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# Metronidazole Plus Omeprazole-Induced Cachexia in a Postmenopausal Woman: A Case Report

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## ABSTRACT

*We present an unusual case of a postmenopausal woman that developed near death Cachexia as a side effect to prolonged course of a combination of drugs to treat her Peptic ulcer Disease. Withdrawal of the responsible drugs led to resolution of the Cachexia. We emphasize the importance of either the physician or the pharmacist giving clear instructions to elderly patients on how to take the prescribed medication to avoid a catastrophe.*

## Keywords

Postmenopausal, Woman, Metronidazole, Omeprazole, Induced, Cachexia.

## Introduction

Cachexia is defined as a complicated metabolic syndrome that is related to underlying illness or disorder and is characterized by muscle mass loss with or without fat mass loss. It is often associated with anorexia, an inflammatory process, insulin resistance, and increased protein turnover [1-3]. Apart from causing weight loss Cachexia is also associated with increased mortality. The major cause of Cachexia is cytokine excess. Other causes include mediators such as testosterone, insulin-like growth factor-1 deficiency, excess myostatin, and excess glucocorticoids [4]. The overall prevalence of Cachexia ranges from 40% of cancer cases at diagnosis time to 70% in advanced cases [5]. Cachexia is also associated with other chronic disorders such as Chronic Obstructive Pulmonary Disease (COPD), chronic heart failure, chronic kidney disease, and chronic infection and inflammatory disease such as HIV/AIDS [6].

Characteristics of Cachexia include a persistent increase in basal metabolic rate that is not compensated by increased caloric or protein intake. This abnormal metabolic cascade includes factors such as digestive factors, tumour factors and hormonal responses to underlying disease. Digestive factors that contribute to poor intake include dysgeusia, nausea, dysphagia, mucositis, and constipation. A patient with Cachexia usually presents with history of significant weight loss that is associated with lack of appetite. In addition, there is a reduction in the quality of life that is associated with increased fatigue and poor tolerance to activity. As the condition progresses it is correlated with multiple symptoms such as loss of appetite, dry mouth, vomiting, dysgeusia, early satiety, and diarrhea, general malaise, sleep disturbances and anxiety. Diagnostic criteria for cachexia include a 5% weight loss in 12 months or body mass index of less than 20kg/m$^2$ in the presence of a known chronic disease with the following factors; loss of muscle mass, asthenia, loss of body fat.

We present a case of a postmenopausal woman who presented with Cachexia induced by prolonged taking of drugs in the treatment of Peptic Ulcer Disease.

## The Case

A fifty-five years old postmenopausal woman was seen at a private clinic by a private medical doctor in April 2023 in the city of Ndola, Zambia. The patient complained of upper abdominal pains, in addition to the hotflashes, which were attributed to the postmenopause. An immunological test done was positive for antibodies to *Helicobacter pylori*. A diagnosis of Peptic Ulcer Disease (PUD) was made and the patient was put on oral medication comprising Metronidazole at 400mg three times a day

and Omeprazole at 20mg once per day. The course of the regimen was not explained to the patient. She continued taking both drugs every day for five months. During this period the patient developed nausea, flatulence, loss of appetite, general malaise, diarrhea bouts, disturbed sleep, dysgeusia, and marked weight loss. The patient associated these symptoms with her postmenopause state and never bothered to be reviewed by her doctor.

We saw the patient in our practice in September 2023. On examination, she was fully conscious and oriented in time, place, and person. There was no pallor and no jaundice. All systems were normal apart from the musculoskeletal system. The patient was extremely emaciated with bitemporal muscle wasting, supraclavicular muscle wasting and general lack of muscle definition. Because of the history of patient having been on Metronidazole plus Omeprazole every day for 5 months we made a diagnosis of Cachexia induced by the two drugs. We immediately discontinued both drugs. Within a few days of discontinuation of the two drugs, the patient reported improved appetite, reduction in nausea and flatulence, and she started regaining her weight. Within two weeks of discontinuation of the two drugs, the patient had dramatically improved and was able to return to work. We have continued to review the patient on a monthly basis and have continued to observe remarkable increase in her weight and quality of life to almost pre- Metronidazole plus Omeprazole period.

## Discussion

Cachexia as an adverse effect of antibiotics and antiulcer drugs for PUD has not been reported before in literature. Our patient was a postmenopausal woman with some elements of hypochondriasis who was more worried about her diagnosed PUD. Either she did not understand the instructions on how to take the prescribed drugs or she was not given any instructions at all by her doctor/pharmacist. The usual regimen for the treatment of PUD with the two drugs is 14 days and the course being repeated after 4 months. For Metronidazole the dose is 400mg three times per day for 14 days while that for Omeprazole it is 20mg once per day for 14 days. Our patient took the two drugs every day for 5 months.

Metronidazole is used for the treatment of protozoal infections such as *Trichomonas vaginalis*, *Entamoeba histolytica*, *Giardia lamblia*, Blastocysts, and *Balantidum coli*. It is also used to treat anaerobic bacterial infections caused by *Bacteriodes* spp, *Fusobacterium* spp, *Clostridium* spp, *Gardnerella vaginalis*, *and Helicobacter pylori* [7,8]. The primary adverse effects of Metronidazole include confusion, peripheral neuropathy, metallic taste, nausea, vomiting, diarrhea, headache, dizziness, genital pruritus, abdominal pain, and candidiasis [9,10].

Omeprazole is a proton pump inhibitor [11]. It is used for the treatment of gastroesophageal reflux disease (GERD), PUD, erosive esophagitis, Zollinger-ellison syndrome, and eosinophilic esophagitis [12-14]. Side effects of Omeprazole include headache, dizziness, cough, abdominal pains, diarrhea, nausea, vomiting, flatulence, acid regurgitation, constipation, backpain, weakness and body rash [15].

Our patient suffered the consequences of side effects of both drugs for five months. We were able to halt and reverse the Cachexia by eliminating the underlying cause, which was the drug inducement. We saved the patient who might have ended up developing bacterial superinfection and its consequences such as bacteremia, septicemia, and septic shock leading to a fatal outcome.

## Conclusion

Rare as it may be drug induced Cachexia can occur in cases of accidental prolonged intake of a combination of antibiotics such as metronidazole and antiulcer drugs such as Omeprazole. Clear instructions to elderly patients on how to take prescribed drugs is essential in preventing serious and potentially fatal adverse effects such as Cachexia.

## Acknowledgement

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