

**Technical Note****Maggots from tracheostoma**

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**Abstract** Tracheostomy is a life saving surgical procedure performed to maintain upper airway ventilation. The indications include providing relief of upper airway obstruction, to replace endotracheal intubation in patients needing prolonged assisted ventilation, protection of tracheobronchial tree and facilitates tracheobronchial toilet. More importantly, post operative tracheostomy care is very crucial for the success of the treatment and avoiding complications. We report a rare case of an obligate parasite which had infested the tracheal stoma due to poor hygiene.

**Keywords:** Maggots, stoma, trachea.

**Introduction**

'Myiasis' is a parasitic infestation of live human or vertebrate animal tissues caused by maggots (Franza *et al.*, 2006). The maggots fed on the host's dead or living tissue, liquid body substances or ingested food. Human myiasis is extremely rare but it is not an uncommon parasitic infestation in the tropics and subtropics countries (Arora *et al.*, 2009). Lack of knowledge regarding care of tracheostomy, vegetative state of the patient, poor hygiene and bad smell of wound, which attracts flies are the known predisposing factors to contract this preventable lethal condition. If left untreated or undetected, the maggots can be dislodged and aspirated into the lower airway or it may breach the vessel causing embolization of the parasite increasing the morbidity.

**Case report**

A 32-year-old Malay man presented to emergency department with history of bad smell from the tracheostomy tube with dirty tracheal stoma wound and associated fever for the 5 days duration. He had undergone tracheostomy 6

months prior, after sustained a head injury following a road traffic accident. He was sent to home with tracheostomy tube. Upon discharge, the care taker was advised to go to the nearest clinic for a proper tracheostomy care such as tracheostoma wound dressing and suctioning but they defaulted.

The patient's wife noted the increasing foul smelly discharge from the tracheostomy tube and she brought patient to the emergency department. Patient had noisy laboured breathing and had foul smelling blood-stained discharge from the peri-tracheal stoma site. Examination showed maggots creeping all around the tracheostomy tube. The tracheostomy tube was almost fully blocked with secretions and maggots (Fig. 1).

About 25 live maggots were removed carefully from the peri-tracheal stoma site. The patient was stabilised and admitted in isolation ward. Wound debridement with removal of maggots using turpentine-soaked gauze was done under local anaesthesia. The turpentine-soaked gauze was applied on top of the stoma for 5 minutes. Then the maggots were noted creeping out from the tracheal

stoma immediately. The soaked gauze application technique was used instead of direct topical application. Furthermore, the patient was also administered with intravenous antibiotics and daily tracheal stoma dressing was done. After 48 hours of treatment, there were no more maggots and the tracheal stoma wound started to show healthy granulation tissue. By day six of admission the wound healed well. Patient was discharged in a stable condition with double-lumen tracheostomy tube, size 6 (Fig. 2).

Patient was followed up after 2 weeks of discharge. There was no complaint from care taker. The tracheostomy tube was in situ and the wound was found to be healthy and clean. Patient was advised for a regular follow up. His care takers were educated thoroughly about tracheostomy tube home care.



**Fig. 1** Maggots infestation in tracheal stoma (circled).



**Fig. 2** Tracheal stoma with clean double-lumen tube after treatment.

## Discussion

*Chrysomya bezziana* is an obligate parasite and belongs to the order Diptera, family Calliphoridae, and sub-order Cyclorrhpha (Prasanna Kumar *et al.*, 2011). These parasites are widely distributed in tropical and subtropical countries. Myiasis, the infestation of the parasite, of the tracheostoma wound is extremely rare. There had been reports in the literature regarding nasal, auricular or oral myiasis but maggots related to tracheostomy is a very rare encounter. This is the first case of obligate parasite *Chrysomya bezziana* infestation of the tracheostomy wound in the centre.

The patient was discharged earlier on with a permanent tracheostomy tube after he had failed the decannulation trial. Prior to discharge, care takers were taught on managing the tube at home. However, the vegetative state of the patient in addition of having a foul odour discharge at the tracheostomal site, increased the likelihood to contract myiasis. In this case, the foul odour discharge attracted the adult fly to rest the eggs on the wound and the patient was unable to avoid the incoming adult fly due to his vegetative condition.

Management of myiasis of the tracheostoma comprises acute stage and long term management. Usually in acute stage requires hospitalization for close monitoring and nursing care. These would consist of regular and proper wound dressing and intravenous antibiotic with vital sign monitoring to prevent hazardous complication such as sepsis. During the admission, relatives were re-educated on long term care of the tube as to prepare the patient prior to sending home.

The mainstay treatment is removal of maggots with wound debridement. At the same time management of systemic and co-morbid illness will be continuously carried out. The maggots can be killed by applying proper insecticides. We use turpentine to suffocate the larvae taking great precaution to avoid any spillage or aspiration into the trachea. Thus soaked gauze was used instead of direct application in order to avoid aspiration pneumonitis. Ether and chloroform also

can be used to suffocate the larvae (Graham, 1979). Suffocation will draw the larvae out from the wound, fall and die due to deficient of host tissue to feed on. Another method that has been tried is the use single dose of subcutaneous Ivermectin (200 mcg/kg) or Doramectin (200 mcg/kg) in calves which prevents strike and re-strike of treated wounds (Perkin, 1987, Spradbery, 1994).

In conclusion, every care takers or the patients themselves whom requires long term tracheostomy tube should be well-educated with the continuous care of the tube. Keeping good hygiene of the tube and the stoma wound is of paramount importance as the stoma provides a direct entry point to the lower airway. Early recognition of the condition must alert them to bring the patient for urgent medical attention. This is because early intervention of tracheostoma myiasis saves live.

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