



## **Docetaxel Extravasation; Result of Improper Vein Selection and Region Related Worsening Factors in Daily Life**

**Özgül D<sup>1\*</sup>, Turan M<sup>1</sup> and Barutca S<sup>1</sup>**

<sup>1</sup>Department of Internal Medicine, Adnan Menderes University, Aydın, Turkey

**\*Corresponding author:** Özgü D, Department of Internal Medicine, Adnan Menderes University, Faculty of Medicine, Division of Medical Oncology, Aydın, Turkey

### **Abstract**

Extravasation is one of the most dramatic acute complications of chemotherapy. Docetaxel is a vesicant chemotherapy agent that belongs to taxane group. We present a case of docetaxel extravasation after selection of a vein on the wrist for IV infusion. Prevention is the key factor in extravasation and also, selection for venous access is very important. After the extravasation, some daily life events can easily worsen the situation. In this report we aimed to alert the healthcare personnel about the importance of both prevention and the factors that worsen the situation when the venous access site is the wrist joint.

**Keywords:** Docetaxel; Chemotherapy; Drug infusion

### **Introduction**

Docetaxel is a semisynthetic chemotherapy agent, that stabilizes the microtubules in the cell. It is

widely used in clinical oncology treatments such as; breast, gastric, head and neck, prostate and lung cancers. Skin reactions are frequent non-hematological side effects of docetaxel [1]. One of the most dramatic acute complications of chemotherapy is drug extravasation [2]. Extravasation; is the leakage of the agent from the venous system into the surrounding tissues. Extravasation is either irritant or vesicant according to the agent. Docetaxel induced extravasation is vesicant [3]. Although the clinical feature of extravasation is well known, the daily factors that worsen the situation according to the selected veins were not defined well, especially when the access site is on the wrist joint.

### **Case Presentation**

A 59 years old male patient was receiving docetaxel 75 mg/m<sup>2</sup>, for treatment of metastatic prostate

carcinoma. The patient had received more than ten cycles and did not accept to have a central venous port, so peripheral veins were used. However, the patient's peripheral venous system was hard to access, as a result of multiple injections and obesity. The preference of the chemotherapy nurse was the medial vein in anatomical position on the left wrist for current treatment. At the fifth day of the chemotherapy the patient had an erythema, mild to moderate pain on the venous access site (**Figure 1**). It was obvious that an undetermined amount of the drug

had leaked and caused a tissue injury. The patient was a doctor himself and has used local but not systemic anti-inflammatory agents, due to his renal problems. The most prominent reasons of the worsening lesion were daily routines that cause problems due to the lesion location such as friction to the pocket edges, friction at the edge of the table while eating or typing on computer, and irritation because of a metal hand watch (**Figure 2-4**). The skin integrity was lost and healing was problematic as seen in the figures.



**Figure 1:** The Extravasation Region, Medial Side of The Left Wrist (According to The Anatomic Position).



**Figure 2:** Friction While Using the Pocket of The Clothes.



**Figure 3:** Friction During Typing on Computer.



**Figure 4:** Hand Watch Irritation on The Lesion.

## Discussion

Extravasation occurs in about 0,1% to 6,5 % of chemotherapy infusions. Vesicant agents may cause inflammation and sometimes necrosis in the skin and soft tissues. The rate of high grade (G3 to 4) toxicities of docetaxel can be seen 0,8 to 5,9% related to the amount of extravasation [4]. In the standard concentration of docetaxel infusion (0,3-0,74 mg/mL in 1 hour) extravasation is seen less than 1%, in experienced centers. Sometimes the symptoms are mild in the acute phase of docetaxel extravasation. Clinical symptoms may get prominent hours to days after the event depending on the amount and the region of infusion [5]. To avoid the severe complications, topical cold application, topical agents like dimethyl sulfoxide, topical and systemic steroidal and non-steroidal antienflammatory agents and sometimes antibiotics can be used [6]. The presented patient had only used topical non-steroidal antienflammatory agent. Especially dexamethasone was reported to decrease the skin reactions, however

its efficacy in extravasation may be less [7]. Extravasation is much less seen after applications from a central venous port catheter Taibi, et al. [8] reported only 4 extravasation cases in a series of 1850 central venous chemotherapy administration Schulmeister et al. [9] reported an extravasation rate of 0,01% by central venous access, while this was 0,18% in peripheral venous catheterization. The difference was statistically significant ( $p < 0,001$ ) [10]. In chemotherapy centers the health personel must be well educated on both the prophylaxis and treatment of drug extravasation. They should also inform the patients on this issue. The health personel should be alert on risky patients, should make a good choice for the venous access, and consider the potency of the drug and the duration of the treatment as well as the patient related conditions such as multiple times treated and elderly patients [11]. After an administration from a peripheral venous catheter, the region must be controlled periodically [12]. In our patient the preference for the venous access site was

not good, as it was a joint that was susceptible to extreme friction and pressure in daily life. Also, the site was not observable by the patient unless pain and swelling have occurred. The patient had warned the health personnel that during the rotational movement while connecting and disconnecting the drug infusion set to the tip of the catheter was also causing a damage at the entry site of the vein.

## Conclusion

In the presented case an extravasation of docetaxel has happened on a joint, the wrist. The medial site of the wrist was prone to external friction and pressure factors in daily life and this might have worsened the healing process. Chemotherapy should be administered by experienced and well-educated health personnel, the patients should be well informed especially while vesicant agents are used. In this report we aimed to remind the negative aspects of the veins on joints. Because the wrist is a highly active joint in daily life, it may be difficult to see the lesion especially the median site of the wrist and protect from external factors. In clinical practice this side should not be preferred for intravenous chemotherapy injections.

## References

1. Ustun H, Barutca S, Colakoglu O, Yilmaz U, Sotel C. Docetaxel-induced lichenoid eruption: report of a case. *J Balkan Union Oncol.* 2001;6:107-8.1.
2. Chang PH, Wang MT, Chen YH, Chen YY, Wang CH. Docetaxel extravasation results in significantly delayed and relapsed skin injury: A case report. *Oncol lett.* 2014;7(5):1497-8.
3. Ho CH, Yang CH, Chu CY. Vesicant-type reaction due to docetaxel extravasation. *Acta Derm Venereol.* 2003;83(6):467-8.
4. Garrido-Siles M, Arenas-Villafranca JJ, Pérez-Ruiz E, de Linares Fernández MF, Tortajada B, Rivas-Ruiz F, et al. New cutaneous toxicities with generic docetaxel: are the excipients guilty? *Support Care Cancer.* 2015;23(7):1917-23.
5. Raley J, Geisler JP, Buekers TE, Sorosky JI. Docetaxel extravasation causing significant delayed tissue injury. *Gynecol oncol.* 2000;78(2):259-60.
6. Schrijvers DL. Extravasation: a dreaded complication of chemotherapy. *Ann Oncol.* 2003;14suppl(3):iii26-30.
7. Berghammer P, Pöhl R, Baur M, Dittrich C. Docetaxel extravasation. *Supportive care in cancer.* 2001;9(2):131-4.
8. Barutca S, Kadikoylu G, Bolaman Z, Meydan N, Yavasoglu I. Extravasation of paclitaxel into breast tissue from central catheter port. *Supportive Care Cancer.* 2002;10(7):563-5.
9. Taibi A, Bardet MS, Durand Fontanier S, Deluche E, Fredon F, Christou N, et al. Managing chemotherapy extravasation in totally implantable central venous access: Use of subcutaneous wash-out technique. *J Vasc Access.* 2020;21(5):723-31.
10. Schulmeister L. Extravasation management: clinical update. *Semin Oncol Nurs.* 2011;27(1):82-90.
11. Kumar RJ, Pegg SP, Kimble RM. Management of extravasation injuries. *ANZ J Surg.* 2001;71(5):285-9.

12. Sauerland C, Engelking C, Wickham R,  
Corbi D. Vesicant extravasation part I:  
Mechanisms, pathogenesis, and nursing care

to reduce risk. Oncol Nurs Forum.  
2006;33(6):1134-41.

### **Citation of this Article**

Özgül D, Turan M and Barutca S. Docetaxel Extravasation; Result of Improper Vein Selection and Region Related Worsening Factors in Daily Life. Surg Case Rep Int. 2026;9(6):2001-2006.

### **Copyright**

©2026 Özgül D. This is an Open Access Journal Article Published under [Attribution-Share Alike CC BY-SA](#): Creative Commons Attribution-Share Alike 4.0 International License. With this license, readers can share, distribute, and download, even commercially, as long as the original source is properly cited.