

## Vaginal Leech Infestation: a Rare Cause of Prepubertal Vaginal Bleeding and Anemia

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### ABSTRACT

**BACKGROUND AND OBJECTIVE:** Abnormal vaginal bleeding under the age of 10 is rare among girls. In such cases, local lesions, trauma, intra-vaginal foreign body, malignant genital tumors, and precocious puberty should be taken into account. Leech infestation is one of the rare causes of severe prepubertal vaginal bleeding. One case of prepubertal vaginal bleeding due to leech infestation is presented here.

**CASE REPORT:** An eight-year-old girl referred to the emergency department after three days of painless vaginal bleeding. The bleeding was moderate during the first two days and the patient experienced intensified bleeding and large menstrual clots on the third day. The patient had no history of trauma, coagulation disorder, systemic illness, and drug use, but noted the history of swimming in the muddy creek within a few days before referral to the emergency department. After examining the genital system, a black mass with wavelike movements was observed in the lower one-third of the vagina, and a piece of it was slightly out of the hymen. The leech was removed by forceps without damaging hymen. After a short time, the bleeding stopped. On the next visit, the patient had no vaginal bleeding and was discharged without any problem.

**CONCLUSION:** In cases of prepubertal vaginal bleeding, accurate examination of the genital system and evaluating the history of swimming or bathing in contaminated creeks, springs, qanats and pools are essential.

**KEY WORDS:** *Leech Infestation, Vaginal Bleeding, Prepubertal Period.*

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## Introduction

Abnormal virginal bleeding under the age of 10 is rare among girls. In case of such cases, local lesions, trauma, intra – vaginal foreign body, malignant genital tumors, and precocious puberty should be taken into account (1). One of the rare causes of abnormal vaginal bleeding in girls under the age of 10 is the attachment of leech to the vaginal mucus (2, 3). In a study by Aribarg et al. (2003) to investigate the causes of vaginal bleeding in girls under the age of 10 years old who referred to King Chulalongkorn Memorial Hospital in Bangkok in Thailand between 1981 and 2000, 18.2% of cases of vaginal bleeding occurred due to the entrance of leeches into the vagina after swimming in the lagoon or river (2). Leeches have different species known in two types of aquatic and amphibian (4).

The aquatic species of leeches are distributed throughout the world. They are mainly found in the wet areas. Vaginal bleeding due to the entrance of leech into the vagina is quite rare, but several incidents have been reported in premenstrual and postmenopausal women from different parts of the world. Almost all cases have been reported from tropical and semitropical areas and occurred after swimming or bathing in fresh water (5). Its size varies from about 5 mm to about 45 cm. Leech has an oral sucker as a mouth and a caudal sucker for movement. Leeches are commonly found in children, after bathing in the river and the lagoon (6).

Leeches have been reported in various places in the human body such as nose (7), throat (8), larynx (9), esophagus (10), rectum (11), and bladder (12). In people who generally use untreated or contaminated water for bathing, drinking, or swimming, leech can enter through the conjunctiva, cornea, vagina, vulva, urethra, mouth, and nose, and can stay there for several days or weeks. One of the most important symptoms is continuous bleeding in patients who are exposed to it. Other symptoms are headache, tiredness and discomfort (13). After separation of leech, the ulcer may bleed for hours (an average time of about 10 hours, but can last for 7 days), which is caused by a wide range of anti-coagulants and salivary enzymes like hirudin, the platelet-activating factor antagonist, and collagenase (5). The leech saliva also contains substances that cause numbness and prevents the recognition of sting (5, 14). Unlike terrestrial leeches that spontaneously leave the host after sucking a meal of blood, aquatic leeches remain attached to the host over a long period of time and cause complications. Long-term vaginal bleeding is one of its most important features in many cases, and

the vaginal wall is the most common site of sting (5). Vaginal attachment of leech may cause hypovolemic shock and severe anemia. Therefore, in order to reduce the disorders caused by failure or delay in diagnosis, health care providers should consider the probability of vaginal attachment of leech in women living in rural areas and those who use river water for drinking and bathing and refer with vaginal bleeding (15). Given that the management and treatment of vaginal bleeding due to leech is not mentioned in women and midwifery resources, a case of prepubertal vaginal bleeding due to leech, which leads to anemia in an eight – year – old girl, is introduced here.

## Case Report

The patient is an eight – year – old girl from the village of Garcaz, Bojnurd, North Khorasan, who referred to the emergency department of Bent-Al-Hoda Hospital in Bojnurd in July 2018 after three days of painless vaginal bleeding. According to the patient's mother, the bleeding was moderate during the first two days, and on the third day, the patient referred to the emergency department of Bent-Al-Hoda Hospital with intensified bleeding and large menstrual clots. In the biography of the patient, the mother did not mention any history of trauma, coagulation disorder, and systemic disease. The patient had no history of trauma, coagulation disorder, systemic illness, and drug use, but noted the history of swimming in the muddy creek a few days before referral. The patient did not refer to any medical center during the three days of virginal bleeding. A gynecologist visited the patient and considering the patient's paleness, the tests of CBC (Complete Blood Count) with differential, Iron, PLT (platelet), and TIBC (total iron-binding capacity) were requested (Table 1).

**Table 1. Description of the experiments of the eight – year – old girl**

Description of the experiments			
WBC=7300 U/L	RBC=2.72 U/L	Hb=7.2 g/dl	Hct=21.3 %
Plt=363* 10 <sup>3</sup> U/L	MCV=78.3 fL	MCHC=33.8 g/dl	MCH=26.5 pg
Iron=30	Lymph=44	Monocyte=10	Eosinophil=5
Neutrophil=41	TIBC=249		

The gynecologist did not report any abnormal findings in the physical examination. There was no

lesion in the examination of external genitalia. After anesthesia consultation, the patient was quickly transferred to the operating room to examine the vagina by nasal speculum. After transferring to the operating room and re-examination, a black mass with wavelike movements was observed in the lower one-third of the vagina, and a piece of it was slightly out of the hymen. The leech was removed by forceps without damaging hymen. After a short time, the bleeding stopped. Considering the 7.2 g/dL hemoglobin and normochromic normocytic anemia (Table 1), pediatric counseling was used to evaluate the anemia, which prescribed iron and folic acid pills for one month, and controlling iron, Hb (Hemoglobin), HCT (hematocrit), and TIBC (total iron-binding capacity) after using the medications. At the next visit on the next day, the patient had no vaginal bleeding and was discharged without any problem. In order to observe ethical issues, informed consent was obtained from the legal guardian of the child for publication of the article without mentioning the patient's name and characteristics in order to expand science.

## Discussion

In this study, the cause of prepubertal bleeding was the attachment of the leech to the vaginal mucus. Leech has much tendency to enter the pores of the body, which leads to adverse consequences. In the study of Hannan (2012) the entrance of leech to the lower pores of the body (rectum, vagina, and urethra) was common in rural children in Bangladesh (15). In a study by Yaghmaie on a 13-year-old teenage girl, abnormal vaginal bleeding due to leech has been reported (16). Leeches can enter the vagina through contaminated water and attach to mucus without causing pain and cause coagulation disorder and prolonged bleeding through hirudin, strong anticoagulant effect, and other anti-proteases in the saliva (2). The anticoagulant factors in the leeches, such as hirudin, have been associated with prolonged bleeding (17). The treatment management of contamination and sting caused by leech consists of two parts. The first priority of treatment is to resuscitation or transfer blood according to the patient's condition. Our patient was treated with intravenous crystalloids, iron sulfate, and folic acid pills. Another important

component of treatment management is leech removal. Leeches should not be removed as the sucker of the leech may remain in the wound and cause continuous bleeding and infection. Therefore, its removal can be facilitated by using salt, alcohol, or vinegar (18). After removal, pressure dressing should be applied over the wound (19).

If bleeding is stopped after a short period, no further treatment is required. If bleeding continues, vagina should be checked and the bleeding site should be thoroughly washed with normal saline to ensure that leech saliva is completely removed. Then, the vagina should be packed with pressure gauze and the gauze must be removed after 24 hours (2). Ikizceli (19) and Rahmani (20) pointed out that if the bleeding does not stop, the gauze soaked in the thrombin solution can be prescribed. After controlling the bleeding, the wound should be checked for signs of infection. In the present case, the leech was removed from the site with normal saline serum using forceps without general anesthesia. Bleeding in the present case was stopped without the use of pressure dressing. However, in the study of Yaghmaie, vaginal bleeding was stopped using pressure dressing (16).

On the next visit, the patient had no vaginal bleeding and was discharged without any problem. However, because of 7.2 mg/dL hemoglobin and normochromic normocytic anemia due to severe bleeding, iron and folic acid pills were prescribed. In several studies, hypovolemic shock and severe anemia due to the high level of bleeding have led to blood transfusion (18). Therefore, despite the fact that leech is a rare cause of prepubertal vaginal bleeding, accurate examination of the external genitalia and vagina and obtaining the history of swimming or bathing in contaminated springs, qanats, rivers and pools seem necessary. Health education and transfer of necessary information about the contamination of leech and its complications to the people of endemic areas and rural people are necessary to prevent complications.

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