

FNAC.<sup>4</sup> Left adrenal is identified at the level of celiac trunk as a “seagull” shaped structure with the kidney beneath it, with clockwise torque of the echoendoscope. The right adrenal is difficult to negotiate for FNAC as it is deeper and nearer to the inferior vena cava.

Advantages of the EUS guided approach include proximity to the left adrenal as only the posterior stomach wall is traversed during FNAC thus avoiding passage through other organs; real time monitoring of needle passage; it can be completed in the same session with staging; and it is highly accurate for adrenal identification (combined accuracy of three studies being 97%). In contrast, accuracy of ultrasound for adrenal identification is 70% for the left adrenal and 90% for right.<sup>5</sup> Hence, complication rates are much lower with EUS FNAC than percutaneous approaches.<sup>5</sup>

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## References

1. Gupta P, Bhalla A, Sharma R. Bilateral adrenal lesions. *J Med Imaging Radiat Oncol*. 2012;**56**:636–45.
2. Larbcharoen N, Boonsakan P, Aroonroch R, Rochanawutanon M, Nitiyanant P, Phongkitkarun S, et al. Adrenal histoplasmosis: a case series and review of the literature. *Southeast Asian J Trop Med Public Health*. 2011;**42**:920–5.
3. Welch TJ, Sheedy PF, 2nd, Stephens DH, Johnson CM, Swensen SJ. Percutaneous adrenal biopsy: review of a 10-year experience. *Radiology*. 1994;**193**:341–4.
4. Eloubeidi MA, Seewald S, Tamhane A, Brand B, Chen VK, Yasuda I, et al. EUS-guided FNA of the left adrenal gland in patients with thoracic or GI malignancies. *Gastrointest Endosc*. 2004;**59**:627–33.
5. Bodtger U, Vilmann P, Clementsen P, Galvis E, Bach K, Skov BG. Clinical impact of endoscopic ultrasound-fine needle aspiration of left adrenal masses in established or suspected lung cancer. *J Thorac Oncol*. 2009;**4**:1485–9.
6. Schuurbiens OC, Tournoy KG, Schoppers HJ, Dijkman BG, Timmers HJ, de Geus-Oei LF, et al. EUS-FNA for the detection of left adrenal metastasis in patients with lung cancer. *Lung Cancer*. 2011;**73**:310–5.

# Gastrosopic findings of Strongyloidiasis causing unresolved upper gastrointestinal bleeding

## Introduction

*Strongyloides stercoralis* is a common soil-transmitted parasite in Thailand and tropical countries. It infects 1.8% of school children in southern Thailand.<sup>1</sup> Disseminated infection or hyperinfection are common in immunocompromised patients such as those on corticosteroid treatment, HIV infection and organ-transplant recipients.<sup>2–5</sup> Upper gastrointestinal bleeding (UGIB) caused by *S. stercoralis* is an uncommon but severe complication.<sup>2–4</sup> Gastrosopic findings in strongyloidiasis causing UGIB are limited. We report here a case of unresolved UGIB due to *S. stercoralis* infection with features observed on gastroscopy.

## Case report

A 39-year-old woman presented with hematemesis for two weeks. She had been on corticosteroids for Bell's palsy since two months. No history of alcoholism, NSAIDs or liver disease was reported. Physical examination was normal except Cushingoid appearance and mild anemia. Gastroscopy was performed twice but showed only diffuse gastritis and duodenitis. Due to unresolved hematemesis gastroscopy was repeated a third time when it revealed diffuse suppurative ulcers in the stomach and nearly the entire duodenum (**Figures 1 & 2**). Numerous S-shaped, motile worms were detected in the gastric contents (**Figure 3**).

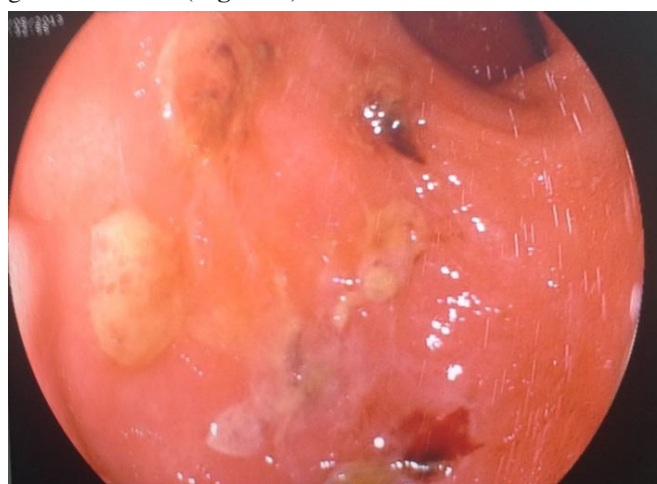


Figure 1: Gastrosopic finding showed diffuse suppurative ulcers in the stomach



Figure 2: Gastroscopy showing diffuse suppurative ulcers in the duodenum



Figure 3: Gastric contents showed a larva of Strongyloides stercoralis

## Discussion

Diagnosis of UGIB due to *S. stercoralis* infection is difficult and easily missed given its rarity. In this case, the diagnosis was made after two weeks of hematemesis and three gastroscopy attempts. The identification of a larva of *S. stercoralis* is a crucial diagnostic clue and can be isolated from the gastric contents microscopically. Detection of its eggs in stool examination is also helpful.

There are no pathognomonic gastroscopic findings. A report from Malaysia showed edematous mucosa at the prepyloric area.<sup>5</sup> A bleeding gastric ulcer with eggs and larvae identified in the mucosal layer was also reported. In our patient the gastroscopic findings were non-specific but showed ulcers throughout the upper gastrointestinal area from stomach to the duodenum. Suppurative ulcers may occur due to

superimposed bacterial infection. Eosinophilic infiltration may be another clue for gastric strongyloidiasis.

Even though there is no specific clinical manifestation for gastric strongyloidiasis, some suggestive features are important. Most previous reports of UGIB caused by *S. stercoralis* are always severe.<sup>2,3</sup> In addition, the patients also always have co-morbid conditions such as corticosteroid use, malignancy, organ transplant or HIV infection. Physicians in tropical areas should be aware of *S. stercoralis* associated UGIB given its difficult diagnosis, non-specific gastroscopic findings and severity of UGIB.

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## References

1. Anantaphruti MT, Nuamtanong S, Muennoo C, Sanguankiat S, Pubampen S. Strongyloides stercoralis infection and chronological changes of other soil-transmitted helminthiasis in an endemic area of southern Thailand. *Southeast Asian J Trop Med Public Health*. 2000;**31**:378–82.
2. Bollela VR, Feliciano C, Teixeira AC, Junqueira AC, Rossi MA. Fulminant gastrointestinal hemorrhage due to Strongyloides stercoralis hyperinfection in an AIDS patient. *Rev Soc Bras Med Trop*. 2013;**46**:111–3.
3. Bhatt BD, Cappell MS, Smilow PC, Das KM. Recurrent massive upper gastrointestinal hemorrhage due to Strongyloides stercoralis infection. *Am J Gastroenterol*. 1990;**85**:1034–6.
4. Dees A, Batenburg PL, Umar HM, Menon RS, Verweij J. Strongyloides stercoralis associated with a bleeding gastric ulcer. *Gut*. 1990;**31**:1414–5.
5. Shekhar KC, Krishnan R, Pathmanathan R, Fook CS. Gastric strongyloidiasis in a Malaysian patient. *Southeast Asian J Trop Med Public Health*. 1997;**28**:158–60.

Melioidosis: an unusual cause of isolated liver abscess