



BALANTIDIUM COLI IN URINE- AN INCIDENTAL FINDING IN A PATIENT WITH CHRONIC RENAL FAILURE

Microbiology

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ABSTRACT

Balantidiasis as a stool parasite is commonly reported but urinary balantidiasis is infrequent. It most commonly affects middle-aged or elderly people with co-morbidities. Urinary infestation is not a usual site for this parasite but it can be easily identified with its large size and motility. Here we present a rare case of *Balantidium coli* in urine.

KEYWORDS

Balantidium coli, Urinary Pathogen, Rare

Case Presentation:

A 65-year-old male farmer visited the surgery department of a tertiary care hospital with progressive swelling of the left lower limb over the past 7 days and with breathlessness for 1 day. He had sustained a trauma to the left lower limb (left shin) for which he availed traditional treatment. Three days post-trauma, the patient developed a swelling over the injured limb which gradually progressed up to the thigh. Skin changes (blister formation) were subsequently noted over the swelling. There were intermittent fever spikes, and breathlessness for 1 day which increased on exertion, not associated with any cough, chest pain, palpitations, altered sensorium, jaundice, or any decreased urine output. The patient also reported undergoing a plating of the left femur 10 years ago following a trauma-induced fracture.

On examination, the patient was conscious and oriented. He had tachycardia and was tachypnoeic with 98% oxygen saturation on room air. The patient was detected to have longstanding diabetes mellitus (DM) type 2, hypertension (HTN), and Chronic Kidney Disease during this initial visit (glycated haemoglobin/HbA1c – 7.1, blood pressure - 168/95 mmHg in supine position). The affected limb on examination showed a warm, tender, erythematous, and fluctuant swelling extending up to the knee with intact peripheral pulses. Total leukocyte counts were elevated and arterial blood gas (ABG) showed features of compensated metabolic acidosis (possibly secondary to sepsis). Based upon the above findings a provisional clinical diagnosis of left lower limb cellulitis with possible sepsis was made. The patient was empirically administered injectable antibiotics (ceftriaxone and metronidazole) given the deteriorating clinical condition.

Bacteriological culture from the bleb fluid (collected before initiation of antibiotics) revealed *Streptococcus pyogenes* susceptible to ceftriaxone. Serial minimal debridements of the sloughed tissue were performed along with daily changes of dressings. The patient continued to have fever spikes and multiple subsequent cultures from the debridement sites showed the presence of *Acinetobacter baumannii* (susceptible to only minocycline and tigecycline) and *Pseudomonas aeruginosa* (susceptible to only piperacillin-tazobactam and ceftazidime-sulbactam occasionally) on separate occasions, which were most likely hospital-acquired. Parenteral tigecycline and piperacillin-tazobactam were administered to the patient given the above findings.

The patient also had multiple episodes of passage of a small quantity of loose stools (blood-tinged on at least one occasion). The above complaints were persistent and showed no response to probiotics and oral rehydration therapy (ORS), with the possibility of antibiotic-associated diarrhoea being considered.

A urine specimen sent during this period for culture showed the presence of an actively motile ciliated protozoan on wet mount microscopy - morphologically resembling the trophozoite of *Balantidium coli* (Figure 1- Image showing trophozoite of *Balantidium coli* under 40X magnification).

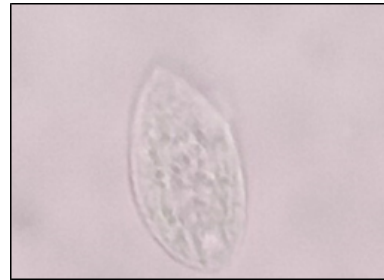


Figure 1- Image showing trophozoite of *Balantidium coli* under 40X magnification.

A subsequent stool specimen also revealed the parasite on a saline wet mount. The patient revealed a history of intermittent passing of loose stools (blood-tinged on a few occasions) for at least one month before initial presentation to the hospital. However, the patient gave no history of exposure to pigs and pig farms. The repeat urine and stool samples collected showed similar findings.

Oral tinidazole was administered to the patient as a treatment for dysentery, following which the patient noted a subjective improvement in his symptoms (reduction in the frequency of passage of loose stools and an improvement in stool consistency). Eventually, the patient's condition stabilised (cessation of febrile episodes and pus tracking from the wound site) and he started tolerating oral feeds. As a result, the patient was discharged on oral probiotics with recommendations for improving mobility (limb physiotherapy exercises and ambulation with a walker) and OPD-based follow-up for dysentery.

DISCUSSION

Balantidium coli is one of the rare zoonotic pathogens, acquired by humans through the faeco-oral route.² It is transmitted frequently by ingestion of infective cysts in water that may be contaminated with porcine faeces. Occasionally, it can be transmitted from person to person. Cysts give rise to trophozoites which inhabit and divide by binary fission in the large intestine¹. In our case, the patient had no exposure to pigs but the patient might have got an infection by consuming infected water in the locality as the patient was a farmer by occupation. Most of the patients present without any symptoms but some may have unresolved diarrhoea and a small number may have dysentery.

The organism in our case might have entered the urinary bladder by penetrating the colonic mucosa or through the anal region similar to a case reported in Uttarakhand by Ankit et al². The stool examination also showed a few trophozoites with distorted morphology as the patient had diarrhoea previously, for which he was consuming medication (metronidazole) irregularly. Our patient was HIV-negative.

The organism was identified by its large size and motility in the urine microscopy. *Paramecium* is another ciliated parasite resembling *B. coli* but it is non-pathogenic to humans. However, there has been a case report of *Paramecium* colonizing the urinary tract³.

There are fewer reports of urinary balantidiosis in India and worldwide. Many cases of *B. coli* diarrhoea have been described in India in humans and animals, but urinary balantidiosis is still an unusual entity.

A review of the English literature search was conducted using Pubmed with the search terms "Urinary Balantidiosis in India". Some of the cases which were found are discussed in Table-1.

Table-1 - Urinary Balantidiasis cases in India

S.No	Age/sex	Co-morbidity	Place of Study	Year	Reference
1.	35/M 56/F	Nil	Jharkhand	2017	4
2.	60/M	Chronic Obstructive Pulmonary Disease, Long term Steroid intake	Bhopal	2016	5
3.	68/M	Diabetes, Chronic Kidney Disease	Odisha	2014	6
4.	68/M	Diabetes, Chronic Kidney Disease	West Bengal	2013	7
5.	56/M	Non-Hodgkin's Lymphoma, Acute Kidney Injury	Mumbai	2007	8

Our patient improved with treatment as the subsequent stool and urine samples revealed no parasite.

Balantidiasis as a stool parasite is commonly reported but urinary balantidiasis is infrequent. It most commonly affects middle-aged or elderly people with co-morbidities. Urinary infestation is not a usual site for this parasite but it can be easily identified with its large size and motility. Hence, early and prompt identification of the parasite can lead to early treatment for the patient.

Conflicts of interest: None

Consent for publication:

Informed consent was taken from the patient. The patient party was explained that the names and initials will not be published and due efforts will be made to conceal the identity.

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