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Case Study

First report of genitourinary amoebiasis in Thailand

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Abstract. Genitourinary amoebiasis is a rare form of kidney and urinary tract infection caused by *Entamoeba histolytica*. Here, we describe the first case of unusual infection caused by *E. histolytica* in Bueng Kan province, northeast, Thailand. A 63-year-old female patient was diagnosed as acute pyelonephritis. *E. histotolytica* trophozoites were accidentally found in urine collected from a catheter.

INTRODUCTION

Amoebiasis is a disease caused by *Entamoeba histolytica* and is considered as a major health concern especially in tropical areas (Davidson *et al.*, 1988; Cook, 1991). *Entamoeba histolytica* infection is responsible for the third highest cause of mortality according to WHO. Fecal oral route is the most common transmission pathway and sexually transmitted disease in has been reported in both homosexual and heterosexual (Davidson *et al.*, 1988; William & Upider, 1999; Neghina *et al.*, 2008). Herein, we described the first report of amoebiasis in the urinary system in Bueng Kan, Thailand.

CASE HISTORY

A 63-year-old local woman was hospitalized to the outpatient clinic at hospital in "Bueng Kan province, northeast, Thailand". The patient presented with fever, chills, dull pain at lower back, dysuria and watery diarrhea. She has never travelled aboard and current sexual intercourse had been denied. Laboratory investigation of the patient had shown that complete blood count (CBC) using automated CBC (Mindray BC-5300, High Tech Industrial Park, P.R. China) comprised high white blood cell count (WBC) with $21.18x10^3$/ul (normal range $5x10^3$-$10x10^3$/ul), and the high neutrophil, 89% (normal range 45-70%). Of the other WBC parameters, lymphocyte was 8% (normal range 20-85), monocyte was 1% (normal range 2-10%) and PMN band form was 2% (normal range 0-6%). Red blood cell count (RBC) was $4.67x10^6$ cell/mm^3 (normal range 3-5 $x10^6$ cell/mm^3), hemoglobin (HB) was 13.3 g% (normal range 10-15 g%), hematocrit (HCT) was unremarkably high 40.4% (normal range 36-38%), mean corpuscular volume (MCV) was 87.1 fl (normal range 85-93 fl), mean corpuscular hemoglobin (MCH) was 28.7 pg (normal range 27-32 pg), mean corpuscular hemoglobin concentration (MCHC) 32.9 g% (normal range 31-35 g%), red blood cell distribution (RDW) 14.6% (normal range 14-16%) and platelet count was adequate $188x10^3$/mm^3 (normal range 14-$40x10^3$/

mm^3). The initial chemistry analysis (Mindray BS-400, High Tech Industrial Park, P.R. China) of the patient revealed abnormal Blood Urea Nitrogen (BUN) and creatinine as 28 mg% (normal range 7-21 mg%) and 1.7 mg% (normal range 0.5-1.5 mg%) respectively. Other blood chemistry parameters were normal such as potassium 4.10 mmol/L, sodium 136.6 mmol/L, and chloride 98.4 mmol/L. Likewise the blood gas parameters, carbon dioxide and anion gap were also normal (25.5 mmol/L and 12.6 repectively). Macroscopic examination of the urine showed very turbid yellow color. Urine analysis using urine analyzer (Dirui H-500, Dirui Industrial Co., Ltd, China) showed that protein, ketone, blood and leukocyte in urine were 3+, 1+, 3+ and 3+ respectively. Microscopic examination of the urine showed WBC 50-100 cells/HPF and stool examination revealed *E. histolytica* trophozoites (Figure 1).

After acute pyelonephritis caused by *E. histolytica* was established, the patient had dysuria and *E. histolytica* trophozoites were also demonstrated in catheterized urine (Figure 1). According to the treatment for invasion amoebiasis (Kimura *et al.*, 2007), the patient was treated with metronidazole. Ofloxacin and omeprazole were given to treat diarrhea and gastric ulcer respectively. The clinical outcome was classified as cured after 7 days therapy.

DISCUSSION

Although the genitourinary amoebiasis mainly occurs in homosexual who present with penis amoebiasis and infected from his partner via anal sex as reported in 1962 (Amin & Sa, 1962), our case denied a history of sexual intercourse. Therefore, the possibility of infection could be by contaminated from the fecal oral route. Nevertheless, we could not bring her family members to test for *E. histolytica* infection. Nowadays, the diagnostic methods of *E. histolytica* have been developing into the serological field such as ELISA (Pereira *et al.*, 2014) but in the remote area where the emerging case are rare, the wet smear under microscope and under supervision is still used for routine diagnosis. The background of smear was used to discriminate the protozoan contamination from the fecal

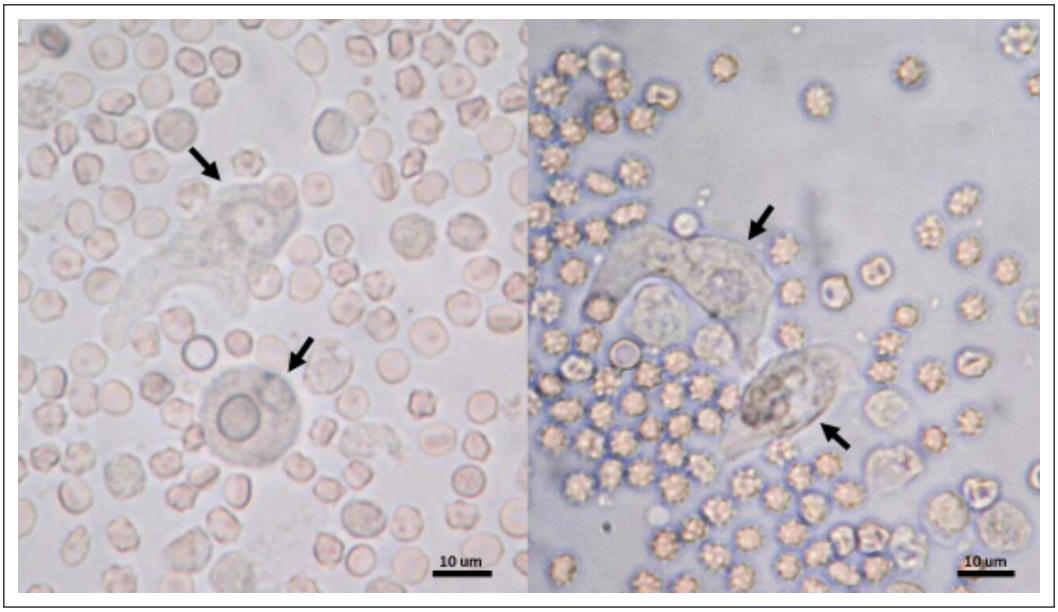

Figure 1. The catheter urine wet smear: light microscopic appearance of sterile urine from urinary bladder collection with the pseudopod formation of *E. histolytica* during swallowing of red blood cells (arrow).

(Amin & Sa, 1962). Our case presented increased WBC, creatinine and BUN like acute pyelonephritis. The presence of protein, ketone, blood and leukocyte showed an abnormal in the urinary system. The presence of trophozite form *E. histolytica* in the direct examination from catheter urine declared genitourinary amoebiasis. We could not explain the exact route of infection for this case, however genitourinary amoebiasis can occur through two routes. Firstly genitourinary amoebiasis might be caused by a direct infection from the rupture of infected liver abscess around the kidney and then the protozoan parasite pass through the pelvis and urinary bladder respectively (Wiwanitkit *et al.*, 2002). Secondly genitourinary amoebiasis could be caused through blood circulation or lymphatic system from kidney and urinary system (Davidson *et al.*, 1988; William & Upider, 1999; Amin & Sa, 1962). Multidisciplinary approaches are the key to determine if the patient is infected by *E. histolytica* or another rare diseases in the early stages (Neghina *et al.*, 2008) especially in the remote hospital where the advanced or developed methods for the rare disorders screening are not available. A combination of laboratory results, supervision by physician and medical technologist and clinical symptoms of the patient is still essential.

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