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Bortezomib-Induced scrotal edema in a patient with beta thalassemia major and monoclonal gammopathy of renal significance: A rare adverse effect

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Abstract
We report a rare case of scrotal edema associated with Bortezomib therapy in a patient with beta thalassemia major and monoclonal gammopathy of renal significance (MGRS). While dexamethasone is a known cause of scrotal edema, this case highlights a possible role of Bortezomib as the causative agent, particularly in the context of recurrent symptoms despite steroid discontinuation. Clinicians should consider Bortezomib as a potential etiology in patients who develop unexplained scrotal swelling during therapy.

Keywords: Bortezomib, scrotal edema, beta thalassemia major, MGRS, erythema multiforme, proteasome inhibitor, adverse drug reaction

Introduction

Bortezomib, a proteasome inhibitor widely utilized in the management of hematological malignancies, is associated with a spectrum of recognized adverse effects. This case report presents an unusual and, to our knowledge, previously undescribed complication in a 34-year-old male with beta thalassemia major and monoclonal gammopathy of renal significance (MGRS): the development of recurrent scrotal edema temporally linked to Bortezomib therapy. While corticosteroids, often co-administered with Bortezomib, are known to cause fluid retention, the recurrence of scrotal swelling in this patient despite steroid discontinuation strongly implicates Bortezomib as a potential causative agent. This observation underscores the importance of recognizing rare and atypical adverse events associated with commonly used medications.

Case Report

A 34-year-old male with a known history of beta thalassemia major was diagnosed with monoclonal gammopathy of renal significance (MGRS). As per standard treatment protocol, he was initiated on Bortezomib and intravenous dexamethasone.

Following the third dose, the patient developed mild scrotal edema, which resolved spontaneously within three days. After the fourth dose, he presented with more severe scrotal swelling accompanied by painful skin lesions over the abdomen, difficulty in ambulation, and the need for support while walking. Ultrasonography of the scrotum showed significant scrotal wall edema without evidence of varicocele or hydrocele. Notably, serum albumin levels were within normal range, excluding hypoalbuminemia as a cause.

While the scrotal edema subsided without intervention, the associated erythematous plaque around the umbalicus persisted. Given that corticosteroids, particularly dexamethasone, are known to cause fluid retention and scrotal edema, the steroid was omitted from the next cycle. Despite this adjustment, the patient experienced a recurrence of symptoms after subsequent Bortezomib doses, with worsening scrotal swelling and erythema. A skin biopsy of the lesion was performed, revealing features consistent with gyrate erythema multiforme. There was also a component of mild cellulitis, which responded well to intravenous antibiotics.

Bortezomib therapy was subsequently discontinued and replaced with thalidomide. Since the switch, the patient has remained in remission for over two years, with no recurrence of scrotal edema or dermatologic manifestations.

Discussion

Scrotal edema is a rare and underreported side effect in patients receiving Bortezomib. While corticosteroids are a known contributor to fluid retention and peripheral edema, this case underscores a temporal relationship between Bortezomib administration and the recurrence of scrotal swelling—even in the absence of corticosteroid use. The presence of gyrate erythema multiforme and mild cellulitis further suggests a possible immune-mediated or inflammatory etiology.

To our knowledge, Bortezomib-induced scrotal edema has not been previously described in the literature. The resolution of symptoms upon discontinuation and substitution with thalidomide strengthens the causal association. Clinicians should maintain a high index of suspicion for this adverse effect in patients presenting with unexplained scrotal swelling during proteasome inhibitor therapy.

Conclusion

This case highlights a rare but important adverse effect of Bortezomib therapy. Scrotal edema, particularly when associated with cutaneous manifestations and in the absence of hypoalbuminemia or local structural abnormalities, may warrant consideration of drug-induced etiology. Further pharmacovigilance and case reporting are necessary to better characterize this potential side effect.

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