Although obstetrically related trauma remains the most common cause of injury to the female genital tract, trauma of nonobstetric origin is not uncommon. Reports of traumatic injuries to the vagina, especially lacerations, have been infrequent in the literature and offer only a generalized approach to this problem. Severe vaginal lacerations may result in life-threatening blood loss. The authors report their recent experience with treating patients who have this type of trauma, review mechanisms of injury, and provide an organized treatment protocol for the nonobstetric patient with suspected vaginal laceration. Preparation for these emergencies circumvents dangerous delays and inadequate examination and treatment.

Nonobstetric Lacerations of the Vagina

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Nonobstetric vaginal lacerations differ greatly from lacerations sustained during childbirth and are generally classified into two types. The first type is relatively minor and is associated with normal sexual intercourse or the first experience of sexual intercourse. These lacerations usually resolve with minimal treatment. The second type of laceration is deeper and more extensive, often resulting in copious vaginal bleeding. This condition can be life threatening and requires immediate intervention.

Case Series

While severe vaginal lacerations are commonly encountered by physicians, they are infrequently reported in the literature. In addition, there is a lack of an organized treatment protocol for such patients. During the past few years, we have treated four patients with severe vaginal injury with prod-...
promptly and examined under general anesthesia. The lacerations were repaired primarily with continuous interlocking 2-0 or 3-0 chromic sutures. A diagnostic laparoscopic examination was performed on one patient to rule out intra-abdominal injuries, and the results were negative. All patients underwent a digital rectal examination to make sure that the rectal mucosa was intact and free of suture material, and a cystoscopic examination of the bladder and urethra to rule out urinary tract injury. The average hospital stay was 2 days. There were no perioperative complications.

**Discussion**

Nonobstetric vaginal trauma can span a continuum of severity from minor trauma resulting from normal sexual intercourse to major vaginal lacerations. The true incidences of such injuries are difficult to ascertain, especially because the nature of vaginal injury usually remains undisclosed. Many cases resolve without medical intervention, but severe lacerations sometimes require hospitalization and may be fatal.2 Geist3 reported that up to 75% of women in the emergency department with vaginal lacerations require repair. According to Geist’s review,3 these patients usually have marked vaginal bleeding (80%) and perineal and/or lower abdominal pain (10%–20%). Hemorrhagic shock may be present in up to 15% of the cases. The lacerations tend to be 3 to 5 cm long and are usually located in the distal vagina. They are more commonly located posteriorly and to the right. Lacerations extending into the peritoneal cavity occur in less than 1% of patients.5

The most common mechanism of nonobstetric injury to the vagina is coitus.4 Predisposing and etiologic factors that can account for such injuries include virginity, disproportion of male and female genitalia, atrophic vagina in postmenopausal women, friability of tissues, stenosis and scarring of the vagina because of congenital abnormalities, previous surgery, or pelvic radiation therapy. Other factors include rough and violent thrusting of the penis during intercourse, insertion of foreign bodies, and sexual assault. Coital positioning, especially in cases of dorsal decubitus, with hyperflexion of the thighs and sitting positions have also been suggested as predisposing factors.1,5–7 Women with significant coital injuries may present late and with significant blood loss. This delay may be due to embarrassment because of the nature and cause of injuries or fear of spousal or parental knowledge. Partner abuse should be considered as a cause of injury and appropriately evaluated.1

Noncoital reproductive tract injuries often occur in the setting of multiple severe injuries and usually require operative intervention.4,5 Vaginal lacerations may be a consequence of blunt or penetrating abdominal trauma, particularly as a result of pelvic fractures.5 Vaginal lacerations have also been reported in association with injuries sustained while in straddle and astride positions.4,5 Straddle injuries are more common in small children and are usually limited to the lower vagina.4 Genital tract injuries have been reported in association with water sports such as water-skiing and jetskiing.8 These injuries can range from vulvar hematomas to minor vaginal lacerations to life-threatening vaginal bleeding. Such injuries are also usually limited to the lower vagina.5

The spatial orientation of the cervix to the long axis of the vagina predisposes the posterior fornix to injuries, especially during coitus.1,2,9,10 Dickinson9 pointed out the relative weakness in the structure of the posterior fornix, which is supported by only a few bundles of connective tissue. The right fornix is also prone to injury because of slight variations of the uterocervical axis.1,10 One report even suggests the possibility of tears in these structures resulting from levator muscle spasms in addition to direct injury.6
Treatment Protocol

The diagnosis of vaginal laceration is not often straightforward. Because of the personal nature of some of these injuries, the physician should be cognizant of marked patient delay in obtaining professional help. A misleading history together with failure to perform an adequate vaginal examination with a speculum may lead to erroneous diagnosis, thus delaying prompt treatment. Another important factor to consider is the gross underestimation of blood loss sustained and the necessity for postoperative evaluation of serial hematocrit and hemoglobin levels.1 We have established a protocol that provides an organized and systemic approach to treating patients with non–obstetric-related vaginal bleeding (Figure).

Few cases can be managed conservatively. Preparedness for these emergencies eliminates dangerous delays and inadequate examination and treatment. Severe vaginal lacerations occur too frequently to be overlooked or mishandled.

References