source is a useful adjunct. Barsley has described the use of the alternate light source with narrow-band illumination and reflective imaging (Crowley, Barsley, Peterson, Wood, AAFS, 2000). Photograph any identification marks, such as tattoos, moles, or birthmarks, which may appear in photos taken by the offender with the victim. Patterned injury may be the result of weapon use during the commission of the crime, or inflicted by the victim in self-defense.

Colposcopy, Postmortem Genital Exams, Sexual Homicide