



# Renal failure in intestinal helminthiasis

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## Introduction

Intestinal helminthiasis is an important public health problem in several developing countries. The poor sanitation is usually the basic underlying factor contributing to the intestinal helminthic infection. There are many kinds of intestinal parasitic infections. The patients affected by intestinal helminthiasis might be asymptomatic or have clinical gastrointestinal disorders such as diarrhea. Apart from gastrointestinal manifestation, there are also other little mentioned manifestations of intestinal helminthiasis including renal manifestation. The intestinal helminthiasis related renal failure is an important but little mentioned problem in tropical nephrology. In this article, the authors summarize and discuss some important intestinal helminthiasis related renal failure problems.

## Important intestinal helminthiasis and intestinal helminthiasis related renal failure

### Nematode (roundworm) infection

#### *Ascariasis*

Ascariasis is an important intestinal roundworm infection. Acute renal failure in ascariasis is possible (1). Acute interstitial nephritis is the main observable pathology (2). The patient might develop interstitial nephritis with further presentation of renal failure (2). Histologically, the renal biopsy usually shows eosinophil infiltration and the pathophysiology is believed to be due to hyperergic reaction (2). Sometimes, there might be other concurrent ascariasis induced disorder such as pancreatitis (3).

#### *Enterobiasis*

In pediatric patients requiring long term dialysis, the increased enterobiasis rate is reported (4). To manage the problem, Basu and Mahapatra suggested regular deworming annually (4).

#### *Trichuriasis*

Whipworm is a common pathogenic roundworm causing

### ■ Implication for health policy/practice/research/ medical education

Kidney failure is a possible problem due to several kinds of intestinal helminthiasis. Since intestinal helminthiasis is still a common public health problem in several countries, the consideration of the possible renal disorder in patients with intestinal parasite infection is required.

■ **Keywords:** Intestinal, Parasite, Renal failure, Acute interstitial nephritis, Acute renal failure

trichuriasis. There is a case report of trichuriasis related renal failure (5). In that case, the patient was infected with whipworm (*Trichuris suis*) and *Campylobacter jejuni* colitis leading to acute renal failure and toxic megacolon (5). Shin et al proposed that trichuriasis might potentiate *C. jejuni* pathogenesis (5).

#### *Trichinellosis*

Trichinellosis is considered a foodborne helminthiasis. The tissue infiltration by parasite can result in a clinical problem. The renal trichinellosis is possible. According to the study by Neghina et al, renal failure is observed in 8.7% of patients with renal trichinellosis (6). Additionally, renal failure is reported as a possible adverse effect due to anti-parasitic drug therapy against trichinellosis. Using albendazole therapy in a patient with trichinosis might result in acute renal failure (7).

#### *Trematode (flake) infection*

##### *Opisthorchiasis*

Chronic opisthorchiasis is reported for association with nephropathy (8). Lapteva noted that nephritis is a possible renal pathology due to opisthorchiasis and might further result in terminal chronic renal failure (8). Nevertheless, chronic opisthorchiasis is proven as an important etiological factor for cholangiocarcinogenesis. The cholangiocarcinoma is the biliary tract cancer that results in severe hyper bilirubinemia (9). The patient with cholangiocarcinoma might have impaired renal

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function and renal failure (10). Acute renal failure due to obstructive jaundice is possible (11).

#### *Schistosomiasis*

Schistosomiasis or blood fluke is an important public health problem in several countries. The nephropathy due to schistosomiasis is possible (12). The circulating anodic antigen accumulation is reported as an important pathogenesis of schistosomiasis-related renal failure (13).

#### *Cestode infection*

##### *Hydatid disease*

Cystic echinococcosis or hydatid disease is an important zoonotic parasitic infection. In 2013, Nadeem et al firstly reported the case of intrarenal hydatid cyst induced renal failure (14).

#### **Conclusion**

Renal failure is a possible problem due to several kinds of intestinal helminthiasis. Since intestinal helminthiasis is still a common public health problem in several countries, the consideration of the possible renal disorder in patients with intestinal parasite infection is required.

#### **Authors' contribution**

Both authors wrote the manuscript equally.

#### **Conflicts of interest**

The authors declared no competing interests.

#### **Ethical considerations**

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