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Case Report Open Access

Urinary Balantidiasis: A Rare Incidental Finding in a Patient with Psoriasis

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Abstract

Balantidiasis is a rare zoonotic disease with the worldwide prevalence of less than 1%; even rarer are the extra-intestinal infections in urogenital tract. Here, we describe a case where the causative parasite, *Balantidium coli*, was found in the urine of a 70-year-old Slovene female pig farmer, having psoriasis vulgaris for 25 years and several comorbidities. As far as authors know, this is the first documented case of urinary balantidiasis in a patient with psoriasis. We have treated her infection with metronidazole and for psoriasis the systemic treatment with apremilast was chosen. The aim of this article is to alert doctors to this rare disease and illustrate the importance of actively looking for the comorbidities and getting a urine sediment examination on immune-compromised patients and before the potential application of biopharmaceuticals.

Keywords: Balantidiasis; *Balantidium coli*; Psoriasis vulgaris

Introduction

Balantidium coli (*B. coli*) is a ciliated parasite and the largest protozoan to infect human large intestine and causes a disease, called balantidiasis [1,2]. It can be presented with bloody diarrhea, fever and abdominal pain that can rarely lead to fulminant ulceration of the intestines with perforation which can be fatal [1]. The fecal oral transmission of *B. coli* commonly occurs in tropical and subtropical countries in regions where there are lots of pigs and poor sanitation, as can be seen by a peak incidence of 28% prevalence of the disease in pig farmers in New Guinea [2-5]. The worldwide prevalence of this disease is much lower at 0.02% to 1% [2]. However, even rarer are infections of *B. coli* in the urinary tract. Before 2015, there were only seven cases reported in the literature [4].

In this case report, *B. coli* was incidentally found in the urine of a patient having psoriasis vulgaris after being in contact with infected pig. As far as authors know, this is the first documented case of urinary balantidiasis in a patient with psoriasis.

Case Report

A 70-year-old Slovene female pig farmer with psoriasis vulgaris since she was 46 years old had been stable for a long time with the use of topical steroids, kalcipotriol, and phototherapy (UVB 311, PUVA). However, 200 phototherapies were performed on patient which reached the maximum allowed cumulative dose of UV irradiation for her phototype. She was presented to the Dermatovenereology Department because she was very unsatisfied with her clinical condition in the beginning of January 2017, when she complained of scaly plaques on the scalp, elbows and hands, abdomen, and on her back and knees (Figure 1).

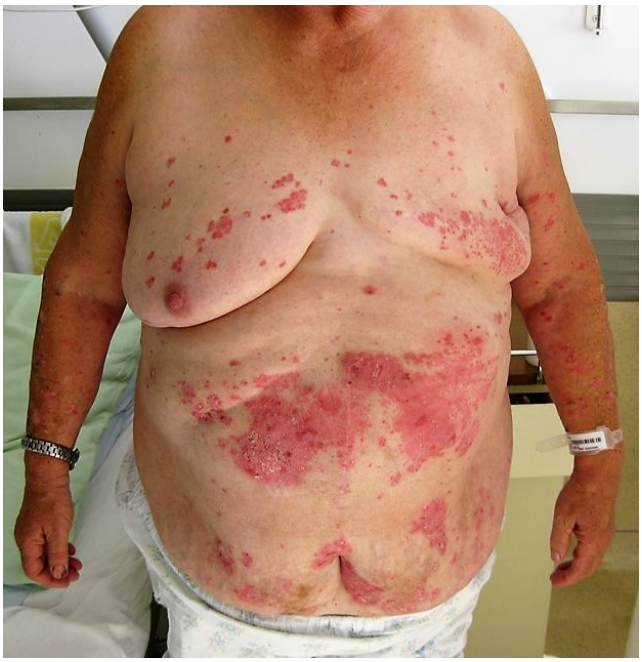

Figure 1: Skin condition of the infected patient before the systemic treatment for psoriasis and balantidiasis was started, with PASI 17,4 and BSA 20%.

We calculated PASI 17, 4, BSA 20%, she filled DLQI which reached 13 points. She also complained of attacks of cramping abdominal pain and occasional diarrhea without blood or mucus that started the previous month. This is a patient with a history of hypertension, dyslipidemia, fatty liver disease, chronic gastritis, diabetes mellitus type II, st. post operat. left breast carcinoma and Schwannoma of the stomach, urinary incontinence, gouty arthritis, obesitas alimentaris

(ITM 31). Because of these comorbidities she was taking insulin aspart, nifedipin, anastrozol, bisoprolol, metformin, pantoprazol, perindopril with diuretics, alopurinol, rosuvastatin, tramadol, gabapentin, alprazolam, and loratadine. We performed extensive diagnostics before choosing a systemic treatment for her and consultations with a cardiologist, an oncologist and a gastroenterologist were made. No significant deviations from the normal were seen in all tests performed, except elevated levels of AST, ALT, GGT, bilirubin and triglycerides. Surprisingly, the urinary sediment examination, demonstrated the presence of *B. coli* trophozoites, which were identified based on its characteristic morphology and rapid movements across the slide. They were not found in the feces. We treated her with metronidazole 800 mg/8 hours for 5 days and the follow-up urine and feces were without *B. coli*. For psoriasis the treatment with apremilast was chosen in the dose of 2 x 30 mg/day and after one year her skin condition is still satisfying with PASI 3 and BSA 4% (Figure 2) and without recurrence of balantidiasis.

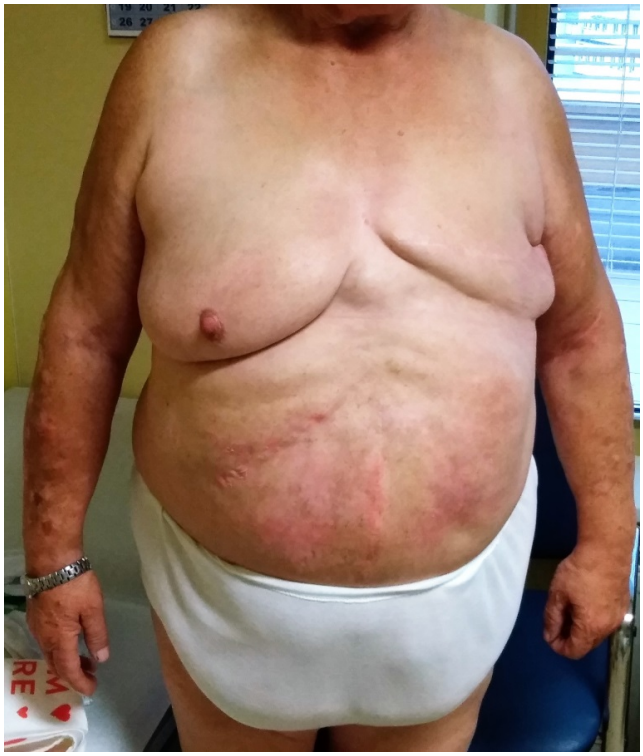

Figure 2: Skin condition after treatment with metronidazole and apremilast, with PASI 3 and BSA 4%.

Discussion

The natural habitat of *B. coli* is the large intestine of a variety of different species, most often wild boars, pigs and humans [2]. The man is an accidental host [1], which is owing to the fact that the parasite thrives on starchy food which is found abundantly in the pig's large intestine while rarely found in the human bowel [3]. *B. coli* have 2 stages in its life cycle, a trophozoite stage and a cyst stage. The cyst is the infective stage, which when ingested passes through to the large intestine where excystation takes place which produces a motile trophozoite [4]. The trophozoites can remain in the lumen of the bowel and multiply which may lead to an asymptomatic carrier state or mild gastrointestinal symptoms such as mild diarrhea alternating with constipation [1]. The trophozoites can also invade through the mucosa of the colon and cause an acute reaction with bloody diarrhea, fever and abdominal pain that can rarely lead to fulminant ulceration of the intestines with perforation which can be fatal [1]. Lastly, the trophozoites can enter the bloodstream and metastasize- this can possibly be a reason why extra-intestinal balantidiasis have been documented in the lung, peritoneum, and genitourinary tract, especially seen with immunocompromise [4]. The other possible mechanism promoting its spread to the bladder is retrograde transmission of the trophozoites from the anus to urinary tract or secondary to a rectovaginal fistula created from infection with *B. coli* [1]. The life cycle of *B. coli* is complete when the trophozoites are released with feces and encyst to form new cysts to infect future hosts.

Oftentimes, immunocompromise seems to be a key factor in urinary balantidiasis. This can be illustrated in four separate case reports. One involved a 35-year-old female patient with diabetes and a drug addiction including opioids, which decreases the immune system through elevated blood sugars and acidosis [4]. Another involved an elderly man with diabetes and chronic kidney disease which decreases the immune system through two separate pathologies as well [1]. Third report involved an elderly man with COPD who was on steroids for a long time, which also likely caused immunocompromise [3]. Fourth case report involved a 56-year-old man with non-Hodgkin's lymphoma who received many different chemotherapeutic regimens admitted for acute renal failure. Our case involves a psoriatic patient with a lot of comorbidities.

Conclusion

Propitiously, we have diagnosed urinary balantidiasis before applying any systemic treatment for psoriasis which could decrease her immune defense to the level that *B. coli* could cause fulminant ulceration of the intestines with perforation that could be fatal for our patient. This case illustrates the importance of getting a urine sediment examination on immunocompromised patients and before the potential application of biopharmaceuticals.

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