

## Case Report

# Non-Obstetric Vulvar/Paravaginal Hematoma in an Adolescent Girl with Scleroderma: An Opportunity for Intimate Partner Violence Intervention

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## Abstract

### Description

A 15-year-old female presented to the emergency department with swelling and pain in her left labial region as well as urinary retention after intercourse. This was the patient's first time having sexual intercourse and the patient stated that her boyfriend "kneaded" her in the labia. A CT scan of the pelvis revealed a large vulvar/external hematoma measuring 6 x 10 x 7 cm which extended into the vaginal vault. This case is the first of a vulvar hematoma reported in a pediatric patient with scleroderma. This case was complicated by the fact that our patient claimed her boyfriend intentionally "kneaded" her in the labia, thereby calling sexual abuse into question. Discerning between childhood connective tissue disorders and abuse injuries can be difficult, especially in genital trauma. The treatment team suspected early on that this was a case of intimate partner assault based on the severity of the injury alone and continued when she presented again to the emergency department with concerns for abuse. Sexual violence should be high on the differential in children with connective tissue disorders who present with vulvar or paravaginal hematomas. In our opinion, these injuries warrant a thorough investigation by a child abuse specialist, child protective services and law enforcement.

### Keywords

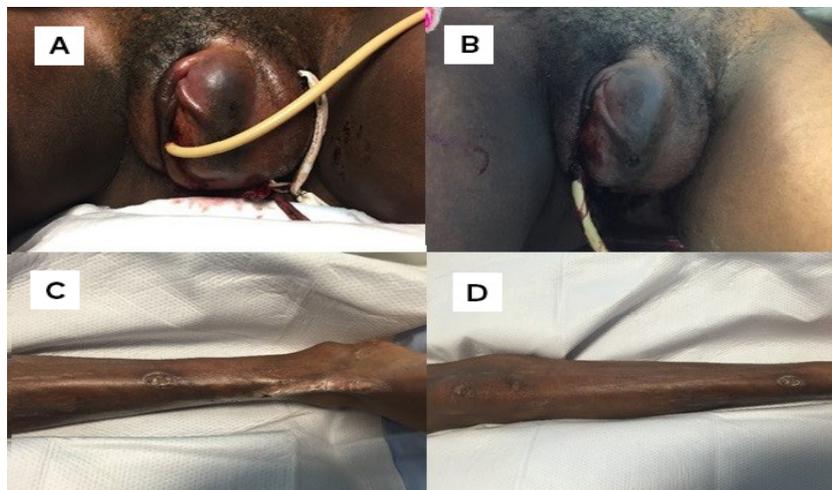
hematoma/pathology; vulva/injuries; systemic scleroderma; skin and connective tissue disorders; intimate partner violence; adolescent

### Introduction

A 15-year-old female with a history of scleroderma presented to the emergency department with swelling and pain in her left labial region. Six days prior, the patient had unprotected, vaginal intercourse with her 17-year-old boyfriend for the first time. During intercourse, the patient stated she was "kneaded" in the labia by her partner, which resulted in significant swelling. The swelling had reportedly improved within three days. The day prior to presentation, she again had unprotected, vaginal intercourse with her partner. She stated that after intercourse, she was "kneaded" in the labia by her partner for a second time. This action resulted in significant pain and immediate swelling. She also admitted to dyspareunia. She presented

to the emergency department the following morning due to excruciating labial pain and over 24 hours of complete urinary retention. She reported vaginal bleeding, but there was no malodorous discharge or blood in the urine or stool. The patient denied a history of easy bruising or excessive bleeding after trauma/procedures, and there was no family history of such instances. She also had not been on any anticoagulation medications. The pediatric surgical team was promptly consulted for evaluation and management.

Upon physical examination, she was alert, in no acute distress and was hemodynamically stable. The genital examination revealed a large, tense hematoma of the left labia majora and minora, which displaced the clitoris and



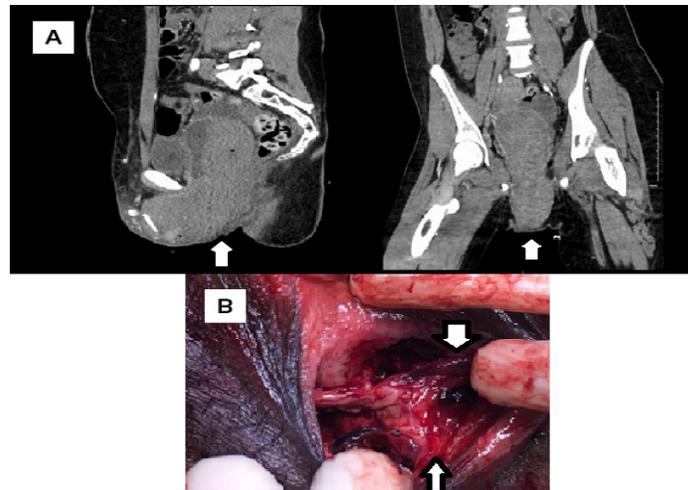
**Figure 1. A.** Post op day 1 from initial evacuation of hematoma. Severe left vulvar hematoma with significantly distorted anatomy. **B.** Post op day 4 from initial evacuation of hematoma. Still with sanguineous oozing and significant edema. **C.** Diffuse muscular atrophy of the right lower extremity with chronic skin changes, consistent with scleroderma. **D.** Diffuse muscular atrophy of the right lower extremity with chronic skin changes, consistent with scleroderma.

clitoral hood to the right. (**Figure 1, A**) Neither the vaginal orifice nor the urethra were able to be visualized due to the significant amount of swelling and extreme patient discomfort. She also had diffuse muscular atrophy of the right lower extremity with chronic skin changes consistent with scleroderma and superficial appearing skin ulcerations that were not infected on the right lower extremity. (**Figure 1, C & D**) Due to the concerning physical exam findings with the inability to perform a thorough evaluation secondary to pain on exam and the need for prompt urinary bladder drainage, the patient was taken emergently to the operating room. She had a vaginal exam under anesthesia performed with evacuation of the hematoma and placement of a Foley urinary catheter. Laboratory analysis indicated that the patient had a hemoglobin level of 11.4 g/dL, a hematocrit of 34.6% and a platelet count of 268,000  $\mu$ L. Despite over 24 hours of complete urinary retention secondary to external compression of the urethra, her renal function remained normal. Her coagulation studies were also normal.

Intraoperatively, a pelvic exam was performed, which revealed an extensive left-sided paravaginal hematoma with ecchymosis involving the left vaginal wall without lacerations. The hematoma was evacuated (operative note did not specify amount) through a labial incision, and a Penrose drain was placed. Due to persistent venous oozing, the hematoma cavity was packed

with iodoform gauze to obtain hemostasis. Endocervical swabs were obtained to screen for sexually transmitted infections, which were negative.

Her postoperative course was significant for a persistent vulvar hematoma with distortion of the urethral and vaginal orifice (**Figure 1, B**). The decision was made to obtain a computed tomography of the pelvis with angiography, which revealed a persistent large vulvar hematoma measuring 6 x 10 x 7 cm extending into the vaginal vault. Additionally, there was also an associated left-sided paravaginal hematoma measuring 8 x 7 x 11 cm but with no active arterial blush or associated arteriovenous malformation. (**Figure 2, A**) Due to these findings, she was taken back to the operating room for a repeat evaluation under anesthesia. The repeat evaluation revealed a persistent paravaginal hematoma on the left that had spontaneously decompressed into the vagina, leaving 2 lacerations on the left vaginal wall approximately 3 cm from the vaginal orifice—2 cm in length at the 3 o'clock position and 1 cm in length at the 6 o'clock position. (**Figure 2, B**) The remainder of the hematoma was evacuated (300 ml), which fully decompressed the vulvar portion of the hematoma. Primary repair of the lacerations was not done as they were loosely approximated, and it would allow persistent drainage of any residual seroma/hematoma. The patient subsequently did well without reaccumulation



**Figure 2. A.** Axial Computed Tomography with Angiography of the abdomen and pelvis demonstrating a left vulvar hematoma measuring 6x10x7cm and left paravaginal hematoma measuring 8x7x11cm. **B.** Intraoperative photo of vaginal wall lacerations at 3 o'clock and 6 o'clock demonstrating the decompressed paravaginal hematoma cavity.

of the hematoma, was able to void spontaneously after removing the Foley catheter and was discharged the following day.

Multiple factors throughout the patient's hospital course led the treatment team to have a high index of suspicion for sexual abuse. A concerning social dynamic between the patient, her mother and the boyfriend's family became apparent. The mechanism described by the patient did not match the severity of her injury. The child abuse specialist was consulted due to concern for sexual assault by her intimate partner. Per their recommendations, the patient was given empiric treatment for sexually transmitted infections along with being offered HIV post-exposure prophylaxis and pregnancy prophylaxis, both of which she opted to take. During her interview with the child abuse specialist, the patient adamantly denied any aggression, coercion or instrumentation. The patient never mentioned being "kneed" by her partner to this specialist and the patient's grandmother (whom she lived with at the time of the encounter) stated the patient told her she was only "kneed" while they were changing positions during intercourse. She was deemed safe for discharge home by child protective services. She was seen by the pediatric surgical team at her initial follow up appointment and was healing well. However, she missed her scheduled 6-month follow up appointment, though she did present multiple other times to

the emergency department for various other complaints.

Ultimately, the patient returned to our hospital 1 year after this incident as a trauma patient for treatment of multiple injuries sustained from a physical assault by the same partner. During that hospitalization, she admitted that the vaginal hematoma had in fact occurred as the result of a sexual assault by the same partner.

## Discussion

Non-obstetric vulvar hematomas are rare, accounting for only 3.7% of all vulvar hematomas.<sup>1</sup> They may arise secondary to blunt trauma sustained from a fall from height, sexual assault, foreign body insertion, saddle injury and coitus.<sup>2</sup> The vulva consists of loose connective tissue and smooth muscle that is richly supplied by branches of the pudendal artery.<sup>3</sup> Its anatomical position and rich vascular supply make it susceptible to hematoma formation during perineal injury.<sup>2</sup> Predisposing factors that may result in 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.<sup>4</sup>

Genital injuries, including hematomas, have been reported in adolescent females after consensual sexual intercourse.<sup>5</sup> A study conducted

by Jones and colleagues<sup>6</sup> evaluated adolescent girls (13–17 years old) after consensual sexual intercourse and non-consensual sexual intercourse. Anogenital injuries were documented in 73% of girls after consensual sexual intercourse versus 85% of girls who were sexually abused (non-consensual intercourse).<sup>6</sup> Predisposing factors and causes that have been proposed for such injuries include absent physiologic preparation of the genitalia, first coitus, rough or hurried coitus, intoxication, variant coital positions, anatomical disproportion, mental factors, postmenstrual state and clumsiness.<sup>6</sup> Hymenal trauma, such as abrasions, hematomas and lacerations were reported after consensual first intercourse.<sup>5</sup> Additionally, the pubococcygeus muscle is more tense and spasmodic in adolescent girls and it has been hypothesized that in adolescent girls, the characteristics of this muscle contribute to vaginal lacerations, even in consensual intercourse.<sup>7</sup>

The management of vulvar hematomas is controversial, and no exact criteria have been set for when surgical intervention is beneficial. The hematoma may be managed conservatively, surgically or with selective arterial embolization.<sup>8</sup> It is generally agreed upon that for large hematomas accompanied by progressive expansion with urologic or neurologic symptoms, immediate surgical intervention is indicated for incision and drainage of the hematoma.<sup>9</sup> Ultrasound, computed tomography or magnetic resonance imaging may be needed to further investigate the size, site and expansion of the hematoma.<sup>8</sup>

This case is the first of a vulvar hematoma reported in an adolescent patient with scleroderma. Scleroderma is a connective tissue disease characterized by endothelial dysfunction and fibrosis of the skin and internal organs.<sup>10</sup> Knafo and colleagues conducted a study that showed women with scleroderma experience levels of sexual impairment comparable with or greater than women with breast cancer, gynecological cancer and HIV.<sup>11</sup> Despite these reports and testimonials from patients, there has been little research done to investigate this problem.<sup>12</sup>

Skin tightening around the vaginal introitus, joint contractures, muscle weakness, changes in skin around the breasts and breast mus-

cle, and joint pain are frequently mentioned as symptoms associated with lower levels of sexual functioning, desire, arousal, lubrication and satisfaction in females with scleroderma.<sup>13</sup> In addition, women with scleroderma often experience shrinking of the mouth and tightening of facial skin which can make intimate acts uncomfortable.<sup>11</sup> Despite these limitations, it was found that 60% of women with scleroderma remained sexually active.<sup>13</sup>

While it is our belief that our patient's dyspareunia and labial hematoma were confounded by her scleroderma, we did not feel this could fully account for the extent and severity of vulvar and paravaginal hematoma that developed. At the initial evaluation, our surgical team was highly suspicious of abuse or intimate partner violence. However, the patient repeatedly denied such and insisted that no instrumentation had occurred, which complicated the care team's ability to appropriately intervene from a social and legal standpoint. As determined by Jones' study, there is a great deal of overlap in the types of genital injuries seen after consensual intercourse and after non-consensual intercourse in adolescent girls (sexual abuse).<sup>6</sup> While a thorough physical exam is still needed when evaluating these patients, it is also imperative to obtain a detailed medical and social history.

## Conclusion

Children with connective tissue disorders can be diagnostically challenging since it can be difficult to separate pattern of abuse injuries from accidental injuries. We believe this separation presents a diagnostic dilemma for genital trauma as well. In this particular case, the treatment team suspected early on that there was intimate partner assault based on the severity of the injury alone, and continued when she presented again to the emergency department with concerns for abuse and continued once a concerning social dynamic became apparent. Our suspicions proved to be accurate. Sexual violence should be high on the differential in children with connective tissue disorders who present with vulvar or paravaginal hematomas, and in our opinion, warrant a thorough investigation by a child abuse specialist, child protective services, and law enforcement.

## Conflicts of Interest

The authors declare they have no conflicts of interest.

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