Inflammation and infection

Case report: Urogenital myiasis in an adult male

Roberta L. Koeppen, Nicholas N. Tadros

Southern Illinois University School of Medicine, Springfield, IL, USA

Southern Illinois University School of Medicine, Division of Urology, Springfield, IL, USA

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ABSTRACT

Urogenital Myiasis is rarely documented in developed countries, so epidemiological data are limited and often associated with travel to endemic regions. We report a Case of urogenital myiasis, unassociated with travel, in a 31 year old male. The patient presented to the emergency department after passing a larval fly during micturition. Pathologic examination of the initial urine sample confirmed the presence of living fly larvae and further evaluation was arranged with the urology department. The patient had no further episodes, and resolution was confirmed via urinalysis and cystoscopy. Several common risk factors were identified, including poor sanitation and hygiene.

Introduction

Myiasis is an infestation of tissue by larval dipterous flies, classified by anatomic location and ecological relationship between larvae and host. Urogenital myiasis can be anatomically external (cutaneous) or internal (bladder or urethra), and ecologically accidental, as no species are known to complete a lifecycle within the human urinary tract.

Case presentation

The patient is a 31 year old male who first presented to the emergency department after passing a small larval fly in his urine (Fig. 1). He described midstream interruption of flow before the larva passed and was otherwise asymptomatic at the time. Of note, there was a single episode of gross hematuria one month before presentation, but he attributed this to alcohol consumption and did not seek medical care.

The patient worked as a manufacturing laborer and described discontinuous housing and poor living conditions (unclean, damp environment, fly infestation) in the months preceding diagnosis. Approximately six months prior, he frequented an amusement park and stated the facilities were very unclean. He had no recent travel outside of the US. There was no significant past medical history.

Physical exam at initial presentation and in follow up showed no abnormal findings of the external genitalia. Skin was intact and non-tender. There was no drainage at the meatus.

Direct examination of the initial urine specimen showed morphology consistent with free living fly larvae. The species is unknown. Urine specimens on Jan. 22 and Jan. 24 had no larvae present. All urinalyses were otherwise normal.

Stool PCR analysis was negative

CT abdomen and pelvis with and without contrast from Jan. 24 showed a normal urinary bladder and mildly enlarged prostate. No other abnormal findings were noted.

Due to the history of gross hematuria and recent diagnosis of myiasis, cystoscopy was performed on Jan 24. This revealed a normal urethra and prostate. The bladder and ureteral orifices were found to be normal. No evidence of myiasis was identified within the entire lower urinary tract.

A single dose of oral ivermectin 3 mg was prescribed to be taken after submitting urine and stool specimens. The patient had improved living conditions and demonstrated understanding that proper hygiene and sanitation may foster prevention of recurrence.

Limitations

The larval species was unidentified. Although unlikely to change the patient’s course, identification could have contributed to our understanding of urogenital myiasis cases in the US.

While a single dose of oral ivermectin 150–200 μg/kg is a common treatment for urogenital myiasis, without controlled and blinded studies, efficacy is unproven.

Medication adherence was unconfirmed. However, the final
evaluation revealed no evidence of continued or secondary infection.

Discussion

The low incidence of urogenital myiasis in the US is poorly defined and is often associated with travel to tropical or subtropical regions, where incidence is higher. One systematic review of English and Persian databases identified 59 cases reported between 1975 and 2017, most in Brazil. Causative species include Cordylobia anthropophaga, Dermatobia hominis, Eristalis tenax, Fannia scalaris, Megaselia scalaris, Muscina stabulans, Piophila casei, Psychoda albipennis, and Scenopinus sp.1

Risk factors include poor sanitation and hygiene, limited mobility, chronic debilitating illness, sexually transmitted infections (STI), and obstruction or reduction of urine flow. Infections have been recognized in people without apparent risks.2,3 Presentation varies by anatomic location. Findings of internal urogenital myiasis may include flank pain, dysuria, frequency, obstruction, and direct visualization in the urine. External urogenital myiasis has a similar presentation to furuncular or wound myiasis, which may include pain, pruritus, skin ulceration, and direct visualization in a central pore.1,4-5

We identified two cases of urogenital myiasis acquired in developed countries. Comparable to this current patient, both are unassociated with travel. There is divergence in identified risk factors and presentation.

A Case from Illinois in 1957, the same state as this current patient, by Supple4 describes urogenital myiasis in a healthy five weeks postpartum teenager with good sanitation and hygiene. One week postpartum she developed lower abdominal pain, nausea, vomiting, and weight loss. Four weeks later larvae (identified as Eristalis tenax) were passed in her urine (Fig. 2). Treatment was one dose hexylresorcinol 1 g and Epsom salts 24 hours later. She recovered without complications.

A Case from the UK in 2010 by Samuel and Taylor5 describes urogenital myiasis in an adult male with multiple comorbidities (chronic Hepatitis B, recurrent urethritis), unspecified personal hygiene, and compromised sanitation due to blocked plumbing in his apartment. He presented with dysuria, frequency, and urethral irritation. Evaluation revealed no cause and no treatment was given. Two months later he returned with unresolved symptoms and a 2 mm larval specimen he collected from his urine. Nonspecific urethritis was diagnosed and treated with doxycycline, metronidazole, and azithromycin. Once the larva was identified as Psychoda sp. (Fig. 3), he was treated with ivermectin 12 mg daily for two days. His symptoms resolved after 6 weeks.

Our patient’s risk factors included poor sanitation and hygiene. Although there was no evidence of urinary tract disease at the time of diagnosis, a single episode of gross hematuria one month prior suggests the possibility of urinary tract disease sometime before the diagnosis of myiasis or this single hematuria event may have been the first symptom of myiasis.

Conclusion

The low incidence and poorly defined epidemiology of urogenital myiasis in developed countries may contribute to misdiagnosis without direct visualization of larvae. A detailed history should elucidate suspicion and if diagnosed, attempt should be made to identify species.
Patients should be educated about modifiable risk factors; some may benefit from referral to social services for this.

Consent

Informed Consent was obtained from the patient for this Case report.

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Declaration of competing interest

None.

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