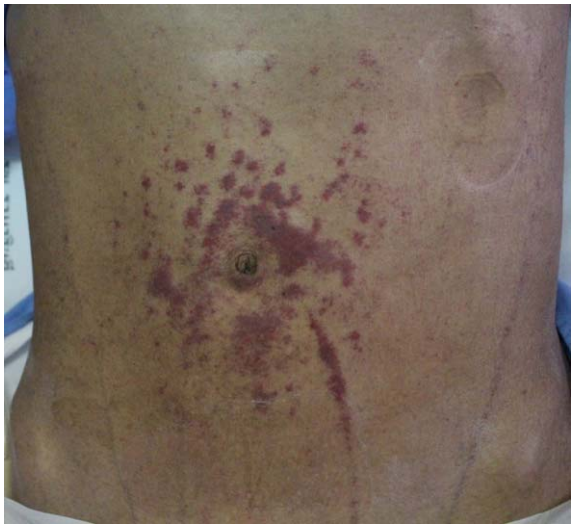
Case 21
A 56 years old Thai man from Prachuab Khiri Khan province

Chief complaint: Purpuric rash on trunk during hospitalization


(Fig. 21.1)

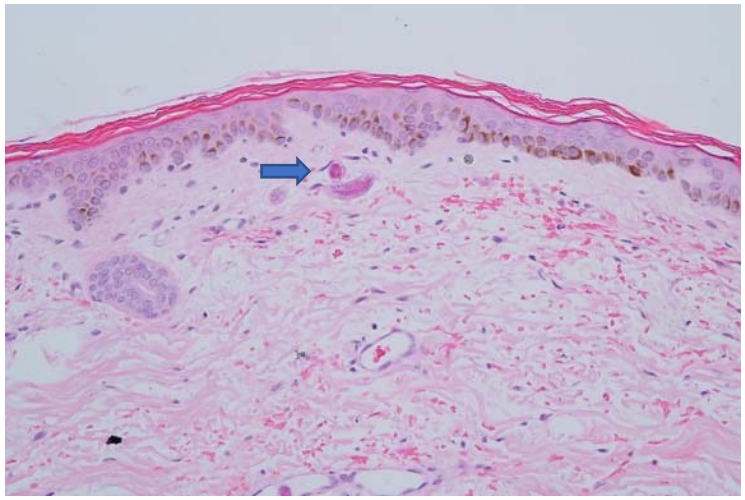
Present illness: A 56 years old man with a medical history of membranous nephropathy and strongyloidiasis. He was treated with unknown duration of albendazole. After the absent of rhabiditiform strogyoid larvae from fecal examination, the prednisolone 50 mg/day was started. Two months later, he was admitted due to acute fever, hemoptysis, and alteration of consciousness. Empirical treatment with meropenem, reduced dose of prednisolone to 15 mg/day and mechanical ventilator were promptly started. Dermatologist was consulted on the third day of admission because of purpuric rash on the patient's trunk.

Past history: No previous dermatologic condition

Physical examination:
Vital signs: T37.8 °C PR 120 beats/min RR 22 /min BP100/50 mmHg
A Thai male, comatose state
HEENT: Pale conjunctivae, anicteric sclerae
Lymph node: No palpable lymph nodes
CVS: Regular heart rate, normal S1S2, no murmur
Lungs: Crepitation both lungs
Abdomen: Soft, no distension, normoactive bowel sound, no guarding, no hepatosplenomegaly
Extremities: No pitting edema

Dermatological examination: (Fig. 21.1)
Multiple non-blanchable purpuric macules, papules and plaques on periumbilical area with few linear purpuric patches and plaques distributed along the superficial vein of the trunk

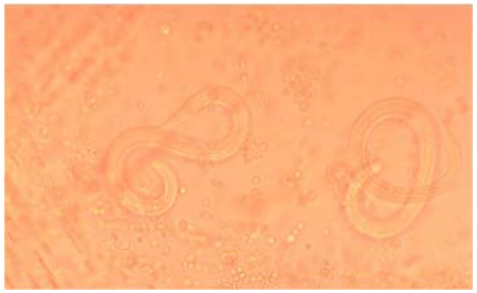
Histopathology: (S17-009806 Abdomen) (Fig. 21.2)



(Fig. 21.2)

- Sparse superficial and deep perivascular cell infiltrates of neutrophils, nuclear dusts, and numerous extravasated red blood cells
- Numerous filariform larvae in the dermis, subcutaneous tissue as well as vascular lumen of blood vessels

Sputum examination: (Fig. 21.3)
Filariform *Strongyloides stercoralis* larvae were identified



(Fig. 21.3)

Stool examination: Negative for parasite

Hemoculture: Positive for *Escherichia coli*

Diagnosis: Disseminated strongyloidiasis with *Escherichia coli* septicemia

Treatment:
- Oral ivermectin 200 mcg/kg/day then switch to subcutaneous ivermectin 200 mcg/kg/day injection daily
- Meropenem 500 mg IV every 8 hr

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Discussion:

Strongyloidiasis is a parasitic infection caused by *Strongyloides stercoralis*, a nematode that is endemic to the tropics and subtropics. The nematode is able to live within or outside a host, and is able to move between a free-living and a parasitic lifecycle. The infective filariform larva penetrates through skin from soil, some of them migrate to the lungs. They are then coughed up

and swallowed into the intestines, where it matures and releases eggs into the intestinal lumen. The eggs are then either excreted in feces or hatch in the gut as rhabditiform larvae. If the larvae mature into filariform larvae within the gut, they have the potential to re-infect the host, resulting in an autoinfection cycle that can persist for years.[1]

Infected individual is usually asymptomatic, however nonspecific respiratory and abdominal symptoms are common. Cutaneous features have been reported. Larva currens, which is an intensely itchy, pathognomonic, migratory serpiginous rash. Periumbilical purpura or thumb print sign is rare but represents classic feature of *S. stercoralis* hyperinfection, which results from larvae migrating through vessel walls into the dermis.[2] Retrograde venous or abdominal wall migration through the intestinal wall, with red blood cell extravasation, may justify the periumbilical inoculation of the parasite and the development of purpura. Chronic liver disease and positive pressure ventilation have been linked with the onset of periumbilical purpura. The rise in portal pressure results in larvae-rich portal blood being diverted into the periumbilical portal–systemic shunt.[3] Additionally, chronic urticaria has been reported.

S. stercoralis hyperinfection describes an acceleration of the normal life cycle of *S. stercoralis* leading to increasing production of larvae. It has been associated with human immunodeficiency virus and the initiation of immunosuppressive agents for inflammatory conditions. In particular, corticosteroids appear to have a greater risk for hyperinfection.[4,5] The larvae can disseminate to other organs, including the skin, liver, lungs, kidneys and brain, being potentially fatal, with mortality varying from 70% to 90%. Furthermore, *S. stercoralis* can cause gram-negative bacteremia from the release of gut bacteria into the circulation.[6]

Fecal samples and bronchial washings are also helpful in the diagnosis of hyperinfection. Currently, there are no specific treatment guideline of routine screening for *S. stercoralis* in individuals with immunosuppression. In addition, stool microscopy is relatively insensitive.[7]

Ivermectin is considered as the first-line therapy for *S. stercoralis* infection, with thiabendazole and albendazole being effective alternatives.[1] Our patient recieved ivermectin orally, and then switch to subcutaneous administration. The purpura was clear up, but he later developed meningitis and multi-organ failure.

References:

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