

Myiasis in a neglected and immunocompromised middle aged patient: a rare case report

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ABSTRACT

Maggot (Dipteran larva) infection in living tissue is termed as Myiasis. It is found to be most common in tropical countries in rural and suburban locations, involving populations of low socioeconomic strata and immunocompromised neglected patients. Traumatic or wound myiasis involving skin is the most common site, however it may involve other sites like oral, nasal, intestinal and urogenital system etc. We are reporting here a case of 51 years old male, who had previous history of untreated diabetes mellitus and currently presented with an ulcerated lesion over upper back which was infested with maggots. Excision of the mass was done and a diagnosis of chronic maggot infection (Myiasis) was rendered histologically. The determinants of infestation were immunocompromised status due to poor glycaemic control, ignorance and improper wound care. Myiasis is a preventable complication and care needs to be taken for prompt treatment and more awareness about the disease.

Keywords

Human myiasis; Immunocompromised; *Musca domestica*; Maggots.

INTRODUCTION

Dipteran larva (maggot) infection in living tissue is termed as Myiasis.¹ It occurs in both humans and animals. Although rare in humans, it can be seen in immunocompromised state, low socioeconomic status, poor hygiene, debilitated and bed ridden patients.¹ Frederick William Hope, an English entomologist in 1840 coined the term Myiasis.¹ Myiasis is found world-wide, however this is more common in low income tropical countries, which provide favourable environment for the flies. Poor hygiene, more flies density and overcrowding in rural and slum areas promote myiasis in debilitated and ignored patients.²

Case report

A 51 years old male patient presented in the surgical OPD with a swelling over upper back for last one year. The swelling was gradually increasing to the present size of 6x4x3.2 cms, foul smelling with ulceration and necrosis and showed maggot infestation grossly (**Fig-1A**). Patient had history of uncontrolled diabetes mellitus for 8 years and he was non-compliant with the treatment as he belonged to poor socioeconomic strata. Ultrasonography of the mass was suggestive of an inflamed cystic lesion. Fine needle aspiration cytology (FNAC) suggested an acute inflammatory etiology. Excision of the

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mass was performed and sample for histopathological examination was sent to our department.

Grossly, the excised specimen was partially skin covered, dull and congested with soft to firm in consistency, brownish black in colour, measuring 5.8x3.7x2.7 cm (**Fig-1B**). On cutting through the skin multiple areas of necrosis, congestion and haemorrhage were observed. Microscopically focally acanthotic keratinized stratified squamous epithelial lining and intraepidermal abscess formation was seen. Underlying fibro-collagenous dermis showed infiltration by larva,

with cuticular spine, gut, muscles and salivary glands along with mixed inflammatory infiltrate predominantly eosinophils and neutrophils (**Fig-2A to 2C**). Abundant area of necrosis and haemorrhage was also seen. Thus a final diagnosis of chronic maggot infection (Myiasis) was rendered histologically. Post operatively the patient was treated with intravenous antibiotics and anti-parasitic drugs. He was discharged after observation and followed up in subsequent weeks, the lesion was found to be healing and he has been advised for strict anti-diabetic treatment and regular follow-up.

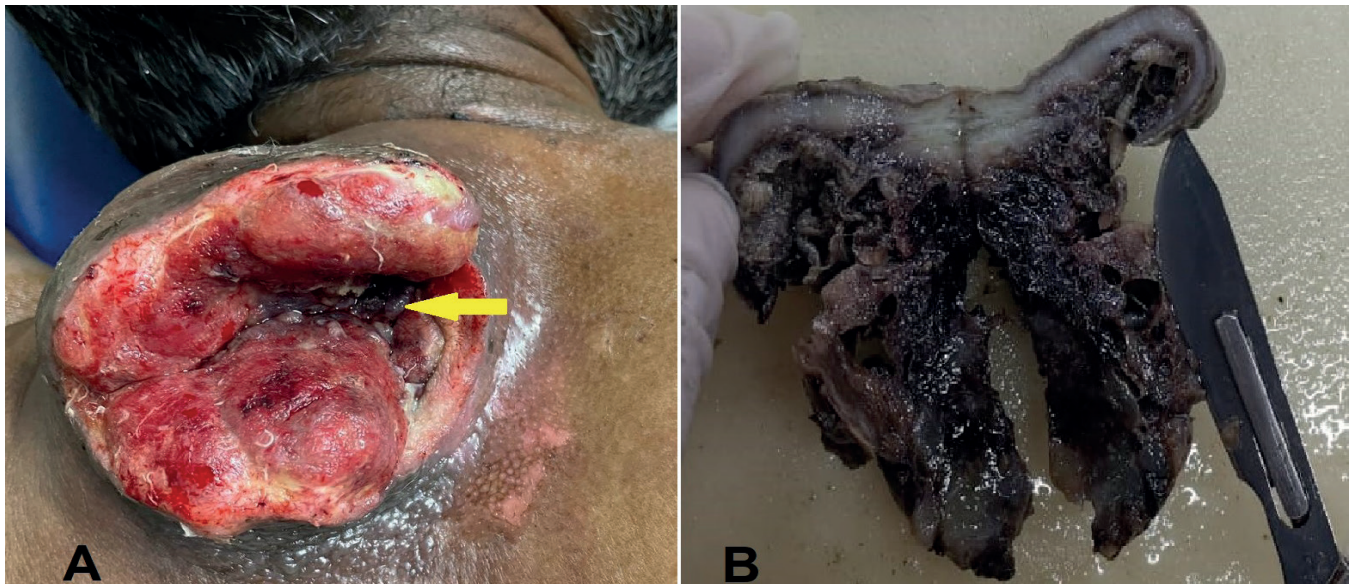


Fig-1: 1A- Clinical picture showing ulcerated swelling over upper back with blackish discoloration (yellow arrow). **1B-** Gross examination showing partially skin covered blackish tissue piece.

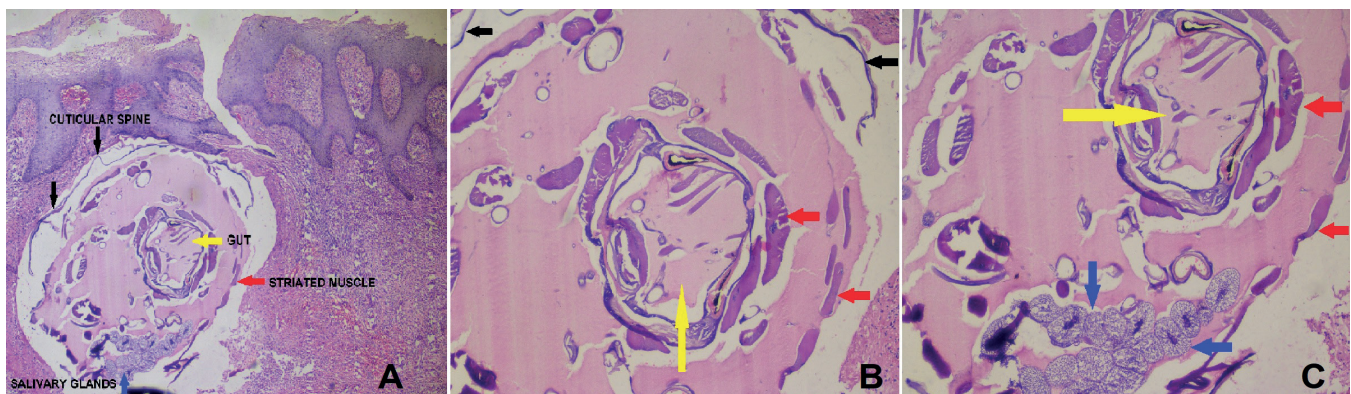


Fig-2: 2A- Microphotograph showing focally acanthotic keratinized stratified squamous epithelial lining with intra epidermal abscess. The underlying fibro-collagenous dermis showed infiltration by larva with cuticular spine (black arrow), gut (yellow arrow), muscles (red arrow) and salivary glands (blue arrow) of the larva (**H&Ex40**). **2B-** Microphotograph showing cuticular spine (black arrow), gut (yellow arrow) and muscles (red arrow) of the larva (**H&Ex100**). **2C-** Microphotograph showing gut (yellow arrow), muscles (red arrow) and salivary glands (blue arrow) of the larva (**H&Ex100**).

DISCUSSION

The most common manifestation of wound myiasis was commonly observed during wars, when maggot infection was commonly seen in neglected wounds of soldiers.² Female fly oviposits in the neglected open wounds. Neglected wound care is responsible for wound myiasis in low income tropical countries. It is usually seen in debilitated patients of low socio-economic status, who are homeless or drug addicts. The parasite laid eggs in and around the wound. The larva which develops from egg in the wound causes wound damage because of their feeding activity.² A female leprosy patient from West Africa, who develops myiasis in wound due to trauma, was believed to be the earliest case of human myiasis.² The causative organism identified for this myiasis was *Lucilia cuprina*.² The most common form of myiasis is cutaneous myiasis. In cutaneous myiasis flies lay eggs in areas of necrosis, hemorrhage and abscess-like areas.³ The lesion was necrotic in our case as well. Wounds most susceptible to pathologic myiasis include traumatic ulcers, vascular insufficiency ulcers, psoriasis, hemorrhoids, impetigo and malignant wounds.⁴

Depending on the tissue and region of the body infected, the myiasis can be classified into various types, like (i) Traumatic myiasis (myiasis of wounds) (ii) oral myiasis, (iii) nasal myiasis, (iv) aural myiasis, (v) ophthalmomyiasis, (vi) enteric or gastrointestinal myiasis, (vii) urinogenital myiasis and (viii) rectal myiasis.

Various fly species from different families leads to human myiasis globally. The different families of fly species are Calliphoridae, Drosophilidae, Dryomyzidae, Gasterophilidae, Sarcophagidae, Muscidae, Oestridae, Phoridae, Psychodidae and Syrphidae.² The common larva found to infest Indian patients and animals is that of *Musca Domestica* commonly known as housefly which belongs to family Muscidae. *Musca domestica* has been reported to cause intestinal, wound and cavitary myiasis and related to allergic diseases.⁵

The most common risk factor for myiasis infestations are low socioeconomic status and poor hygiene. In addition to this, the another important factor is long term exposure

of existing necrotic lesion which stimulate the female insects to deposit more and more eggs in this necrotic wound.⁶ The predisposing factors for human myiasis include exposed open wounds, poor personal hygiene, patients with diabetes, alcohol abuse and psychiatric illness.⁷ Similar to Myiasis, Pityriasis versicolor caused by *malassezia* species occurs in poor hygienic condition and this species leads to invasive bloodstream infection in immunocompromised patients.⁸ In our case also the patient was immunocompromised due to uncontrolled diabetes mellitus and belonged to poor socioeconomic strata.

Because of the under reporting of myiasis in health care system, it is still one of the neglected health issue around the globe. Despite of presence of various types of myiasis in our country, it is still not recorded and reported in Indian healthcare system.³

CONCLUSIONS

In a developing and tropical country like India, the hot and humid weather conditions combined with low socioeconomic status of the neglected patients prove to be the fertile soil for such infestations to become common. Care needs to be taken at prevention level before therapeutic level. Proper debridement, cleaning and treatment should be done so as to prevent recurrence.

Acknowledgements

Financial Support: Nil

Conflict of Interest: None

Patient Consent: Written informed consent of the patient was taken for using his clinical information and images to be published in this report.

Author's Contribution:

- a) Data gathering and idea owner of the study: MK, SA, SR, MJH
- b) Study design: MR, KA, MJH
- c) Data gathering: MK, SA, SR
- d) Writing and submitting manuscript: MK, SR, MR, MJH
- e) Editing and approval of final draft: KA, MJH



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