

Tracheostomal myiasis in ventilator dependant patient: case report and review of literature

Abstract

A 51 year old severe morbidly obese female 1 week s/p tracheotomy with fenestration and PEG complicated by IDDM, ARF, CHF, COPD, OSA, and HVS was readmitted to hospital for tracheostomy wound myiasis and cellulitis. The patient had been admitted to a local long term assisted care facility where the infection was noted. The patient was taken back to the OR where the tracheotomy tube was removed and oral ETT was placed. Wound debridement along with larvae removal was performed. Airway endoscopy was done to rule out presence of intra-luminary larvae. It was noted that the Bjork flap had become devitalized with the infection, leaving a 2 ring defect. The wound was packed with Dakin's Solution and daily wound care was done until no further larvae or necrotic tissue was seen. The patient was then taken back to OR where an anterior tracheal wall reconstruction was performed and replacement of trachostomy tube with removal of oral ETT. She was then transferred back to the ICU and long-term assisted care living.

Keywords: myiasis, dipterous larvae, cellulitis, chemical pneumonitis

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Introduction

Myiasis, or the infestation of living human tissue with dipterous larvae, is a very common disease in the developing world. However, myiasis remains uncommon in the USA and even more rarely localized to the trachea stoma site.

Case report

In June 2017, a 51 year-old severe morbidly obese female with IDDM, ARF, CHF, COPD, OSA, and HVS was admitted to hospital for tracheostomy wound myiasis and cellulitis. The patient presented one week s/p tracheotomy with fenestration and PEG (Figures 1&2). At the time of her tracheostomy it was noted that the anterior tracheal wall appeared thin and poorly vascularized consistent with tracheomalacia. Due to her obese habitus a larger neck incision was made and some subcutaneous fat was removed with transaction of the thyroid isthmus for better visualization. A Bjork flap was constructed for long term tracheostomy management due to primary diagnosis of hypoventilation syndrome. During the wound examination, multiple larvae were seen on the right side of the wound beneath the skin (Figures 3&4). We considered application of ether or turpentine oil to help remove the maggots. In order to avoid chemical pneumonitis, we elected to use Dakin's solution and smothering larvae with packing. The larvae were collected and sent to microbiology for identification (Figure 4). Broad spectrum antibiotic therapy was continued and the wound was debrided of all necrotic tissue and packed with Dakin's solution kelex for mechanical wound debridement by the bedside. The patient was continued on broad spectrum antibiotics. The tracheostomy tube was removed and oral ETT intubation was done for the ventilator. A single larvae was found at the anterior trachea wall and removed (Figure 5). A 2 tracheal ring anterior wall defect was found with loss of the Bjork flap. Endoscopy at that time showed no intraluminal larvae. Further debridement was done with anterior tracheal reconstruction and replacement of tracheostomy tube and removal of oral ETT several days later without any complications.

The patient then was transferred back to the long term assisted care facility without further local wound complications.



Figure 1 Trach in place with maggots on skin.



Figure 2 The patient presented one week s/p tracheotomy with fenestration and PEG.



Figure 3 Myiasis of trachea stoma site with trachea defect.



Figure 4 The larvae were collected and sent to microbiology for identification.

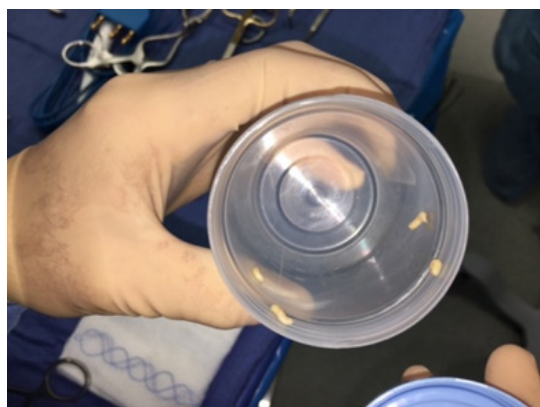


Figure 5 Removed maggots.

Discussion and conclusion

Myiasis comes from the Greek word *myia* for “fly”. Myiasis is a parasitic infestation of live human tissue caused by dipterous larvae (maggots) which feed on the host dead or living tissue, most commonly in the months of March to June in underdeveloped countries. Myiasis can be classified as furunculoid, subcutaneous with tunnel formation, subcutaneous infestation with migratory swellings and wound infestation. Flies responsible for wound myiasis come in three different categories. Those that require live host for

development: *Cochliomyia hominivorax* (new world screwworm fly), *Chrysomya bezziana* (old world screwworm fly), *Dermatobia hominis* (human botfly), *Cordylobia anthropophaga* (tumba fly), *Oestrus ovis* (sheep botfly), *Hypoderma* spp. (cattle botflies), *Gasterophilus* spp. (horse fly), *Auchmeromyia senegalensis* (Congo floor maggot), and *Cuterebra* spp. (rodent botfly). Those that require decaying animal or vegetable matter for development that can use an open wound as well: *Lucilia sericata* (green-bottle fly), *Cochliomyia* spp. (screw-worm fly), and *Phormia* spp. (black-bottle fly). The last group can occur through accidental transmission or deposit of eggs: *Musca domestica* (housefly), *Fannia* spp. (latrine flies), and *Erisalis tenax* (rat-tailed maggots).



Figure 6 Final maggot removed.

Myiasis is a common disease in developing tropical and subtropical countries, but rarely seen in the continental United States. It can occur in any tissue with the skin being the most common site, but occasionally has been found at tracheostomy sites. The treatment of myiasis should include applying a substance that deprives the larvae from oxygen (ether, turpentine oil, chloroform, petroleum jelly, Vaseline, etc.) so they have to emerge to the surface to breath and can then be mechanically removed. Antiparasitic drugs, like subcutaneous ivermectin or doramectin (200 microgram/kg), can also be used to treat myiasis. The severity of the infection depends on the time interval from onset of the infection to the diagnosis. Early diagnosis is crucial to limit tissue damage. Prevention should include practicing good personal hygiene, primary care of wound, controlling fly population and maintenance of sanitation of the surroundings. Other bacterial pathogens commonly transmitted during the process of laying their eggs are *Salmonella*, *Shigella*, *Campylobacter*, *Escherichia*, *Enterococcus*, *Chlamydia*, and many other species that cause illness. Therefore proper antibiotic coverage should be administered as well.

This is a case of myiasis of a tracheostomy wound in a patient that presented in June to ENT care. The entomologist currently observing the maggots has most recently reported that they have yet to hatch.¹⁻⁶

Acknowledgements

None.

Conflicts of interest

The authors declare that they have no conflict of interest.

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