Hatching *Strongyloides* in tracheal aspirate: clinician’s dilemma; microbiologist’s surprise

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**DESCRIPTION**

A 58-year-old man was brought to emergency with the symptoms of shortness of breath, cough with expectoration, diarrhoea (5–6 times/day) and intermittent high-grade fever for the past 2 months with acute exacerbation of breathlessness in past 4 days. The patient was a known follow-up case of chronic obstructive pulmonary disease (COPD) with difficulty in breathing for the last 10 years. He was on metered-dose inhalers (MDI) salbutamol (levolin) two times per day and MDI budecort (budesonide) 200 mg two times per day for past 3 years. He received oral betamethasone (over the counter basis) during exacerbations from a local practitioner. For past 2–3 months, he also took prednisolone 8 mg daily and intravenous hydrocortisone on several occasions. Pulmonary function test could not be done at our institute as the patient was brought in an unconscious state to emergency and was intubated within a day of admission. Based on history and chest X-ray findings, differential diagnosis of COPD exacerbation with pulmonary tuberculosis was made.

His initial haemoglobin was 12.2 g/dL and white cell count 23 × 10⁹/L without eosinophilia. His blood, urine and endotracheal (ET) aspirate cultures were sterile. ET aspirate was sent for acid-fast staining which showed numerous larvae while acid-fast bacilli were not present. Wet mount of tracheal aspirate revealed rhabditiform larvae of *Strongyloides stercoralis* along with embryonated eggs, wherein many were observed to be in hatching phase ([video 1](#) and [figure 1](#)). The findings were further confirmed by iodine mount and Giemsa staining ([figure 2](#)). Multiple samples of ET aspirates and gastric aspirate were examined while only one stool sample could be obtained, probably due to intestinal obstruction. Rhabditiform larvae and eggs of *S. stercoralis* were not found in gastric aspirate as well as in stool sample. Filariform larva wasn’t observed in any of the samples examined. The patient was nebulised with levosalbutamol and ipratropium bromide combination along with budesonide; and was started on ivermectin 200 μg/kg/day via a nasogastric tube which could be given only for 5 days. The patient also received a short course of hydrocortisone therapy (100 mg intravenous stat followed by 50 mg 6 hourly for 3 days). The patient clinically deteriorated and expired.

Unusual finding in our case was hatching of larvae in ET sample without eosinophilia while the usual site of hatching is the small intestine.¹ Quite often, after the initial infection of *Strongyloides* spp, immunocompetent patients may remain asymptomatic or minimally symptomatic but immunosuppression leads to an increased number of auto infective larvae. Regardless of route or dose of steroids, even short course may lead to hyperinfection syndrome.² ³

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**Video 1** Microscopic findings showing eggs with hatching of *Strongyloides* larvae in tracheal aspirate.

**Figure 1** Unstained wet mount of endotracheal aspirate showing egg containing well developed larva. Notice the prominent genital primordium, rhabditoid oesophagus and short buccal canal.

**Figure 2** Larvae of *Strongyloides* spp on iodine mount and Giemsa stain.

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Clinicians, especially in endemic areas, must also be aware of atypical manifestations of hyperinfection syndrome and disseminated *Strongyloides* which may mimic other diseases leading to misdiagnosis. Hyperinfection syndrome must be kept in mind in patients with chronic lung diseases with or without eosinophilia for timely diagnosis and treatment.

**Learning points**

- *Strongyloides* must be kept as a differential in patients with respiratory symptoms in an endemic area.
- *Strongyloides* may cause long standing and recurrent infection, so timely diagnosis with adequate management is warranted to prevent fatal hyperinfection syndrome.
- Use immunosuppressants with caution in patients at risk of chronic strongyloidiasis.

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**Contributors**

VS: concept, design, wrote manuscript and video editing; YM and PG: confirmed the diagnosis by microscopy and reviewed the manuscript. TAN: video compilation and editing.

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Next of kin consent obtained.

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**REFERENCES**


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