

# Cotton fiber ball as an unusual cause of vaginal discharge in a 5-year-old child

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## Abstract

Vaginal discharge in children can be due to many causes. Foreign body in vagina is an unusual cause. Foul-smelling, blood-stained vaginal discharge should raise the suspicion of foreign body in vagina. Magnetic resonance imaging (MRI), vaginal examination under general anesthesia may detect foreign bodies in vagina. We found a cotton fiber ball in vagina, probably caused by the child's teddy bear as a cause of vaginal discharge in a 5-year-old child. A repeat MRI suggested foreign body in the vagina and vaginal exploration under general anesthesia helped for the removal of cotton fiber ball, which led to complete clearance of the vaginal discharge in the child.

**Key words:** Cotton fiber ball, foreign body, vaginal discharge

## Introduction

vaginal discharge, a small amount of thin, sticky, and elastic, is normal in prepubertal girls. However, if the discharge is copious, foul smelling, associated with itching and burning, and a change in color and texture do indicate abnormality. Common causes of vaginal discharge in prepubertal age groups could be vulvovaginitis, vulval dermatitis, sexual abuse, and rarely foreign bodies.<sup>[1]</sup>

We report a case of foul-smelling vaginal discharge in a 5-year-old child with an unusual and rare cause.

## Case report

A 5-year-old child referred from gynecology OP with the complaint of watery foul-smelling vaginal discharge for

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**How to cite this article:** Kolalapudi SA, Shaik H, Kolaka SU, Konala S, Alluri R. Cotton fiber ball as an unusual cause of vaginal discharge in a 5-year-old child. Indian J Sex Transm Dis 2022;43:79-81.

Submitted: 25-Oct-2020

Revised: 09-May-2021

Accepted: 01-Jun-2021

Published: 07-Jun-2022

## Access this article online

### Quick Response Code:



### Website:

www.ijstd.org

### DOI:

10.4103/ijstd.ijstd\_116\_20

6 months. The discharge was occasionally blood stained and associated with itching and burning. There was no history of trauma nor any behavioral problems. We could not elicit any sexual abuse. There were no history of previous ulcers and no history of fever or joint pains.

On examination, there were two small ulcers on the right labia majora, 0.5 cm × 0.4 cm, not painful, not tender, and no bleeding on touch [Figure 1]. There was nonfrothy, clear, malodorous, watery discharge from the vagina. There was no discharge from the anus and there were no perianal excoriations. Lymphadenopathy was not there. Systemic examination was normal. Hematological, liver functions, and renal function tests were normal. Venereal Disease Research Laboratory, human immunodeficiency viruses, HbsAg, and hepatitis C virus were nonreactive. Follicle-stimulating hormone, luteinizing hormone, prolactin, estradiol, thyroid-stimulating hormone, free T3 and T4 were within normal limits. Stool examination did not reveal any helminthic infections. The whiff test from the vaginal discharge was negative. KOH smear did not reveal any fungal elements. Wet mount, Gram stain, Giemsa stain of vaginal discharge did not reveal any significant abnormality. Smears from the ulcers for Gram stain and Giemsa stain were normal. Urine culture and swab from the ulcers were sterile and culture of the vaginal discharge showed *Pseudomonas* species sensitive to amikacin, ciprofloxacin, and cefepime. The child was given injection amikacin 15 mg/kg daily for 5 days and topical mupirocin ointment; the ulcers on the right labia majora were healed. The ulcers were probably because of irritant nature of discharge, and the itching and scratching could be the cause of the ulcers; there was mild decrease in discharge for 1 week and recurred again. As there was recurrence, the child was investigated further after a thorough clinical examination once again.

Ultrasound pelvic area was normal. Magnetic resonance imaging (MRI) revealed few air pockets in the posterior vaginal canal. Culture sensitivity of the vaginal discharge was repeated again, which showed *Escherichia coli* this time. She was treated with cefpodoxime (5 mg/kg/day), metronidazole 200 mg twice daily, and sodium bicarbonate douches for 1 week. Fluconazole 6 mg/kg/week was also given. None of these gave any relief. The patient was lost to follow-up and came back after 4 months with the same foul-smelling watery vaginal discharge. The psychiatric referral was taken and he could not elicit any abnormal psychological behavior.

After institutional academic grand round, MRI was repeated, and surprisingly this time, it showed an hyperintense area in the upper one-third of posterior vagina suggesting a possibility of foreign body.

Under general anesthesia, vaginal canal was explored and a small ball of cotton fibers was removed [Figure 2]. Once the cotton material was removed, the discharge subsided and there was no recurrence during 6 months of follow-up. A thorough history with the child's parents revealed that the child has the habit of handling a teddy bear all through the day and also sleeps keeping that in between legs, sometimes even without wearing undergarments. The source of the cotton fiber ball in the vagina could be that teddy bear, which the child was keeping close to genitalia for a longer time. The teddy bear was not torn. According to mother, the teddy bear had a zip in its back part, which was opened frequently, and the stuff was removed by the girl during her play. The possibility of introducing herself by the child could not be sought directly, but the mother was suspicious of her daughter doing it. The mother saw her daughter removing those cotton fibers and playing with them, placing in the mouth. She also warned her daughter not to remove those cotton fibers from the teddy bear and play with them.

### Discussion

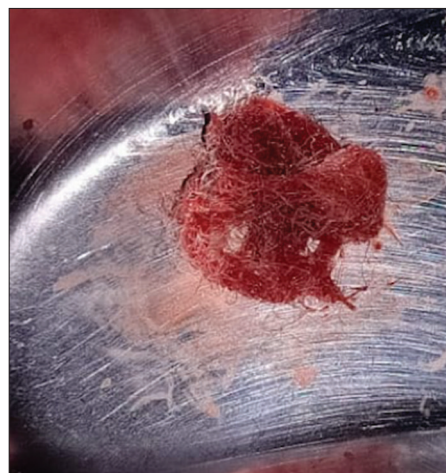
Vaginal discharge is the most common gynecological complaint in prepubertal girls.<sup>[2]</sup> It can cause itching, burning in children, and anxiety to parents. Small, underdeveloped thin labia, lack of pubic hair, and close proximity of vagina to anus predispose to vaginal infection in children.<sup>[3]</sup> Thin undifferentiated squamous epithelium of vagina because of low estrogen levels and neutral pH in contrast to acidic pH in adults predispose them to more infections and inflammation.<sup>[4]</sup> Vaginal discharge in children could be due to many causes [Table 1].

Vulvovaginitis and sexual abuse are the common causes of prepubertal vaginal discharge. Kumar *et al.* studied 20 prepubertal girls and found that candida was the cause in 6, followed by pinworm infestation.<sup>[3]</sup>

Sexually transmitted infections (STIs) are a rare cause of vaginal discharge in prepubertal girls. These are more described with sexual abuse. Seventy-three million boys and 150 million girls under the age of 18 years had experienced various forms of sexual violence worldwide.<sup>[5]</sup> A national-wide study by the Ministry of Women and Child



**Figure 1:** Two tiny ulcers on right labia majora



**Figure 2:** Cotton fiber ball, removed from vagina of the child

**Table 1: Causes of vaginal discharge in children<sup>[1,3]</sup>**

Vulvovaginitis
Infective: Bacterial, viral, fungal
Chemicals: Soaps, diapers, irritant tight clothes, improper hygiene
Sexual abuse
Foreign bodies
Vulvar or vaginal tumors
Pinworm infestations
Congenital anomalies Ex: Ectopic ureters

Development, India, had revealed 53% of sexual abuse in 12,447 children interviewed.<sup>[6]</sup>

Approximately 5% of children who are sexually abused acquire a STI.<sup>[11]</sup> In sexual abuse cases, *Neisseria gonorrhoeae* has been estimated to be found in 3.3%, *Chlamydia trachomatis* in 3.1%, *Trichomonas vaginalis* in 5.9%, and *Treponema pallidum* in 0.3%.<sup>[7]</sup> Candidiasis causing vaginal discharge in prepubertal girls is uncommon. If isolated, predisposing factors such as diabetes, prolonged antibiotic use, diaper use, and sexual abuse are to be suspected.<sup>[8]</sup> Children who had undergone sexual abuse may develop abnormal sexual behaviors such as inserting objects into vagina/anus and masturbating with different objects.<sup>[9]</sup>

Foreign bodies are unusual cause of vaginal discharge in children. It should be suspected if vaginal discharge is recurrent, chronic, foul smelling, and blood stained.<sup>[11]</sup> Vaginal foreign body was reported in 4% of prepubertal girls with a genital complaint and 18% of these present with vaginal discharge and 50% with vaginal bleeding.<sup>[10]</sup> The most common foreign body reported was tissue paper, but coins, beads, small toys, safety pins have also been reported.<sup>[1,11,12]</sup> Children may not remember or disclose how the foreign body was inserted and parents might not have seen the insertion. It becomes difficult to elicit in history. The sexual abuse was suspected or confirmed in 11 of 12 girls, evaluated for vaginal foreign bodies by Herman-Giddens.<sup>[13]</sup> In his retrospective review of 109 cases vaginal foreign bodies, only two were suspected for sexual abuse.<sup>[13]</sup> Although sexual abuse and vaginal foreign bodies are associated, many do not feel that sexual abuse is the cause of foreign body in vagina.<sup>[14]</sup> All prepubertal girls with a vaginal foreign body should be tested for STIs as they may be the only clue toward sexual abuse.

In our case, though clinically we suspected foreign body as a cause, ultrasound and the first MRI did not reveal foreign body. Initial MRI showed air pockets in posterior vagina. Air bubbles in vagina may be normal, if they are tiny or may indicate intrapelvic malignancy if they are large.<sup>[15]</sup> Our child did not show any malignancy. Repeat MRI suggested foreign body emphasizing the need of repeat investigations sometimes. Upper vaginal examination under general anesthesia is necessary when foreign bodies are suspected.<sup>[14]</sup> Psychiatrist consultation for underlying psychological assessment, emotional, and behavioral disturbances is helpful in all such cases, more so in those mentally unstable children, in children on whom parental control is absent due to many reasons such as staying away due to jobs. Complete removal of the foreign body is the treatment. Incomplete removal can result in persistence of the vaginal discharge. All the investigations including MRI are to be repeated, and a repeat exploration should be done for complete removal of foreign body. Long-term follow-up is required to monitor recurrence, behavior modification. In our patient, there was no vaginal

discharge after removal of the cotton ball and there was no recurrence during 6 months of follow-up.

## Conclusion

vaginal discharge in children is not uncommon. It may not be because of STI or sexual abuse. Foreign body as a cause of vaginal discharge is rare and unusual. A thorough clinical examination if necessary under general anesthesia and repeat investigations are necessary to identify the foreign bodies in vagina. Complete removal of the foreign body leads to permanent clearance of vaginal discharge without recurrence.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

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