International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531
(Print & Online)

http://gssrr.org/index.php?journal=JournalOfBasicAndApplied

Docetaxel Induced Toxic Erythema of Chemotherapy: A Case Report

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Abstract

Toxic erythema of chemotherapy (TEC) refers to a group of chemotherapy-induced cutaneous toxicities. It is important to raise awareness of TEC clinical presentation to prevent misdiagnosis and treatthem promptly. We present a patient diagnosed with invasive ductal carcinoma of the left breast who had undergone mastectomy with axillary dissection who developed TEC after docetaxel chemotherapy infusion.

Keywords: Toxic Erythema; Chemotherapy; erythrodysesthesia; hand-foot syndrome.

1. Introduction

Toxic erythema of chemotherapy is a well-recognized cutaneous eruption that occurs after the administration of certain antineoplastic medications: namely in association with 5-flurouracil, docetaxel, capecitabine and pegylated liposomal doxorubicin [1] .This entity includes hand–foot syndrome, palmar–plantar erythrodysesthesia, and eccrine syringometaplasia [2]. Since it occurs during a time when patients are receiving several other drugs simultaneously and vulnerable to infections, The TEC may be confused mainly with infectious exanthems, graft versus host disease (GVHD), or acute morbilliform drug eruptions [2]. The treatment of TEC is primarily managed on a supportive basis and hence the identification of typical and atypical presentations can ensure proper care.

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Clinicians caring for patients on chemotherapy should be aware of these clinical manifestations for early intervention. The authors describe the spectra of the clinical presentation of apatient suffering from TEC after the administration of docetaxel chemotherapy.

2. Case Report

A 51-year-old Pakistani female patient diagnosed with invasive ductal carcinoma of the left breast who had undergone mastectomy with axillary dissection was referred to ourdermatology outpatient department (OPD) for evaluation of a cutaneous eruption after the start of chemotherapy. The eruption consisting of the face, neck, both hands on the 5th day following the first dose of intravenous(IV) infusion of 160mg docetaxel and was associated with tingling of the hands impairing her ability to perform daily tasks.. Four cycles of doxorubicin 100mg and cyclophosphamide 985 mg were given one month prior to her visit to our clinic. Prior to the eruption the only other medications she received without any adverse reaction previously were metoclopramide, ondansetron.Apart from the rash, there was no fever, or any mucous membrane lesion involvement. Examination revealed multiple erythematous patches over face and neck. In addition, there was swelling and erythema of left thenar eminence of the palm and the dorsal aspect of distal phalanx of second and third fingers of the right hand with impaired mobility (Fig. 1-4]. Septic work-up was negative for underlying infection. A clinical diagnosis of TEC was made. Topical treatment with corticosteroids and emollients were initiated and the docetaxel dose was recommended to be reduced by 25% for the subsequent cycles. Significant improvement with confluent post inflammatory hyperpigmentation anddesquamation occurred within two weeks of the dose reduction (Fig. 3-4). The same rash recurred three to four days post subsequent docetaxel cycles but with milder intensity.

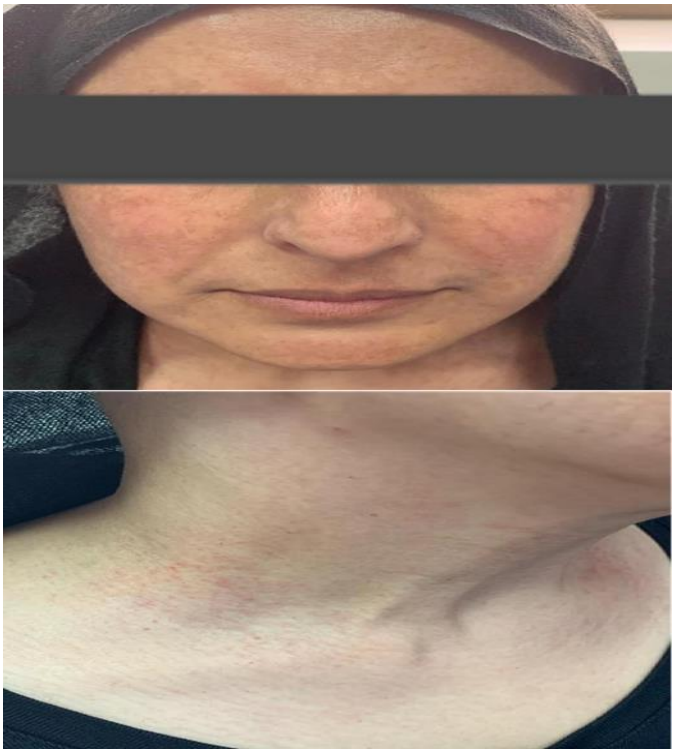

Figure 1: Confluent erythematous hyperpigmented patches with burning sensation A. Face B. Neck

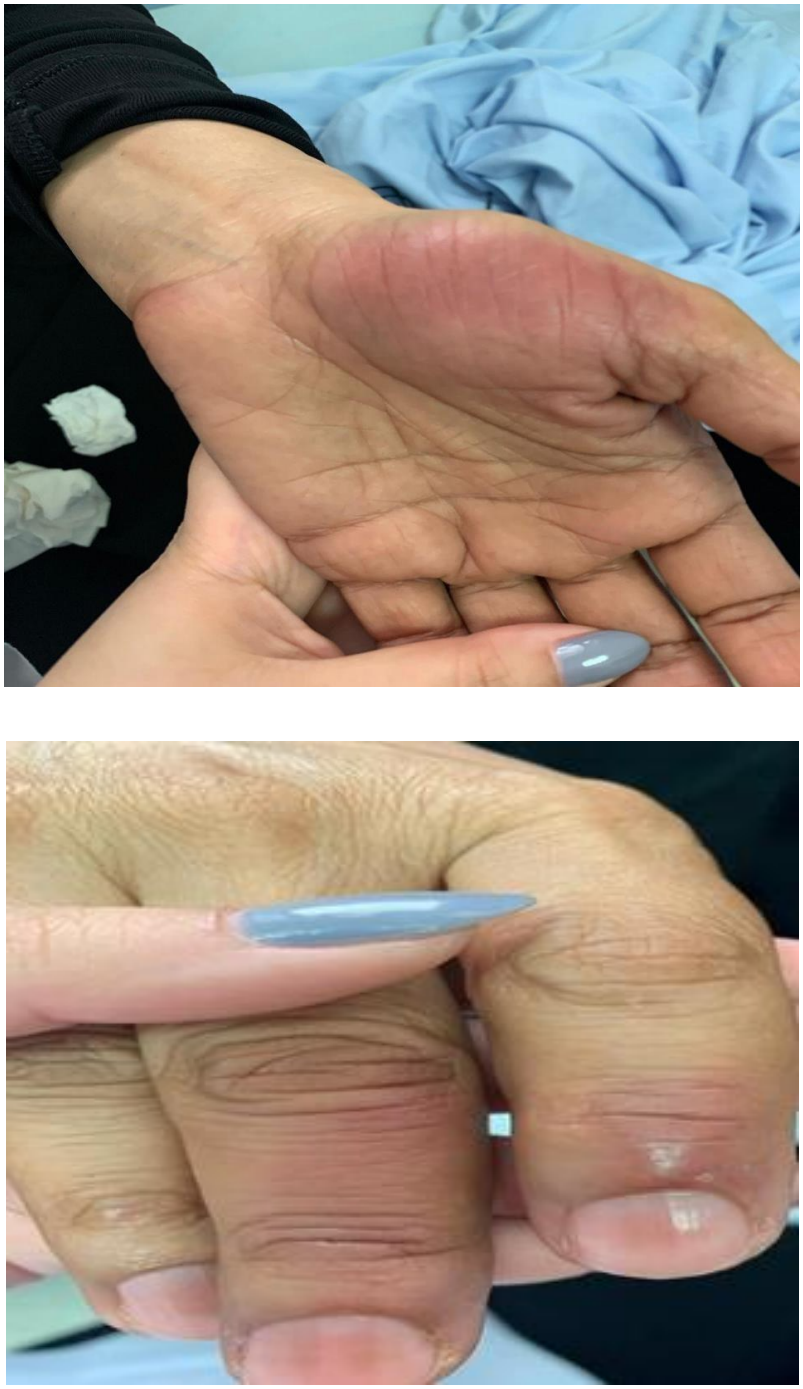

Figure 2: Erythema and swelling A. Thenar eminence B. Dorsal aspectof distal phalanx of second and third fingers of the right hand.

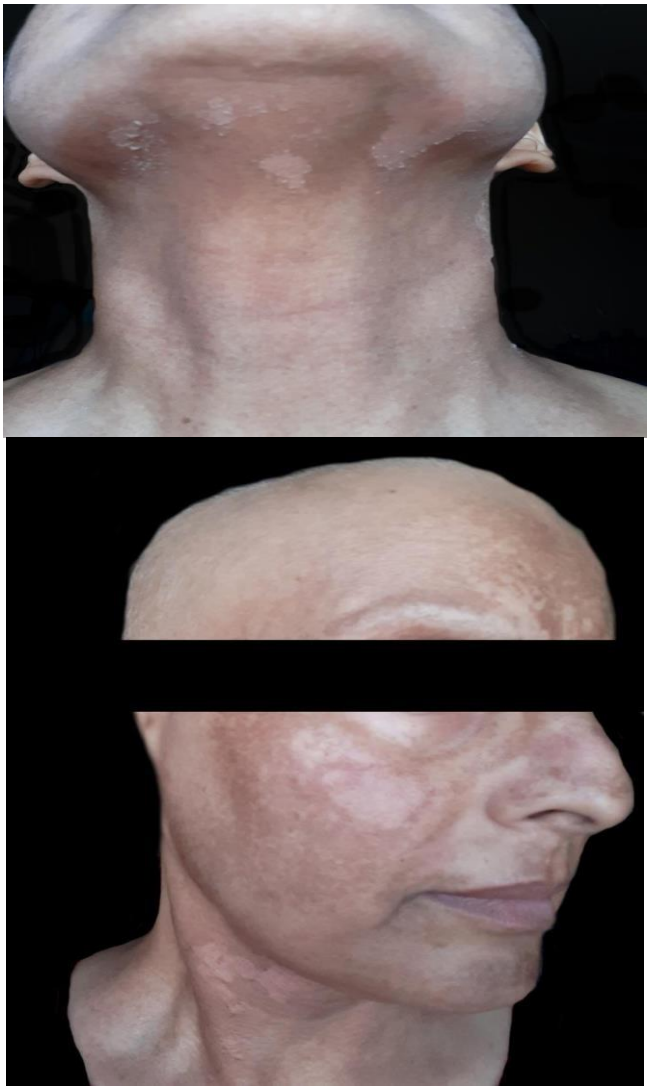

Figure 3: Confluent post-inflammatoryhyperpigmentation and desquamation post treatment . A. Face B. Neck.

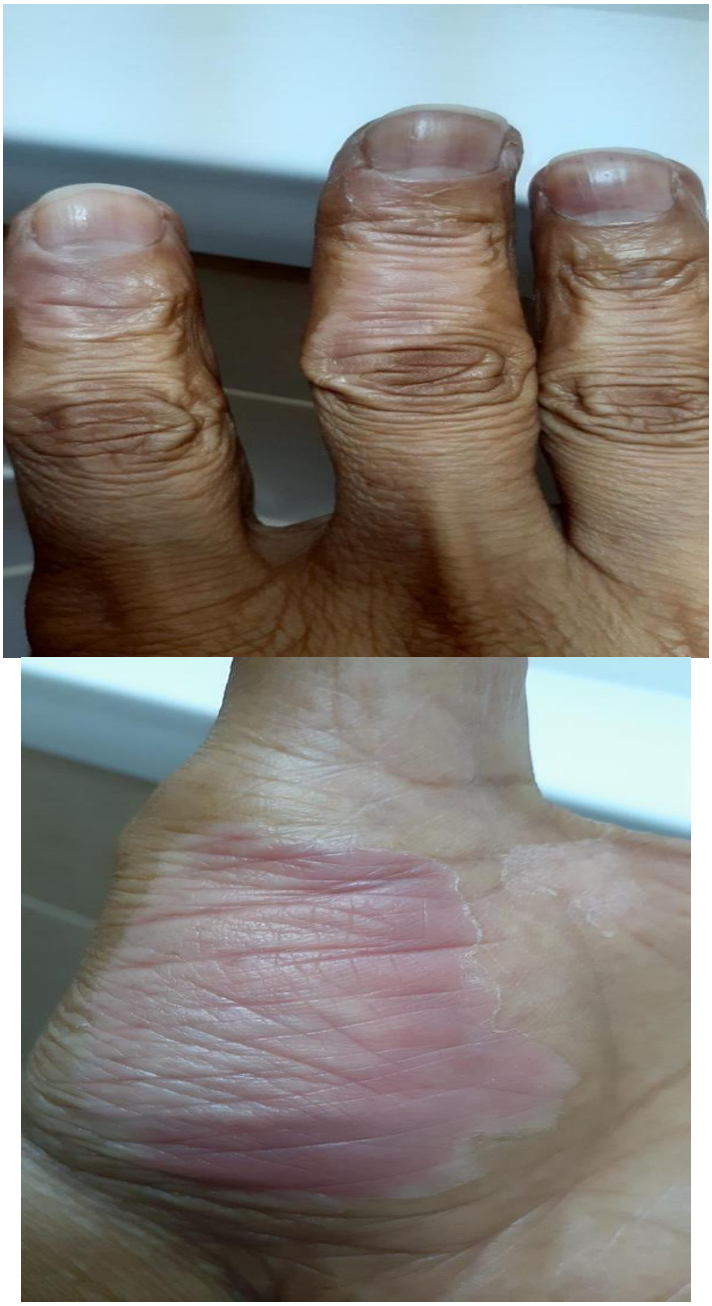

Figure 4: A. Thenar eminence B. dorsal aspect of distal phalanx ofsecond and third fingers of the right hand.

3. Discussion

TEC is a cutaneous eruption caused by pyrimidine analogues, pegylated Liposomal doxorubicin and taxanes. Also known as palmar-plantar erythrodysesthesia, chemotherapy- associated acral erythema, or hand-foot syndrome [4].

Females are more prone to develop TEC than males [3]. Owing to the regimens implicated in the treatment of breast cancers, women are therefore more likely to develop TEC as in our patient who was diagnosed with invasive ductal carcinoma of the left breast [5]. Other risk factors include genetic background, dosage, continuous intravenous infusion and certain cytotoxic agent combination [3].

TEC may be painful and may significantly impact women's quality of life[6] and may result in early drug discontinuation or chemotherapy interruption [7] as seen in our patient who experienced marked impairment of the mobility of her hands but not significant enough to require discontinuation of the drug.

The appearance of TEC usually develops within two weeks and as early as two days of starting chemotherapy, but it can be delayed to over months after [8] similar to our patient, were the eruption appeared on the fifth day of the first dose of docetaxel.

The association of TEC with docetaxel was initially reported by Zimmerman and his colleagues in 1994 [9]. The same association has been observed thereafter by several other authors but less commonly with nanoparticle-albumin-bound paclitaxel, a solvent-free form of paclitaxel that may be less prone to toxicity [10].

TEC usually starts with tingling or burning of the palms and soles, followed by well-defined areas of erythema and edema, which may progress to blistering or desquamation typically seen in this patient as well[11] .

Topical emollients, and avoidance of irritants are recommended. Strong topical corticosteroids may be required for the hands and feet. To add, a reduction in the dose may be required to control reactions and rarely the complete cessation of the drug [12].

Nonsteroidal anti-inflammatory drugs (NSAIDs) or ice packs/cold compresses can be beneficial in pain relied [12]. Small prospective and retrospective articles found that regional cooling and ice packing during Pegylated Liposomal Doxorubicin infusion resulted in a substantially lower incidence or delayed onset of TEC [15] Randomized clinical trials of women with gynecologic cancers, concluded that doses reduction decreased the frequency of TEC [13]. Docetaxel dose reduction from 160 mg to 120mg in our patient show marked improvement. Increasing the time between doses has also been shown to be beneficial, which was not required in our patient [14].

In our patient, reduction of the dose with adjuvant topical steroid and emollients showed significant response one week after initiation with complete resolution after three weeks.

The main limitation of this report is the number of cases, but we hope that by highlighting the spectra of toxic erythema of chemotherapy, this case will raise awareness of the clinical presentation and outcome of this cutaneous reaction due to chemotherapy.

4. Conclusion

Docetaxel should be considered as a potential cause of TEC. We report a case of TEC due to docetaxel infusion who was successfully treated with chemotherapy dose reduction, topical emollients and topical steroid. Early recognition of this cutaneous reaction due to docetaxel is important for reassurance of patient receiving this chemotherapeutic agent. TEC is usually self-limiting, however severe reaction may necessitate dose reduction as in this patient. Topical emollient and steroids can help as an adjuvant therapy. The authors present his case to shed light on the clinical picture of TEC and to add another case of this rare complication of Docetaxel.

References

[1] Nikolaou V, Syrigos K, Saif MW. Incidence and implications of chemotherapy related hand-foot syndrome. Expert Opin Drug Saf. 2016 Dec;15(12):1625-1633. doi: 10.1080/14740338.2016.1238067. Epub 2016 Oct 8. PMID: 27718746.

[2] Bolognia JL, Cooper DL, Glusac EJ. Toxic erythema of chemotherapy: a useful clinical term. J Am Acad Dermatol 2008; 59:524–9.

[3] Miller KK, Gorcey L, McLellan BN. Chemotherapy-induced hand-foot syndrome and nail changes: a review of clinical presentation, etiology, pathogenesis, and management. J Am Acad Dermatol. 2014 Oct;71(4):787-94. doi: 10.1016/j.jaad.2014.03.019. Epub 2014 May 1. PMID: 24795111.

[4] Susser W.S., Whitaker-Worth D.L. Grant-Kels JM. Mucocutaneous reactions to chemotherapy. *J Am Acad Dermatol.* 1999;40(3):367–398. quiz 399-400.

[5] Parker T, Coopoer DL, Seropian SE, Bolognia JL. Toxic erythema of chemotherapy following iv BU plus fludarabine for allogeneic PBSC transplant. Bone Marrow Transplant 2013; 48:646.

[6] Sibaud V., Dalenc F., Chevreau C., Roché H., Delord J.P., Mourey L. HFS-14, a specific quality of life scale developed for patients suffering from hand-foot Syndrome. *Oncologist.* 2011;16(10):1469–1478.

[7] Gressett S.M., Stanford B.L., Hardwicke F. Management of hand-foot syndrome induced by capecitabine. *J Oncol PharmPract.* 2006;12(3):131–141.

[8] Degen A., Alter M., Schenck F., Satzger I., Völker B., Kapp A. The hand-foot-syndrome associated with medical tumor therapy-classification andmanagement. *J Dtsch Dermatol Ges.* 2010;9(8):652–661.

[9] Zimmerman GC, Keeling JH, Lowry M, Medina J, Von Hoff DD, Burris HA: Prevention of docetaxel-induced erythrodysesthesia with local hypothermia. J Natl Cancer Inst 1994, 86(7):557-558.

[10] Dow E.N., Piccolo J., Segal E.M., Charlson J.A. Drug induced periarticular thenar erythema with onycholysis related to nano-albumin bound paclitaxel therapy. *Cancer Treat Commun.* 2015; 4:161–164.

[11] Qiao J., Fang H. Hand-foot syndrome related to chemotherapy. *Can Med Assoc J.* 2012;184(15):E818.

[12] Von Moos R., Thuerlimann B.J.K., Aapro M., Rayson D., Harrold K., Sehouli J. Pegylated liposomal doxorubicin-associated hand–foot syndrome: Recommendations of an international panel of experts. *Eur JCancer.* 2008;44(6):781–790.

[13] Coleman R.E., Biganzoli L., Canney P., Dirix L., Mauriac L., Chollet P. A randomised phase II study of two different schedules of pegylated liposomal doxorubicin in metastatic breast cancer (EORTC-10993) *Eur JCancer.* 2006;42(7):882–887.

[14] Lyass O., Uziely B., Ben-Yosef R., Tzemach D., Heshing N.I., Lotem M. Correlation of toxicity with pharmacokinetics of pegylated liposomal doxorubicin (Doxil) in metastatic breast carcinoma. *Cancer.* 2000;89(5):1037–1047.

[15] Bun S., Yunokawa M., Tamaki Y., Shimomura A., Shimoi T., Kodaira M. Symptom management: the utility of regional cooling for hand-foot syndrome induced by pegylated liposoma\l doxorubicin in ovarian cancer. *Support Care Cancer.* 2018;26(7):2161–2.