Original Study

Patterns of Accidental Genital Trauma and Factors Associated with Surgical Management in Girls Visiting the Emergency Department of a Referral Center

Kidong Kim MD [1], Jae Hong No MD [1], Yong-Beom Kim MD [1,*], Jin Hee Lee MD [2], Joong Eui Rhee MD [2]

[1] Department of Obstetrics and Gynecology, Seoul National University Bundang Hospital, Seongnam-Si, Gyeonggi-Do, Republic of Korea
[2] Department of Emergency Medicine, Seoul National University Bundang Hospital, Seongnam-Si, Gyeonggi-Do, Republic of Korea

A B S T R A C T

Study Objective: To examine our experience with the management of accidental genital trauma (AGT) and to identify variables associated with surgical management or admission in girls aged ≤15 y.
Design: A retrospective, observational study.
Setting: Tertiary referral hospital.
Participants: Girls with AGT visiting the emergency department (ED) between 2003 and 2011.
Interventions: None.
Main Outcome Measures: Admission rate and surgery rate.
Results: AGT was the cause in 159 out of 327 girls (49%) who visited the Gynecologic Division of ED; and in girls aged ≤10 years, AGT accounted for 78% of the visits (145/187). Twenty girls (13%) were admitted to the hospital and 38 girls (24%) underwent surgical management. Girls who visited the ED during daytime and those with laceration-type or large lesions tended to receive surgical management. Girls with large lesions also tended to be admitted to the hospital.
Conclusion: AGT is the major gynecologic cause of ED visits in girls. Time of visit, type and size of lesion were associated with surgical management. Lesion size was also a determinant for admission in girls with AGT. Gynecologists must be familiar with the evaluation and management of girls with AGT.
Key Words: Adolescent, Child, Female genital disease, Hospital emergency service, Injury

Introduction

The incidence of accidental genital trauma (AGT) in pediatric and adolescent females is unknown but is thought to be low.[1] For example, a study reported that 0.2% of visits by prepubescent girls to the pediatric emergency department (ED) are due to AGT.[2] Previous studies have reported that most AGT cases are minor injuries and can be managed expectantly without further sequelae.[3,4] However, in some cases, girls with AGT require more complex surgery.[3] Furthermore, the evaluation and management of girls with AGT could be challenging because of poor cooperation.[5] In addition, general anesthesia might be required to assess the extent of the injury and provide appropriate surgical management if necessary.[6]

Because of the low incidence, there have been few reports depicting the findings of AGT in girls.[3] One study[4] reported that most AGT are caused by straddle injury and surgical management was required in 21% of these girls. Variables associated with gynecologic consultation and surgical management were older age, transfer from other hospital, shorter time to presentation, laceration-type injury, hymen injury and large size of injury.[4] Another study showed that 12% of girls can be managed surgically, and penetrating and/or multiple injuries are associated with surgical management.[3]

The objective of this study was to examine our institutional experience with the management of AGT and to identify variables associated with surgical management or admission in girls with AGT.

Materials and Methods

Population

Medical records of 333 girls aged ≤15 years who visited the gynecologic division of the ED in our institute between June 2003 and May 2011 were reviewed. Six girls were excluded because their causes of the visit were not gynecologic diseases. Additionally, 168 girls were excluded because their reason for the visit was not AGT. Therefore, 159 girls with AGT were identified (Fig. 1).

When girls with genital trauma were admitted to our emergency department, emergency physicians had screened them for any evidence of sexual assault. Specifically, we asked them about the mechanism of injury such as “How did you get hurt? Has anyone ever touched or hurt your vagina?” and we asked their guardians “Do you suspect your child to be sexually abused?” All gynecologic examinations were performed by residents of the Department of Obstetrics and Gynecology in our institute. When it was impossible to perform a proper examination or

The authors indicate no conflicts of interest.

* *Address correspondence to:* Yong-Beom Kim, MD, Department of Obstetrics and Gynecology, Seoul National University Bundang Hospital, Gyeonggi-Do, Republic of Korea; Phone: 82-31-787-7253; fax: 82-31-787-4054
E-mail address: ybkimlh@snubh.org (Y.-B. Kim).

1083-3188/$ - see front matter
http://dx.doi.org/10.1016/j.jpag.2013.09.005

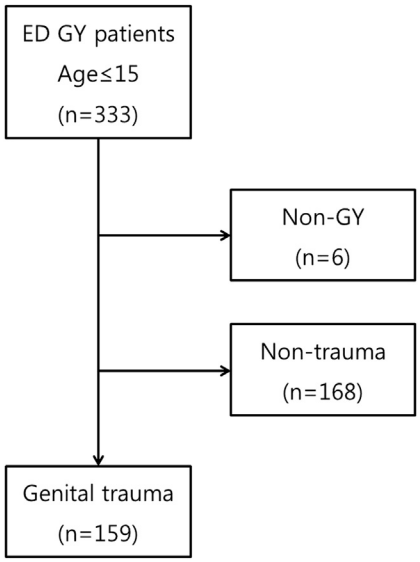

Fig. 1. Identification of eligible patients. ED, Emergency department; GY, Gynecologic.

uncertain findings were noted, an on-call staff gynecologist re-examined the patient again. At the discretion of staff gynecologists, examination under anesthesia is performed.

The Institutional Review Board reviewed this protocol in a brief review track and exempted this study from further review (B-1111-140-112).

Variables

Abstracted variables were age, time lag between AGT and ED visit, time of visit, transfer from another hospital, chief complaints, mechanism of injury (straddle or blunt vs penetrating), number of lesions, type of lesion (laceration vs abrasion or swelling), site of lesion, size of lesion, hymen injury, admission, surgical management and sequelae.

Time of visit was the time of arrival at our institute. Time of visit was grouped into 2 categories (daytime and night time visits) according to work shift of our institute. Specifically, daytime and night time visits were defined as a visit from 6 AM to 9 PM and a visit from 9 PM to 6 AM, respectively. When there were multiple lesions, characteristics of the largest lesion were used to determine the type, site and size of the lesion. Site of lesion was grouped according to proximity: labia majora, labia minora, perineum, vagina/hymen, urethra/vestibule, and clitoris/suprapubic. Based on the site of the lesion, the genital injury score[7] was estimated. Surgical management included not only surgical repair of the wound, but also any invasive procedures such as vaginoscopic or cystoscopic examination under anesthesia. Sequelae were evaluated at the follow-up visit.

Analysis

The characteristics of the population are shown descriptively. The associations of variables with surgical management or admission were assessed via binary logistic regression analysis. To be included into multivariate analysis, the site of the lesion was converted into a binomial variable. All variables with $P < .1$ in the univariate analysis were included into multivariate analysis. $P < .05$ was considered statistically significant, and all statistical analyses were performed using SPSS version 18.0 (SPSS Inc, Chicago, IL).

Results

Characteristics

AGT was the most common gynecologic cause of ED visits in girls aged ≤15 years. Specifically, AGT was the cause of visit in 159 of 327 girls (49%) who visited the gynecologic division of the ED. However, the distribution of AGT differed with age such that in girls aged ≤10 years, AGT accounted for 78% (145/187) of all visits, whereas in girls aged >10 years, it was 10% (14/140) (Fig. 2).

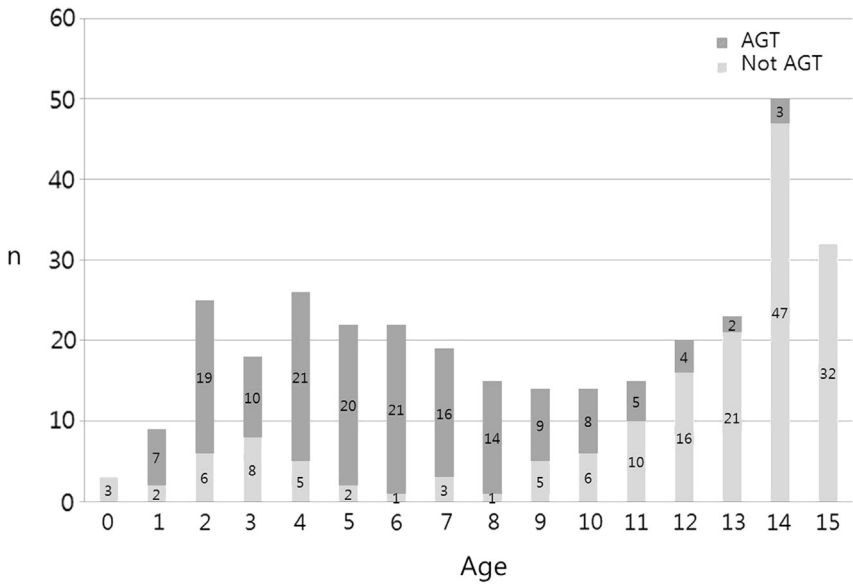

Fig. 2. Portion of AGT in patients as the cause of their ED visit according to age. AGT, Accidental genital trauma.