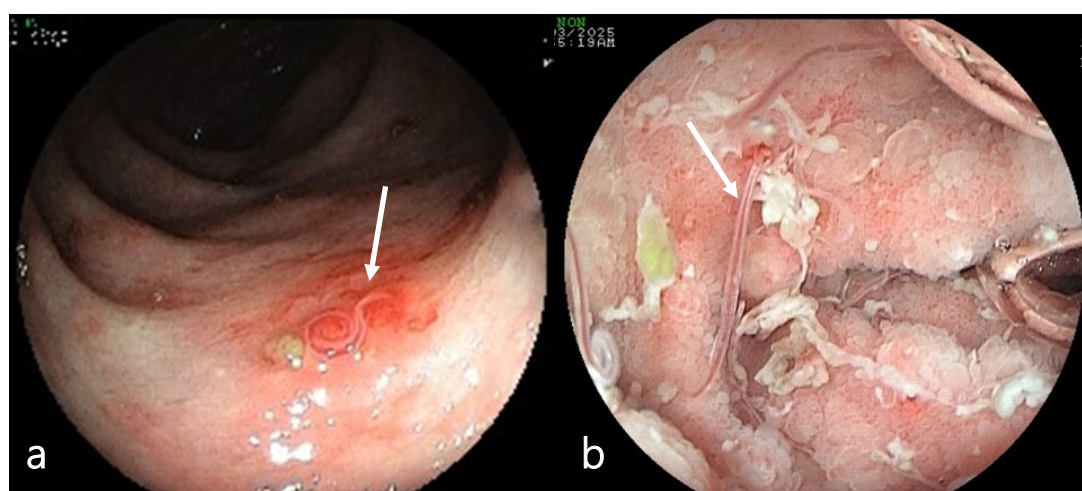


A patient with altered bowel habit and hyper-eosinophilia

Phyu Phyu HAN^{1*}, Anand JALIHAL², Babu Ivan MANI¹, Vui Heng CHONG^{1,2}



A 56-year-old man presented with a one-week history of passing watery, brownish-black stools. This was associated with mild epigastric pain. His past medical history was significant for ischaemic heart disease, previously treated with percutaneous coronary intervention, and paroxysmal atrial fibrillation, for which he was on a novel oral anticoagulant. Blood tests showed normal inflammatory markers, with an absolute eosinophil count of $6.44 \times 10^9/L$. A colonoscopy revealed the cause (indicated by white arrows) of his bowel symptoms (**Figure a**: in the colon; **Figure b**: in the terminal ileum).

The Brunei International Medical Journal (BIMJ) is a peer-reviewed official publication of the Ministry of Health and Universiti Brunei Darussalam, under the auspices of the Clinical Research Unit, Ministry of Health, Brunei Darussalam. The BIMJ publishes articles ranging from original research papers, review articles, medical practice papers, special reports, audits, case reports, images of interest, education and technical/innovation papers, editorials, commentaries, and letters to the Editor. Topics of interest include all subjects related to clinical practice and research in all branches of medicine, both basic and clinical, including topics related to allied health care fields. The BIMJ welcomes manuscripts from contributors but usually solicits review articles and special reports. Proposals for review papers can be sent directly to the Managing Editor. Please refer to the contact information of the Editorial Office.

DISCLAIMER: All articles published, including editorials and letters, represent the opinions of the contributors and do not reflect the official views or policies of the Clinical Research Unit, the Ministry of Health, or the institutions with which the contributors are affiliated, unless clearly stated. The appearance of advertisements does not constitute an endorsement by the Clinical Research Unit or the Ministry of Health, Brunei Darussalam. Furthermore, the publisher cannot accept responsibility for the correctness or accuracy of the advertisers' text, claims, or any opinions expressed.

Author Details:¹ Department of Medicine, PMMPHAMB Hospital, Tutong, Brunei Darussalam.² Gastroenterology Unit, Department of Medicine, RIPAS Hospital, Bandar Seri Begawan, Brunei Darussalam.***Correspondence:**

Phyu Phyu Han

Phyuphyu.han@moh.gov.bn

ANSWER

The patient was diagnosed and treated for a helminthic infestation, specifically *Trichuris trichiura* (whipworm). His anticoagulant therapy for atrial fibrillation likely contributed to gastrointestinal bleeding, as pools of altered blood were noted in the proximal colon during colonoscopy, where the infestation was most severe. Worms were also seen in the terminal ileum. Interestingly, the patient denied having chronic bowel symptoms such as abdominal pain, diarrhoea, or rectal bleeding, suggesting that the infection may have been acquired recently. However, an asymptomatic chronic infestation cannot be ruled out. He was treated with a three-day course of albendazole (100 mg twice daily), which led to resolution of both symptoms and eosinophilia.

Trichuris trichiura is a common soil transmitted cause of intestinal helminthiasis worldwide.¹ Although more prevalent in children, individuals of any age can be affected. Transmission occurs via ingestion of embryonated eggs through the fecal-oral route, typically after contact with contaminated environments.²

Most infected individuals remain asymptomatic. In symptomatic cases, especially with heavy infestations, patients can present with abdominal pain and diarrhoea. In heavy infestations with is more common in children,

the diarrhoea may be bloody. Rectal prolapse and growth retardation can also occur especially in young children.² Laboratory findings commonly reveal hypereosinophilia, with or without anaemia.

Diagnosis is primarily made via stool examination for ova and parasites. However, in many cases, particularly with heavy infestation, diagnosis is established through direct endoscopic visualization of the worms—usually in the proximal colon, though they can be seen throughout the colon and, in some cases, extending into the terminal ileum.

Treatment includes albendazole 200 mg twice daily or 400 mg once daily, or mebendazole 100 mg twice daily for three days. It is recommended that close contacts and household members also be treated concurrently to prevent reinfection.

The accompanying table summarises the key features of *Trichuris trichiura* and compares them with two other common helminthic infestations: pinworm (*Enterobius vermicularis*) and hookworm (*Ancylostoma duodenale* or *Necator americanus*).¹⁻⁴

Reinfestation can occur and preventive measures include maintaining rigorous personal and environmental hygiene practices and avoid contact with contaminated environments.

Declarations**Conflict of interests**

The authors declare no conflict of interests.

Consent

Consent has been obtained from patient and hospital authorities for publication.

Acknowledgement

None.

References

1. Center for Disease Control (CDC). Soil transmitted helminths. Available from <https://www.cdc.gov/sth/about/whipworms.html> (Accessed 4th May 2025).
2. Center for Disease Control (CDC). DPDx – Laboratory Identification of Parasites of Public Health Concern. Trichuriasis. Available from <https://www.cdc.gov/dpdx/trichuriasis/index.html> (Accessed 4th May 2025)
3. Center for Disease Control (CDC). Soil transmitted helminths. Available from <https://www.cdc.gov/sth/about/hookworm.html> (Accessed 4th May 2025).
4. Center for Disease Control (CDC). Soil transmitted helminths. Available from <https://www.cdc.gov/pinworm/about/index.html> (Accessed 4th May 2025).

Table: comparisons between whipworm (*Trichuris trichiura*), pinworm (*Enterobius vermicularis*) and hookworm (*Ancylostoma duodenale*/*Necator americanus*).

Type of worms	<i>Trichuris trichiura</i> 'whipworm'	<i>Enterobius vermicularis</i> 'pinworm'	<i>Ancylostoma duodenale</i> / <i>Necator americanus</i> 'hookworm'
Name	Shape like a whip	Female's worm tail – sharp tip like a pin	Hook like shape at the head for anchoring
Size	30-50 mm	5-10 mm	10-15 mm
Colour	White	White	Red or brown
Eggs appearance (Microscopy)	Barrel-shaped or lemon-shaped with polar plugs Can survive in environment for a long time esp. warm and humid condition	Oval with flat side Can survive outside for 2-3 weeks	Oval, thinned-shelled Eggs can survive in the environment for 2-3 weeks Larvae can persist in soil for 3-4 weeks
Life cycle	1: Egg Ingestion -Ingestion of infective embryonated eggs through contaminated hands, foods or surfaces 2: Hatching and Larval Migration -Small intestine: eggs hatch to larvae and migrate into the caecum -Colon – attach to mucosa to feed 3: Mating and Egg Production 4: Egg Development and Infectivity -Eggs are passed into the environment with stool and can remain viable for up to 3 weeks	1: Egg Ingestion - Ingestion of infective eggs through contaminated hands, foods or surfaces 2: Hatching and Larval Migration -Small intestine: eggs hatch to larvae and migrate into the colon 3: Mating and Egg Production 4: Egg Development and Infectivity - Adult female worms migrate to the rectum and exit the anus to lay eggs on the skin around the anus (this can cause perianal itch)	1: Transmission - Skin penetration of larvae – usually through walking bare feet on contaminated environments (this can cause skin manifestations *) 2: Migration through the body- larvae enter bloodstream, travels to the lung, ascend the respiratory tract and are swallowed 3 – Maturation in the small intestine (duodenum and jejunum) 4: Mating and Egg Production 5: Egg Development and Infectivity - Eggs are passed into the environment with stool
Transmission	Feacal-oral (ingestion of embryonated eggs from soil)	Feacal-oral (eggs ingested from surfaces and hands)	Skin penetration by infective filariform larvae from soil
Host	Children	Children and adolescent	Adolescents to adults
Location	Ceacum and ascending colon Can affect the terminal ileum	Colon and rectum (perianal area for eggs)	Small intestine (duodenum and jejunum) May rarely migrate to other parts
Attachment to bowel mucosa	Anterior end embedded in mucosa with spikes or hooks	Free moving	Attached via buccal cavity
Feeding behaviour	Feeds on tissue and blood	Does not feed on blood	Feeds on blood
Symptoms	Asymptomatic Gastrointestinal symptoms – abdominal pain, loss of appetite, diarrhoea weight loss Anaemia	Asymptomatic Perianal itch esp. at night Sleep disturbance	Asymptomatic * Skin rash due larvae penetration and migration – causing cutaneous larva migrans (CLM) Gastrointestinal – as per 'whipworm' Anaemia Respiratory symptoms
Diagnosis	Stool ova and parasite examination (microscopy or histology)	'Tape test -sellotape to the perianal area' or stool examination	Stool examination (microscopy or histology)
Endoscopy	Typically in the proximal colon > distal Feeding result in blood filled worms	Small worms in the colon	Small bowel—duodenum and jejunum
Treatment	Albendazole or mebendazole (longer course in heavy infestations)	Albendazole or mebendazole (single or repeated dose)	Albendazole or mebendazole (longer course in heavy infestations)