

# Dasatinib induced penile and scrotal edema a case report

Rakesh Bharti

*Bharti Derma care and research Centre, Amritsar, India*

**Corresponding author:** Rakesh Bharti, MD, E-mail: rakeshbharti1@gmail.com

## ABSTRACT

Dermatologist's opinion is often sought for various types of drug reactions/side effects-specially, if the effects are on skin, mucous membranes or genitals. Updating their knowledge about newer molecules (drugs) and their side effects, thus become a necessity. Dasatinib is a new USFDA approved Tyrosine kinase inhibitor for the treatment of those Chronic Myeloid Leukemias patients who cannot tolerate Imatinib or are resistant to imatinib. Dasatinib can cause fluid retention in some patients, which can lead to peripheral edema and pleural effusion. Penile and scrotal edema are unusual manifestation of that fluid retention and very few cases have so far been reported to my knowledge of this side effect. We reporting a case of scrotal and penile edema, who had a transitory relief on stoppage of drug, restricting fluid intake and vitamin E. Recognising this side effect could have prevented many investigations and various specialist consultations and nine months of agony in my case.

**Key words:** Tyrosine Kinase Inhibitor; Dasatinib; Scrotal and Penile edema

## INTRODUCTION

Reciprocal translocation of BCR gene on chromosome 22 and ABL gene on chromosome 9 leads to formation of BCR\_ABL oncoprotein [1] causing Chronic myeloid leukaemia (CML). Tyrosine kinase inhibitors (TKIs) like like Imatinib (first generation TKI), dasatinib, nilotinib, ponatinib and bosutinib, inhibit BCR\_ABL and are the mainstay of treatment for CML.

Dasatinib is a second generation TKI, which is 300 times more potent than imatinib, and was given USFDA approval in 2006 for CML patients resistant/intolerant to imatinib. Dasatinib has side effects of fluid retention (peripheral edema and pleural effusion) reported in some cases [2,3]. We reporting here a case of enormous scrotal and penile edema in him while on dasatinib treatment. Very few cases have been reported so far in literature to my knowledge [4].

## CASE REPORT

37 years young male developed loss of vision in one eye on 6,5,2015. On investigations, he was found to

have high total leucocyte count (210000/cubic mm) and further cytogenetic studies confirmed him to be suffering from chronic myeloid leukaemia. The oncologist, on referral, initiated Hydroxurea, which was found to ineffective. Two weeks later patient was put on Imatinib 400 mg daily, but the patient's condition kept on deteriorating and his body aches were so much that he needed a wheel chair to walk around. The patient was then switched to another TKI- Nilotinib 200 mg-2 tablet twice daily. It was working well but the oncologist was then forced to switch to Dasatinib 70mg daily, because of the cost of nilotinib. This change suited the patient but for swollen face, weight gain and darkening of his fair complexion but he continued the drug for next five years till the brand he was taking became unavailable. For want of availability, he had to stop the medication for two weeks. During these two weeks, the side effects disappeared to quite an extent. A New brand of same (Dasatinib) was restarted in November, 2020, in same 70 mg daily dosage. The facial swelling and mild pains returned and not only that now he even noticed an increase in size of his penis in girth and swollen scrotum, both of which effects were disturbing his day to day life. In

**How to cite this article:** Bharti R. Dasatinib induced penile and scrotal edema a case report. Our Dermatol Online. 2023;14(e):e7.

**Submission:** 07.07.2022; **Acceptance:** 04.11.2022

**DOI:** 10.7241/ourd.2023e.7

January 2021, he approached couple of urologists on the suggestion of the primary oncophysician, a nephrologist and an internal medicine specialist, who all ordered various tests (MRI;USG: Blood Chemistry etc) which were inconclusive in the direction of a diagnosis for penile and scrotal edema, except mild ascites and fluid in scrotal sac. There was no relief with any of the consultants treatment, which included antihistamines and tight scrotal support mainly. After nine months of running from pillar to post, In September'2021, he visited the author with swollen Scrotum and penis (Figs. 1a and 1b). We searched the literature, contacted the oncophysician and the patient was advised to stop Dasatinib and was given Vitamin E along with the advise of restricted fluid and salt intake. Penile edema and scrotal swelling decreased substantially (Figs. 1c and 1d) but his counts started going up, so he was started on another TKI-bosutinib, which patient is taking till date (7/22). Penile edema and scrotal swellings are back,although to lesser extent, yet patient has compromised to live with that side effect, as the benefit of drug (life) is more than side effects(Penile and scrotal swelling).

## DISCUSSION

Dasatinib is a relatively new second generation tyrosine kinase inhibitor which is effective against BCR\_ABL and is useful to treat Imatinib resistant/intolerant CML patients [5]. It has shown complete hematogenic and



**Figure 1:** (a) Scrotal edema, (b) Penile edema, (c) Reduced penile edema after stoppage of drug and other treatment, (d) Reduced scrotal edema

good cytogenic response (90% and 52%) in patients in median 8.3 months [3].

Dasatinib is known to cause fluid retention leading to pleural effusion and peripheral edema [2,3]. The side effect is seen more in patients on 140 mg or more daily dosage. The exact mechanism of fluid retention though not clear yet is supposed to be related to platelet derived growth factor Beta inhibition. This factor has been shown to regulate interstitial fluid homeostasis in mouse models [6].

Here is a case of CML being treated with dasatinib 70 mg daily only, who, is being reported to have mild ascites and large penile and scrotal swelling. The diagnosis was missed by many specialists for lack of awareness. The significant reduction of size of penis and scrotal swelling in a short span of 2 weeks had, however, been forced to compromise for larger reason of life and patient has accepted to learn to live with it. Still awareness about the side effect could have saved his nine months of agony and running from one specialist to other-hence the case report.

## CONCLUSION

Learning about newer drugs and their side effects being used by other specialists can be rewarding in terms of saving time, energy and money spent on investigations.

## Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

## REFERENCES

1. Barnes DJ, Melo JV. Cytogenetic and molecular genetic aspects of Chronic myeloid leukemia. *Acta Haematol.* 2002;108:180-202.
2. Quintás-Cardama A, Kantarjian H, O'Brien S, Borthakur G, Bruzzi J, Munden R, et al. Pleural effusion in patients with chronic myelogenous leukemia treated with dasatinib after imatinib failure. *J Clin Oncol.* 2007;25:3908-14.
3. Hochhaus A, Kantarjian HM, Baccarani M, Lipton JH, Apperley JF, Druker BJ, et al. Dasatinib induces notable hematologic and cytogenetic responses in chronic-phase chronic myeloid

- leukemia after failure of imatinib therapy. *Blood*. 2007;109:2303-9.
4. Jaina N, Kantarjiana H, Aulá P, Cortés J. Scrotal Edema associated with the use of Dastanib in patients with Chronic Myeloid Leukaemia. *Clin Leuk*. 2007;1:357-8.
  5. Shah NP, Tran C, Lee FY, Chen P, Norris D, Sawyers CL. Overriding imatinib resistance with a novel ABL kinase inhibitor. *Science*. 2004;305:399-401.
  6. Heuchel R, Berg A, Tallquist M, Ahlén K, Reed RK, Rubin K, et al. Platelet-derived growth factor beta receptor regulates interstitial

fluid homeostasis through phosphatidylinositol-3' kinase signaling. *Proc Natl Acad Sci U S A*. 1999;96:11410-5.

Copyright by Rakesh Bharti. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Source of Support:** This article has no funding source,

**Conflict of Interest:** The authors have no conflict of interest to declare.