



## PACLITAXEL INDUCED PARALYTIC ILEUS AND REVIEW OF THE LITERATURE

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<p><b>Article Info</b> Received 15/08/2015 Revised 27/08/2015 Accepted 28/09/2015</p> <p><b>Key words:</b> Paralytic ileus, Lung cancer, paclitaxel.</p>	<p><b>ABSTRACT</b> Paclitaxel, a member of taxanes, is a microtubule stabilizing agent. In oncology practice, besides its activity in lung, ovarian and breast cancer, it's widely used in other malignancies with different chemotherapy regimens. Nausea, vomiting, cytopenia and hypersensitivity reactions are mostly encountered side effects of the drug. Mild and moderate neuropathy, which is a well known class effect of taxanes, is experienced in 60% of cases. Severe neurological side effects like seizures, syncope and ataxia are noted in 3% of the cases. Autonomic neuropathy related consequences have also been reported in the literature. Here we present a paralytic ileus experience during paclitaxel therapy with the informed consent of the patient.</p>
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### INTRODUCTION

Paclitaxel, a member of taxanes, is a microtubule stabilizing agent. In oncology practice, besides its activity in lung, ovarian and breast cancer, it's widely used in other malignancies with different chemotherapy regimens. Nausea, vomiting, cytopenia and hypersensitivity reactions are mostly encountered side effects of the drug. Mild and moderate neuropathy, which is a well known class effect of taxanes, is experienced in 60% of cases. Severe neurological side effects like seizures, syncope and ataxia are noted in 3% of the cases [1]. Autonomic neuropathy related consequences have also been reported in the literature. Here we present a paralytic ileus experience during paclitaxel therapy.

### CASE PRESENTATION

A 68-year-old male patient without any comorbidities was diagnosed with lung adenocarcinoma. Multiple metastatic nodular lesions in surrenal, bone and contralateral lung were noted in the initial imaging. EGFR and ALK mutation negative and stage IV disease was planned to be treated with systemic chemotherapy. Patient was asymptomatic and initial physical examination was

normal. Palliative regimen was initiated with 150mg/m<sup>2</sup> Paclitaxel and Carboplatin with a dose of AUC: 6. On the next day of therapy, patient presented with nausea and vomiting. Physical examination revealed diffuse tenderness over the abdomen and decreased bowel sounds. The lack of defecation conveyed us to an obstructive pathology. Abdominal x-ray showed air fluid levels (figure-1a). The laboratory work up for electrolyte, renal and hepatic functions, amylase, lipase was normal. Abdominal computerized tomography showed dilatation at the proximal portion of intestines without any obstructive pathology which was consistent with paralytic ileus. There were no drugs that can cause ileus. Patient was hospitalized and treated with nasogastric decompression was started. The symptoms progressively improved. The patient was followed with IV fluid resuscitation and decompression. During follow up, on the 36th hour of administration, ileus improved and symptoms progressively decreased. Radiological improvement was noted on the 24th hour abdominal x-ray (figure-1b). Taxane based regimen exchanged with cisplatin- gemcitabine and patient followed without any similar obstructive pathology with platin based therapy.



**Figure 1. Abdominal x-ray showing air fluid levels after chemotherapy (1a), the regression of air fluid levels after decompression and symptomatic improvement**



## DISCUSSION AND CONCLUSION

Paclitaxel is a cytotoxic agent that acts by stabilization of microtubules by preventing depolymerization and results in inhibition of reorganization of the microtubule network. Stabilization results in blockage in M phase and also cell division. Its effective cytotoxic activity in clinical trials especially in breast, ovarian and lung carcinomas has made paclitaxel a remarkable chemotherapeutic agent in oncology practice [2]. Most encountered side effects of the drug are nausea, vomiting, mild cytopenia, hypersensitivity reactions and alopecia. Paclitaxel induced neuropathy is one of the most common adverse effect of the drug, approaching to 60% of the patients in some series. Microtubules are important for neuronal development and maintenance [1]. The presenting symptoms are usually associated with sensory neuropathy. Numbness and tingling sensation on the extremities are the initial clues of the neuropathy. Usually after exceeding dosage of 200mg/m<sup>2</sup>, bilateral symmetrical hypoesthesia ensues. Neuropathy can further progress to neuropathic pain, ataxia and even severe neurological deficits [3]. Autonomic neuropathy presenting with orthostatic hypotension or paralytic ileus is a rare side effect of the drug, reported in <1% of the cases [4].

Paclitaxel related autonomic neuropathy has been reported by Jerian in 1993 as orthostatic hypotension in 2 patients [5]. Paclitaxel related paralytic ileus was reported

in an ovarian carcinoma patient by Parimoo [6]. However, the causative pathology in that case, either paclitaxel or the primary malignant disease, was not clear. Autonomic neuropathy associated with taxanes has been reported in few patients in literature and association was not clear in those cases due to presence of intraabdominal metastasis. The clinical impacts and management of this rare complication is still a mystery. Our experience with this patient, after excluding possible causes of obstruction, was associated with paclitaxel. To the best of our knowledge, our case is the first reported paralytic ileus associated with paclitaxel.

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## CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

## STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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