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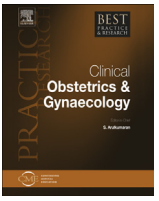

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Genital injuries acute evaluation and management

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A B S T R A C T

Genital trauma may result in external injuries to the labia, vulva or vagina, urethra and anus and internal injuries to the bony pelvis, bladder, bowels and reproductive organs. Worldwide, the most common cause of genital trauma in reproductive age women is injury sustained during childbirth, but in this chapter we will focus on accidental genital injuries as well as those arising from sexual violence, and female genital mutilation. While genital injuries alone rarely result in death; if not properly managed, chronic discomfort, dyspareunia, infertility, or fistula formation may result. Clinicians need to be able to recognize these injuries and provide initial management, and assure that the patient's mental, emotional and physical needs are addressed.

Introduction-overview

Every clinician needs to be versed in the acute evaluation and initial management of genital injuries. Genital trauma includes external injuries to the labia, vulva, vagina, urethra, or anus and internal

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injuries to the bony pelvis, bladder, bowels, or reproductive organs. Whereas some injuries may be superficial and minor, resulting in bruising or lacerations that heal rapidly, massive injuries associated with pelvic fractures and internal bleeding may require life-saving intervention by trauma specialists. Worldwide, the most common cause of genital trauma in reproductive-age women is injury sustained during childbirth. Such injuries may arise as a result of difficult or unattended deliveries and from prolonged obstructed labors and will not be addressed in this chapter. Additionally, genital injuries may result when women and children are victims of sexual violence or are subjected to female genital mutilation (FGM), also called "female circumcision or female cutting". These procedures involve partial or total removal of the external female genital structures or other injury for cultural, religious, or other nontherapeutic reasons. Other common sources of genital injury include sporting accidents and falls in the home. Although genital injuries alone rarely result in death, if not properly managed, chronic discomfort, dyspareunia, infertility, or fistula formation may result.

Impact of hormones on genital tissues and trauma

Over a woman's lifespan from infancy to menopause, genital tissues are affected by presence or absence of female hormones. In newborns, genital tissues are affected by maternal and placental estrogens, causing the hymen to be prominent, edematous, and pink in color. As the effects of maternal steroids dissipate, the prepubertal child's hymen thins, and becomes more delicate and the superficial blood vessels become visible. The introital tissues appear redder in hue than pink. The thin, non-estrogenized tissues of the introitus, hymen, tend to tear when subjected to blunt forceful penetration. In addition, the vaginal mucosa, because of its limited distensibility, is often lacerated along with the hymen. Once the child enters puberty, endogenous estrogen production initiates changes of the genital tissues. The labia minora elongate and become fuller, the vaginal tissues become pink and moist, and rugae develop. Endogenous estrogen enables the hymenal and vaginal tissues to tolerate stretching and dilation, allowing a menstruating adolescent to insert a small tampon past the hymen into the vagina without difficulty. Initial attempts at intercourse may be painful or result in tears of the hymen or abrasions, but not always. When women become pregnant, the hormone relaxin produced by the corpus luteum, placenta, and decidua targets the cervix, myometrium, endometrium, and decidua and plays a critical role in suppressing uterine motility and remodeling connective tissue in preparation for parturition [1]. At delivery, a careful interplay of hormones ensures that mature, estrogenized genital tissues are able to withstand the trauma of vaginal delivery of a full term fetus. Thus, many mothers sustain minimal or no injuries of significance, and the minor damage that does occur is able to heal. Finally, in post-menopausal women loss of estrogen atrophies the genital tissues, the vagina becomes less distensible and dry, often making consensual intercourse less comfortable unless lubricants are used.

Accidental injuries

Although sexual abuse should always be considered when a genital injury is identified, accidents commonly occur and must be considered. A variety of recreational activities can result in acute genital trauma. For example, in a large review of patients who present to US emergency departments with sports-related genital injuries, bicycle injuries were the most common for all age groups over 2 years with the exception of those aged 16–18 years (who are at higher risk from collisions in team sports). Nearly half of the bicycle injuries were associated with contact with the "top tube," the long horizontal bar of the bicycle located close to the rider's perineum, or the handlebars. Other sports-related genital injuries were caused by soccer, skiing, rock climbing, gymnastics, golf, horseback riding, hockey, lacrosse, roller skating, skateboarding, wrestling, and tennis [2]. Fortunately, the majority of sports-related injuries were treated in the emergency department. It is important that a clinician be aware of these possibilities in evaluating a genital injury [3]. Obtaining a careful history is essential for determining the likelihood that the trauma was caused by accident or sexual abuse. Below, we describe the most common types of accidental injury to the female genitals.

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