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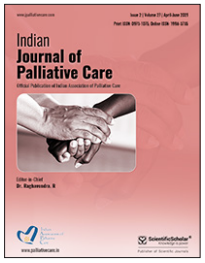

Case Report

Maggots in the Intercostal Drain: Case Report of a Rare Presentation with a Brief Review of Literature

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ABSTRACT

Maggots are dipterous larvae of flies. Infestation of vertebrate animals (including humans) by maggots is termed as Myiasis. Warm and Humid climate, low socio-economic status, lack of knowledge and poor living conditions, malignant wounds predispose the cancer patients to maggot infestation in India. Apart from infestation in the wounds; oral, ophthalmic, nasal, aural, enteric, urogenital, trachea-pulmonary and rectal myiasis have been reported. Maggot infestation of the Intercostal drain (ICD) container without associated pleural myiasis is an extremely rare entity. We describe a rare case report of maggots in the ICD in a patient with metastatic chondrosarcoma femur with ICD in situ for malignant pleural effusion. Early detection and management are the keys to prevent the catastrophic complication of pleural myiasis.

Keywords: Myiasis, Palliative care, Maggots

INTRODUCTION

Maggots are the larvae of fly (order: diptera). Infestation of live vertebrate animals (including humans) by the dipterous larvae feeding on the host's tissue (dead or living), liquid body substances or ingested food has been termed as "Myiasis" (derived from the Greek Myia means invasion of mammalian tissue by diphtheria larva).[1,2] In human beings, maggots have been described to cause a diverse range of infestations, which can be classified according to the anatomical location as cutaneous, wound or cavitary myiasis.[3,4] Myiasis can also be classified as primary (biophagous larvae feeding on living tissues, initiating wounds) or secondary (necro-biophagous flies which are facultative and feed on necrotic tissue in existing wound), with latter being the most common form of infestation in humans.[3,4] Several environment-related (Unhygienic living conditions, warm, and humid climate) and host-related (low socio-economic status, exposed suppurative lesions, advanced age, neglect, medical comorbidities, lack of knowledge and access to health care facility, debility, and poor performance status) risk factors predispose to human myiasis.[1-4] Above favourable conditions attract gravid flies to the exposed wounds or orifices to lay their eggs which then hatch into larva (maggots). Apart from the common wound infestation; oral, ophthalmic, nasal, aural, enteric, urogenital, and rectal myiasis have been well described in the literature.[4] There have been case reports regarding myiasis in stomal sites; tracheostomy, colostomy, and percutaneous endoscopic gastrostomy stoma.[5,6] Maggot infestation of the intercostal drain (ICD) is an extremely rare entity, which if recognised and managed early can prevent the catastrophic complication of pleural myiasis. We

describe a rare case report of maggots in the ICD in a patient with metastatic chondrosarcoma femur with ICD in situ for malignant pleural effusion.

CASE REPORT

A 50-year-old male with metastatic chondrosarcoma of the right distal femur with left-sided pleural effusion with ICD in situ for the past 10 days, presented to our Palliative Medicine OPD of a university teaching hospital, with complaints of pain and pus discharge from the right thigh wound for 2 days. His past medical history was significant for Type 2 diabetes mellitus and hypertension. The pain over the right thigh was acute in onset, nociceptive in nature with a pain score (Numerical rating scale) of 6/10, and a pain score of 3/10 at the ICD site. Initial physical examination revealed a temperature of 97.8 F, heart rate of 80 bpm, respiratory rate of 18, and BP 130/84. His Eastern Cooperative Oncology Group performance status was 3. Local examination of the right thigh revealed diffuse swelling, erythema and pus discharge from the lateral aspect. Routine examination of the ICD revealed a serendipitous discovery of maggots in the water seal drainage system and in the part of the thoracostomy tube lying inside the water seal drainage container [Figures 1 and 2]. The patient was admitted for further multi-disciplinary evaluation and management.

A close examination of ICD revealed the absence of any visible maggots in the part of thoracostomy tube lying outside the container [Figure 1]. Similarly, inspection of thoracostomy site revealed a clean site, with no bleeding or discharge or any visible maggots. Considering the presence of maggots in the ICD, ICD was removed with a plan to daily inspect the drain site for any visible maggots and to reinsert ICD should pleural effusion reaccumulate. The patient and the caregiver were also educated to report any crawling sensation or visible maggots over the drain site, dressing, clothing or bed linen. Tablet. Ivermectin 12 mg and albendazole 400 mg twice a day for 3 days was prescribed for treatment of pleural myiasis if any. Much of the evidence for the treatment of myiasis comes from anecdotal reports and includes off-label use of ivermectin and albendazole.[2] One Indian study explored the efficacy of triple therapy with ivermectin, albendazole, and clindamycin in the management of myiasis[7] in patients with head and neck cancer. Subsequent drain site examination 24 h later did not reveal any visible maggots or any significant re-accumulation of pleural effusion on repeat Chest X-Ray. Ultrasound right thigh revealed diffuse subcutaneous edema in the right thigh and a fistulous tract of approximately 4.1 cm length in the mid 1/3rd of the lateral aspect of thigh reaching deep to the femoral shaft and opening exteriorly in the skin. Hypoechoic fluid was evident within the fistulous tract along with thin streaks of hypoechoic fluid evident in the muscular and intermuscular planes of the lateral thigh. Blood investigations revealed a haemoglobin of 8 gm%, total leukocyte count of 13000/µL with 74.9% neutrophils, eosinophil count 600/µL, ESR 69 mm/h, and CRP 56.8 mg/L. Pus culture sensitivity revealed heavy growth of Klebsiella oxytoca sensitive to ciprofloxacin and amoxycillin-clavulanic acid among others.

Figure 1: Maggots in the water seal drainage system.

Figure 2: Maggots in the part of thoracostomy tube lying within the intercostal drain container.

DISCUSSION

Myiasis is diagnosed clinically by the presence of maggots. Maggots are identified by their corkscrew appearance and greyish white colour with anterior brownblack tip.[8,9] Although reported worldwide, it is more prevalent in tropical countries like India, where the warm humid environment favors the abundance of myiasis causing flies.[4] Neglected fungating lesions, necrotic tissue, poor

general condition and poor performance status hindering self-care predispose cancer patients to myiasis. Majority of available literature on myiasis in humans describes either wound myiasis or cavitary myiasis.[4] Myiasis infestation of the ICD is a rare clinical entity. Patel *et al*. have reported a case of pleural myiasis in a patient with pleural angiosarcoma.[10] They hypothesized that abundant necrosis in angiosarcoma, poor living conditions and less than ideal wound care might have attracted flies which then laid eggs near the thoracostomy tube insertion site. They postulated that larvae might have then migrated to the pleural space. Although their patient had initially presented with polymicrobial empyema and malodour from the thoracostomy tube, myiasis was clinically diagnosed after another 4 days by identification of apparent larvae in the thoracostomy tube and water seal drainage system.[10] The presence of malodourous secretions has been suggested as a clue to myiasis infestation.[2] Maggots in the ICD chamber was a serendipitous finding in our case with the patient neither having any purulent discharge nor malodour from the ICD. Maggots were only present in the ICD chamber and the intra-chamber part of the ICD tube with none present in the rest of the ICD tube. Periodic assessment every day did not reveal any maggots coming out of the thoracostomy insertion site. Eosinophilia has been associated with myiasis infestation by some species.[11] Complete blood count showed normal eosinophil count (600/μL) in our patient. All the above features suggested myiasis infestation of only the ICD chamber without any tissue infestation in our patient. However, considering that pleural myiasis cannot be ruled out with certainty and favourable risk-benefit analysis, ivermectin and albendazole were administered as prophylactic systemic treatment. Our patient belonged to poor socio-economic status and low literacy level; factors correlated with the incidence of myiasis.[4] Although the exact means remain oblivious, we suspect that the patient or the caregiver might have left the ICD chamber open to the environment. The flies being attracted by the presence of pleural fluid and necrotic debris in the ICD chamber might have laid their eggs in it. With eggs hatching into larvae in usually less than a week, we suspect that this incident (leaving the ICD chamber open) might have occurred just few days prior to patient presenting to us. Upon hatching, the larvae might have then migrated into the water seal chamber portion of the ICD tube. The larvae although feed on the necrotic tissue, have been found to invade deeper into healthy tissues, leading sometimes into toxaemia and septicaemia.[4] ICD chamber myiasis although innocuous, its early recognition and management (removal of the ICD tube) was imperative in preventing a potential and much sinister complication of pleural myiasis.

CONCLUSION

This case report highlights the rare presentation of myiasis in the ICD chamber. We were unable to establish the reason for the myiasis. However, patient and caregiver education regarding proper hygiene, insertion site and ICD care, and periodic inspection of the ICD system is important to prevent myiasis. It is imperative that every clinician ensures comprehensive assessment of the ICD in situ to facilitate early identification of any breach in proper care. Should myiasis infestation of the ICD chamber be detected; ICD should be promptly removed along with an active search to rule out any pleural myiasis. Prophylactic systemic treatment should then be initiated.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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