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CASE REPORT

Vulvo-vaginal myiasis in a queen caused by *Lucilia sericata* (Diptera: Nematocera: Calliphoridae)

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Özet

Yilmaz O, Kose M. Dişi bir kedide *Lucilia sericata* (Diptera: Nematocera: Calliphoridae)'dan kaynaklanan vulvo-vaginal myiasis.

Üç yaşındaki dişi bir kedide beş gün önce başlamış olan güç doğum şikayeti ile Temmuz ayında hayvan hastanesine getirildi. Abdominal ultrasonografide, fötüs veya fötal sıvılarla ile ilgili herhangi bir bulguya rastlanılmazken, radyografide pelvik eksen düzeyinde fötüs ile ilişkili olduğu düşünülen kemik opasiteler belirlendi. Vaginal muayenede, kırmızı- kahverengi, kötü kokulu ve mukuslu vaginal akıntı ile birlikte gözlenen 11 adet larva incelenmek üzere Parazitoloji laboratuvarına götürüldü. Laparotomide, korpus ve serviks uteride iki adet ölmüş fötüs belirlenerek, hasta sahibinin onayı ile ovariohisterektomi gerçekleştirildi. *Dipteran* sinek larvalarının ve insektaryumda beslenen larvalardan çıkan yetişkin sineklerin morfolojik incelemesinde olgunun *Lucilia sericata* kaynaklı genital myiasis olduğu belirlendi. Veteriner hekimlerin özellikle sıcak mevsimlerde yetersiz çevre koşullarında gerçekleşen uzayan güç doğum olgularında vulva-vaginal myiasisi göz önünde bulundurulmalıdır.

Anahtar kelimeler: Vulva-vaginal myiasis, kedi, *Lucilia sericata*.

Abstract

Yilmaz O, Kose M. Vulvo-vaginal myiasis in a queen caused by *Lucilia sericata* (Diptera: Nematocera: Calliphoridae).

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A 3-year-old shorthair queen was referred to the animal hospital in July with the complaint of dystocia that started five days ago. Abdominal ultrasonography revealed that no structures related to fetus or fetal fuid were evident however, radiography of pelvic axis showed fetus-related bone opacities. On vaginal examination, a reddish-brown, fetid and slimy vaginal discharge and a total of eleven larvae were observed and the all larvae were transported to Parasitology laboratory. On exploratory laparotomy, two dead fetuses were seen throughout the corpus-cervix uteri, therefore ovariohysterectomie was performed after the approval of the owner. The morphology of *Dipteran* fly larvae and the adult flies which were emerged from larvae fed in insectarium provided evidence that *Lucilia sericata* was responsible for the genital myiasis. It is suggested that vulvo-vaginal myiasis should take into account by veterinary practitioners following prolonged dystocia cases, especially occurring in poor environmental conditions in hot seasons.

Keywords: Vulvo-vaginal myiasis, cat, *Lucilia sericata*.

Myiasis is the parasitic infestation of dead or living tissues of human and vertebrate animals by *dipteran* larvae. The flies in Diptera order occasionally cause myiasis in human and vertebrate animals by laying their eggs or first instar larvae into various sites in the body such as open wounds, mouth, nose, ear, eye, vulva or anus. Myiasis is classified into three categories according to host i.e. obligatory, facultative and accidental. Some species of Cyclorrhapha sub-order in Diptera order may cause to myiasis but some species of *Nematocera* sub-order may also be an accidental myiasis agent (Zumpt 1965, Kettle 1990, Dinçer 1997).

The female flies in Calliphoridae family shows facultative properties. The female flies lay their eggs onto decomposing animal carcass, open wounds, rotten organic materials, urine or faces soaked fur. The eggs of *Lucilia sericata* which is a holarctic species and presented in Calliphoridae family, take approximately 8-10 hours in hot and damp air conditions and in three days in cold weather to hatch for 10-14 mm long first instar larvae. Once hatched, the larvae form second instar larvae in 3-10 days depending on environment ambient temperature and third instar larvae 4-8 days later. Then the larvae fall to the ground to pupate. The pupal stage generally lasts in 6-14 days and metallic green coloured adult flies emerge from the pupal case. The female then deposits the egg mass and is ready to seek a host. Their total life cycle ranges from two to three weeks and the number of generations is three or four per year (Zumpt 1965, Anderson 2000, Aksoy 2009).

Myiasis infestations originated from *L. sericata* larvae have been reported in several studies in Turkey that traumatic myiasis in sheep, cattle, cat, dog and rabbit (Şaki and Özer 1999, Sevgili et al 2009, İpek and Şaki 2010, Eren et al 2010, Dik et al 2012, İpek and İpek 2012, Aldemir et al 2012) and genital myiasis in a cat and a gazelle (Yücel et al 2008, Sevgili et al 2004).

A 3-year-old, 3 kg, shorthair queen was referred to the animal hospital in July with the complaint of dystocia. The owner noted that the abdominal contractions started five days ago but no kitten was observed. On clinical examination, poor general condition, lethargy, depression, dehydration and irregular heart and respiratory rate was detected. Abdominal ultrasonography revealed that no structures related to fetus or fetal fuid were evident. However, radiography of pelvic axis showed fetus-related bone opacities. Therefore, vaginal examination was performed and reddish-brown, fetid and slimy vaginal discharge and a total of eleven larvae were observed in vulva-vagina. The larvae were collected from vulva and vagina and immediately transported to Parasitology laboratory in a Petri dish. It was decided to perform exploratory laparotomy. Subcutaneous atropine sulphate 0.045 mg/kg and intramuscular 2 mg/kg xylazine HCl were injected for sedation, then intramuscular 10 mg/kg ketamin HCl for general anaesthesia. Median line was prepared for aseptic surgery. On opening abdominal cavity, two dead fetuses with reddish-brown, fetid and slimy discharge were seen throughout the corpus-cervix uteri. Ovariohysterectomie was performed after the approval of the owner. Before and during surgery intravenous fluid therapy with 0.9% NaCl (3ml/kg/h) was administered. Antibiotic therapy was continued with intravenous cefazolin sodium (22 mg/kg). The sutures were removed eight days after surgery and it was seen that no postoperative complication was evident.

The identification of larvae collected from vulva and vagina was evaluated in Parasitology laboratory. Six larvae were fixed in alcohol 70% and cleared in KOH 10%. Then, they were dissected under the stereomicroscope and it was determined that the period of larvae was third instar. The larvae were identified by the anterior and posterior stigma at peritreme (Figure 1) and morphologic appearance of dissected cephalo-pharyngeal skeleton (Figure 2). The remaining five larvae were reared on insectariums containing sheep liver and minced beef meat to follow larval growth. The larvae entered the pupa stage on day 3. Adult flies were seen in eight days after emerging from dark brown, ovoid and approximately 8 mm pupae (Figure 3). The morphology of third instar larvae and adult flies revealed that *L. sericata* was responsible from the myiasis in this case.

L. sericata, a facultative myiasis agent in animals, may cause traumatic myiasis at ear, mouth, and open wounds on skin as well as myiasis at external genital tract during post partum period especially following dystocia (Sevgili et al 2004, Yü-

Figure 1.
Posterior stigma of third instar larva.

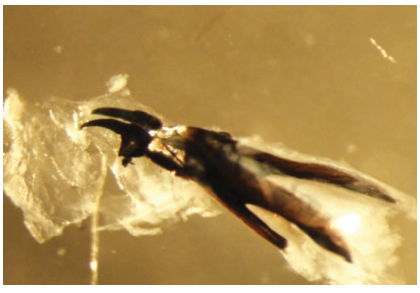

Figure 2.
Cephalo-pharyngeal skleton of third instar larva.

Figure 3.
Pupa and adult stage of *L. sericata*.

cel et al 2008, Aldemir et al 2012). Adult females commonly deposit eggs in open wounds or discharging orificies and the larvae emerging from eggs cause myiasis (Zumpt 1965, Kettle 1990). Myiasis is not only the problem of small and large animal breeding but also the problem of pet animals due to inducing the poor health condition. In Turkey, myiasis cases in pet animals such as cat and dog have been reported at ear (Eren et al 2010), mouth (Sevgili et al 2009), open wound on skin (Dinçer 1997, Eren et al 2010, Aldemir et al 2012, Dik et al 2012), preputium and perianal region (Dik et al 2012) and vulva and vagina (Yücel et al 2008).

In the present case, the morphology of larvae and the adult flies which were emerged from larvae fed in insectariums provided evidence that *L. sericata* was responsible for genital myiasis of three years old shorthair queen suffering from dystocia. It is suggested that prolonged parturition due to dystocia and especially fetid vaginal discharge during summer season may be the most predisposing factor for genital myiasis, since a similar case has been previously reported in our clinic (Yücel et al 2008).

In conclusion, it is suggested that vulvo-vaginal myiasis should take into account by veterinary practitioners following prolonged dystocia cases, especially occurring in poor environmental conditions in hot seasons.

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