G82 Anogenital Anatomy: Colposcopy to Study the Appearance and Changes During the Postmortem Interval

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After attending this presentation, attendees will be able to describe the nature and appearance of the anogenital tissues at various postmortem intervals, and evaluate the efficacy of a previously described system of mobile technology for postmortem genital examinations.

This presentation will impact the forensic community and/or humanity by increasing the diagnostic acumen of forensic examiners, increasing the reliability and consistency of both examination techniques and documentation via improved methodology and an efficacious taxonomy, and to eventually allowing reliable comparisons between the anogenital findings in cases of sexual homicide to normative postmortem controls.

Text/background: A paucity of data exists on the "normal" appearance of the anogenital anatomy during the postmortem interval. Data from scrutiny and photodocumentation of these tissues are lacking. Detailed observations of the usual anatomic sites, which have been carefully studied in living sexual assault victims, are lacking in postmortem examples. Thus, the interpretation of genital findings in the deceased remains a vital and timely issue. In addition, techniques that are often employed by some examiners for the medical-legal examination of living sexual assault victims, such as the application of the nuclear stain, toluidine blue dye, have been insufficiently studied in the postmortem arena.

In order to accomplish this, postmortem cases presenting from various causes of death from natural, accidental, suicide, and homicide of nonsexual etiology, are the focus of the present discussion. These cases will comprise a normative, core group of baseline cases, and the first study of "normal" postmortem genital anatomy.

Materials and methods: Baseline examples of genital anatomy during the postmortem interval are selected based upon availability and accessibility. Female cases from the representative causes of death will be clinically evaluated, using the mobile system of technology described by Crowley (JFS, 2004).[1] Colposcopic technique includes inspection at 7.5X, 15X, or both, and photodocumentation via a 35 mm SLR camera. Colposcopy was chosen because it is a well-established technique for the evaluation of sexual assault in both child and adult victims. The range of postmortem interval categories are < 24 hours (fresh), 48-72 hours, 73-96 hours, > 5 days, and unknown. Reproductive status is categorized as prepubertal, reproductive age, perimenopausal, and post-menopausal. Some of the variables to be collected and entered into a sexual homicide database include age, ethnicity, race, date/time body found, date/time of examination, cause of death, past medical history, reproductive status, exam techniques, and any known past medical history, especially gynecological history. Routine inspection, visualization, and photodocumentation of the salient anatomic sites includes the labia majora, peri-clitoral area, peri-urethral area, labia minora, hymen, vagina, cervix, perineum, fossa navicularis, posterior fourchette, anus, and rectum. Any concomitant gynecological condition or benign lesions are noted. Examination techniques such as labial separation, labial traction, use of vaginal speculum, anoscopy, and the degree of fixed magnification (*e.g.*, 7.5X, 15X), used for colposcopic documentation, are also documented.

Discussion: The use of colposcopy is well documented in living sexual assault victims. The obvious benefits of improved visualization via magnification, photodocumentation, and the capacity for peer review are equally germane to the postmortem arena. For living victims, the sexual assault examiner is asked to determine if the physical examination is consistent or inconsistent with the history as provided by the victim. In the deceased, the lack of a history provided by the victim makes the need for reliability and accuracy paramount. The examiner must consider the usual benign factors, gynecological conditions, and concomitant anatomical variations often present in antemortem cases. The examiner of postmortem cases must have the ability to reliably and accurately assess the nature and appearance of anogenital tissues at all major anatomic sites and at various postmortem intervals, while the normal changes of decomposition are simultaneously superimposed on the anatomy. For both the normative, baseline controls and suspected cases of sexual homicide, it is vital that meticulous attention be paid to technique, taxonomy, and interpretation.

The most compelling argument for the use of the colposcope in this setting is the dearth of information available on what is "normal." In the field of postmortem sexual anatomy, the pivotal issue is that "normal" has never been defined. Postmortem changes that are routinely recognized by the adroit examiner of deceased victims such as mucosal autolysis, skin slippage, dilatation, and lividity, may be mistaken for traumatic changes by even experienced sexual assault examiners, whose prior experience is limited to antemortem cases. The entire perineum including the vagina and rectum can be removed en bloc for dissection and microscopic evaluation by the Forensic Pathologist. However, there may be valuable information gleaned by initial in situ examination via colposcopy of the anogenital site.

A high degree of photographic detail and careful analysis of related sample variables will also facilitate categorization of anogenital findings, using an expanded version of the taxonomy described by Crowley and Peterson (AAFS, Dallas, 2004). Continued study may require that the initial taxonomy be modified or

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expanded.

Reference:

1. Crowley, Sharon R. “A mobile system for postmortem genital examinations with colposcopy: SART-TO-GO,” ***J. ForensicSci***. 2004 (Nov); Vol. 49(6):1299-1307.

Colposcopy, Forensic Nurse, Postmortem Anogenital Anatomy

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