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Hemorrhagic Cellulitis in a Patient with Primary Lymphedema on Left Lower Limb : A Case Report

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Introduction

Hemorrhagic cellulitis is an uncommon manifestation of skin and soft tissue infection characterized by hemorrhagic bullae and rapid progression. Although lymphedema predisposes patients to recurrent cellulitis and lymphangitis, hemorrhagic cellulitis in lymphedematous limbs has been rarely reported. We report a case of rapidly progressive hemorrhagic cellulitis in a patient with primary lymphedema on Left lower limb.

Case report

A 63-year-old woman with primary lower-limb lymphedema presented with acute onset redness, warmth, and swelling of the left lower limb, particularly in the calf area, without preceding trauma.

Initial laboratory findings showed marked inflammatory response: white blood cell count (WBC) 21.88 $\times 10^3/\mu L$ and high-sensitivity C-reactive protein (HS-CRP) 18.94 mg/dL. On hospital day 2, inflammatory markers further increased (WBC 24.77 $\times 10^3/\mu L$, HS-CRP 27.24 mg/dL).

After admission, the erythematous lesion rapidly extended proximally to thigh with persistent swelling. Multiple hemorrhagic bullae subsequently developed over the affected area.

Cefazolin as empirical antibiotics was initiated. However, due to rapid progression, we escalated antibiotics to vancomycin and subsequently to teicoplanin and piperacillin/tazobactam under Division of Infectious Diseases consultation.

Contrast-enhanced 3D angio-venogram computed tomography demonstrated diffuse edematous change without evidence of deep vein thrombosis or gas formation.

An incisional skin biopsy performed by the Department of Dermatology revealed subepidermal bullae with acute inflammation and hemorrhage, without evidence of vasculitis or fascial necrosis.

Given the prominent inflammatory reaction with hemorrhagic bullae, adjunctive methylprednisolone (8 mg twice daily) was administered. Following antibiotic escalation and short-course corticosteroid therapy, the hemorrhagic bullae, erythema, warmth, and swelling gradually improved, accompanied by a progressive decline in inflammatory markers. Clinical improvement was observed within two weeks. By hospital day 12, the WBC count normalized (6.64 $\times 10^3/\mu L$) and HS-CRP decreased to 0.240 mg/dL. Corticosteroids were subsequently tapered.

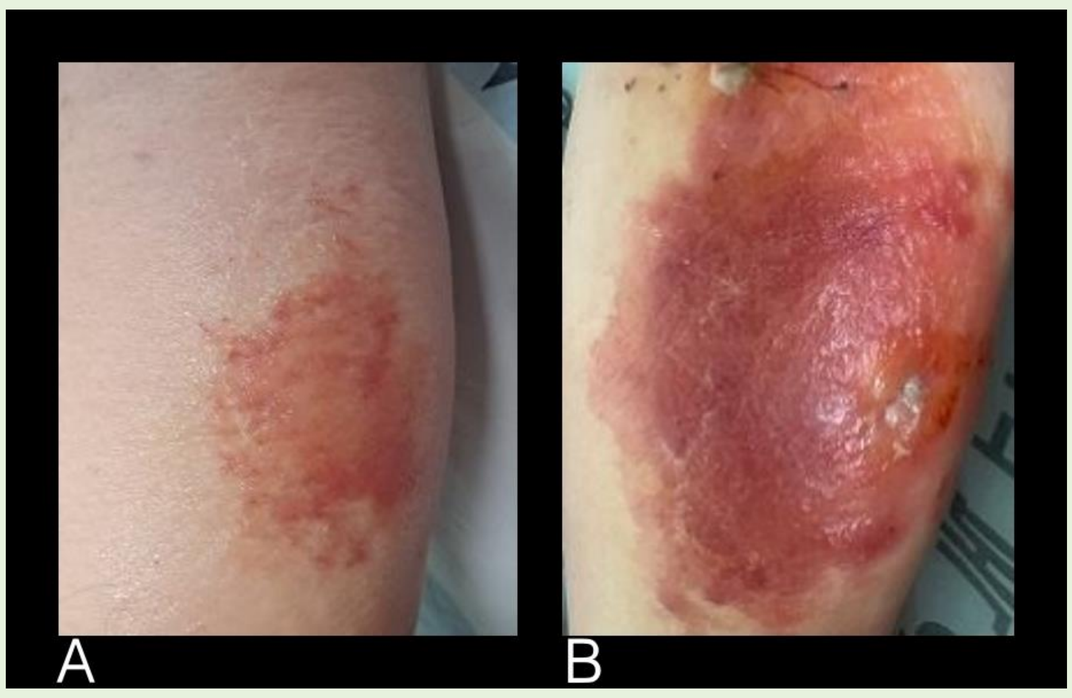
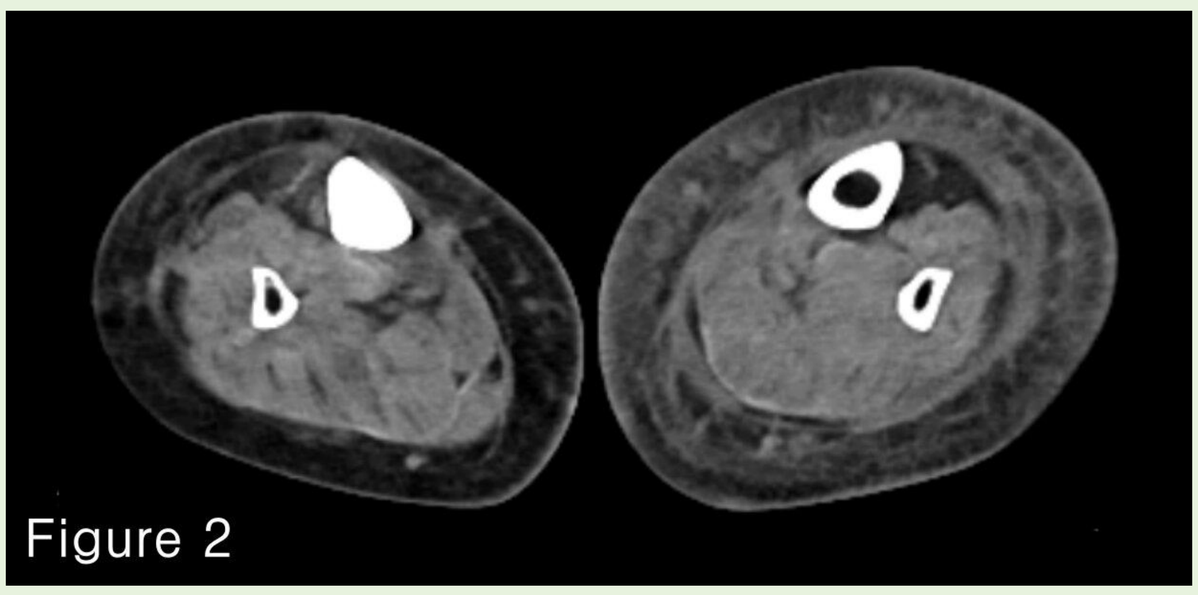


Figure 1.
(A) Clinical photograph on hospital day (HOD) 1 showing an ill-defined erythematous patch on the left lower limb (calf region). Diffuse erythema is present without definite bullae or hemorrhagic changes. (B) Clinical photograph on hospital day (HOD) 3 demonstrating marked progression of erythema with extensive swelling. Multiple hemorrhagic bullae and dark red to violaceous discoloration are evident, compatible with rapidly progressive hemorrhagic cellulitis.



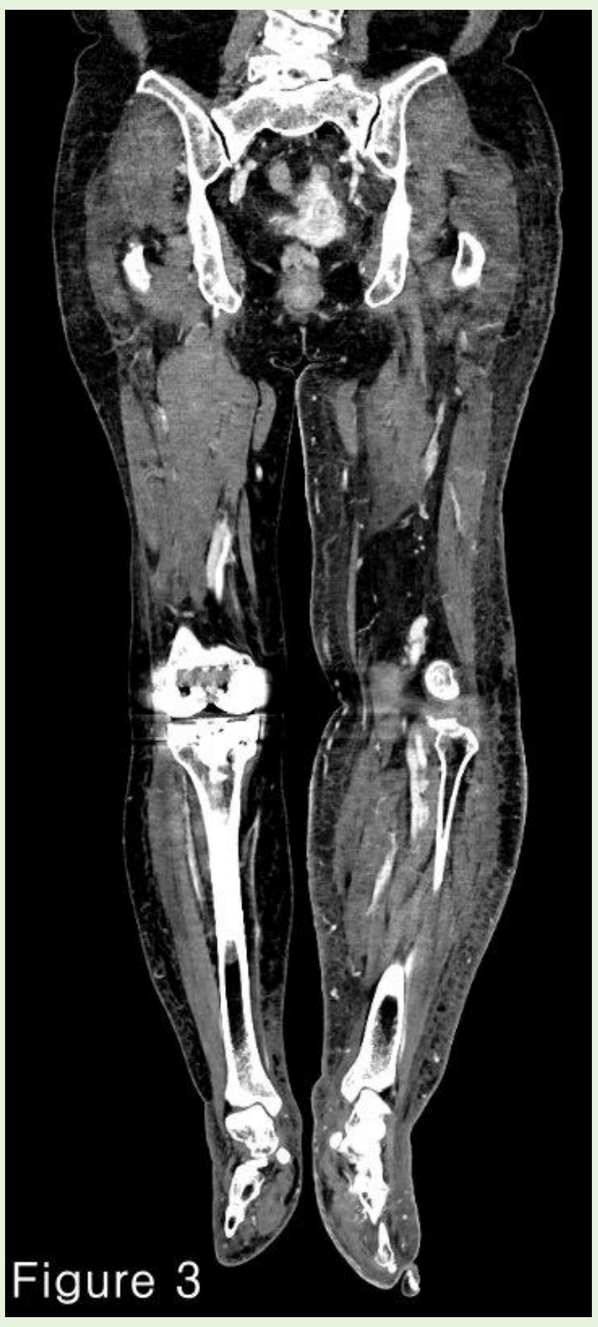


Figure 2 and 3.
Contrast-enhanced 3D angio-venogram computed tomography of the lower extremities (axial and coronal view) demonstrating diffuse subcutaneous edema of the left lower limb without evidence of deep vein thrombosis or gas formation.

Discussion

Hemorrhagic cellulitis is a rare clinical presentation of skin and soft tissue infection that may demonstrate atypical inflammatory features. In patients with chronic lymphedema, impaired lymphatic drainage predisposes to recurrent infection and exaggerated inflammatory responses. Although uncommon, hemorrhagic cellulitis can occur in lymphedematous limbs and should be recognized as a possible inflammatory presentation. Therefore, when hemorrhagic bullae develop in a limb affected by lymphedema, hemorrhagic cellulitis should be included in the differential diagnosis.