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CASE REPORT

Successful Treatment of Refractory Livedoid Vasculopathy with Upadacitinib: A Case Report

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Purpose: While tofacitinib, baricitinib, and abrocitinib demonstrate efficacy in livedoid vasculopathy (LV), this study evaluates upadacitinib—a distinct Janus kinase (JAK) inhibitor—in refractory LV.

Patients and Methods: A 54-year-old female with treatment-resistant LV received upadacitinib (15 mg/day). Treatment response was assessed via composite clinical scores pre- and post-therapy.

Results: Significant improvement occurred within 24 days (score: 7→2), indicating remission. Pain intensity markedly decreased, and near-complete ulcer healing was observed by day 52. No adverse effects were observed, with the exception of orolabial herpes simplex.

Conclusion: Upadacitinib represents a novel therapeutic alternative for LV. Larger cohorts are needed to validate these findings.

Keywords: livedoid vasculopathy, upadacitinib, JAK inhibitor

Introduction

Livedoid vasculopathy (LV) is a chronic, painful thrombo-occlusive condition of the microvasculature. Its clinical presentation includes reticulated erythema, purpuric lesions, and refractory ulcers on the lower extremities, often exhibiting symptomatic exacerbation during the summer. Histopathology reveals fibrinoid vascular occlusion, thrombosis, and endothelial proliferation, implicating hypercoagulability and inflammation.[1] The estimated annual incidence of LV is approximately 1 per 100,000 individuals, with a female-to-male ratio of roughly 3:1.[2] The management of LV remains challenging, which is attributed to the variability in treatment response among existing therapeutic options and the substantial proportion of refractory cases. Current therapeutic strategies encompass conventional approaches including antiplatelet agents, anticoagulants, and immunosuppressants, as well as the option of Janus kinase (JAK) inhibitors.[2] Although JAK inhibitors (tofacitinib/baricitinib/abrocitinib) show efficacy in LV,[3–6] Baricitinib, which selectively inhibits JAK1 and JAK2, is frequently used in the treatment of LV by blocking cytokine signaling pathways and antagonizing the effects of inflammatory cytokines.[4] The median time to remission following baricitinib initiation was 7.75 weeks.[4] Upadacitinib, a highly selective JAK1 inhibitor, has demonstrated robust efficacy in the treatment of various immune-mediated disorders, including atopic dermatitis and rheumatoid arthritis. However, the role of upadacitinib in the management of LV remains largely unexplored and warrants further investigation. We present a refractory LV case to investigate its potential.

Case Presentation

A 54-year-old woman presented with a 3-month history of refractory purpuric lesions and painful ulcers on the lower legs and dorsal feet, showing no improvement after compound glycyrrhizinate and betamethasone injections. Clinical examination of the lower extremities revealed bilateral, tender, focal, purpuric ulcerative lesions accompanied by

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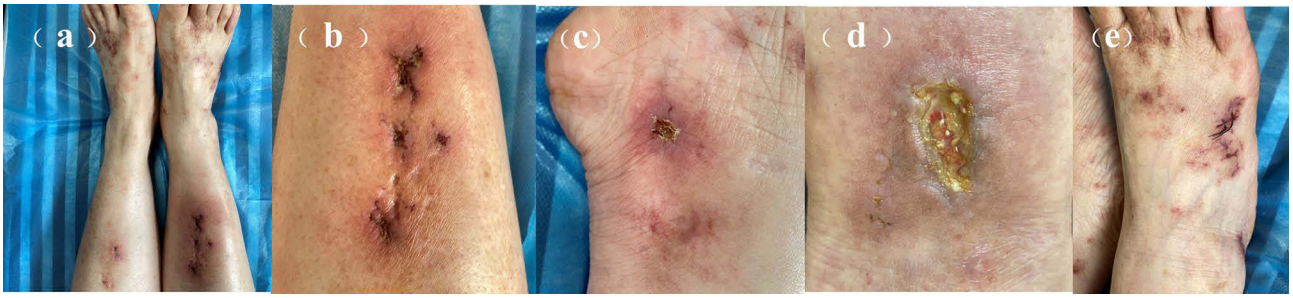

Figure 1 Clinical Images of the lower limb before the upadacitinib treatment. (**a**) Bilateral tender purpuric ulcers with atrophic scarring, telangiectasias, hemosiderin deposition, and hyperpigmentation on the lower extremities; (**b**) Multiple tender ulcers with violaceous erythematous borders on right pretibial skin; (**c**) Ulcer with violaceous erythematous border on right medial malleolus; (**d**) Deep ulcer with erythematous border superior to right lateral malleolus; (**e**) Multiple purpuric eruptions and ulcers on right dorsal foot.

atrophic scarring, telangiectasias, hemosiderin deposition, and hyperpigmentation (Figure 1a). Additionally, multiple tender ulcers surrounded by violaceous erythema were observed on the right pretibial area (Figure 1b), medial malleolus (Figure 1c), and lateral malleolus (Figure 1d), with scattered purpuric changes noted on the dorsal right foot (Figure 1e). The clinical scoring scale consisted of three evaluation dimensions to assess the clinical severity of the condition before and after treatment with upadacitinib. The total score ranged from 0 to 8, with the following items being rated: pain (0 = none; 1 = mild; 2 = moderate; 3 = severe), ulceration (0 = intact skin; 1 = erosion; 2 = ulceration), and erythema (0 = none; 1 = mild; 2 = moderate; 3 = severe). The composite clinical score was 7 (severe pain: 3; ulceration: 2; moderate erythema: 2). Laboratory investigations—including complete blood count, renal function, coagulation profile, erythrocyte sedimentation rate, autoantibodies (Anti-Neutrophil Cytoplasmic Antibodies, Extractable Nuclear Antigens, anticardiolipin, rheumatoid factor), complement levels, viral serologies (hepatitis, Epstein–Barr virus, Cytomegalovirus), and T-cell Spot Test for Tuberculosis—were within normal limits. Histopathological examination at three different magnifications revealed the following features: parakeratosis with capillary proliferation in the superficial dermis and densely arranged collagen bundles in the mid to deep dermis (Figure 2a); occluded small vessels with intravascular hyaline thrombi and mild perivascular lymphocytic infiltration in the superficial dermis (Figure 2b); and fibrinoid deposition in the walls of superficial dermal vessels accompanied by extensive extravasation of erythrocytes (Figure 2c). Initiation of upadacitinib (15 mg/day) resulted in rapid pain reduction (score 7→3 on day 1), erythema fading with crust formation by day 4 (Figure 3Aa–Ae), partial eschar detachment on day 9 (Figure 3Ba–Be), and clinical remission (score 2) by day 24 (Figure 3Ca–Ce). At day 52, near-complete healing was observed with only a pea-sized eschar persisting at the right malleolar ulcer (Figure 3Da–De). The sole adverse event was self-resolved herpes labialis on day 3 (Figure 4), with no laboratory abnormalities detected.

Discussion

Livedoid vasculopathy (LV) presents a complex pathogenic landscape where consensus remains elusive. The currently reported pathophysiological mechanisms of this disease encompass plasmatic hypercoagulability, impaired fibrinolysis, platelet hyperaggregability, T-cell activation, and endothelial dysfunction.[7] Therapeutic strategies—including anticoagulants, platelet inhibitors, vasodilators, and immunosuppressants—yield inconsistent outcomes. Rivaroxaban was the most frequently administered anticoagulant, followed by low-molecular-weight heparin, unfractionated heparin, and warfarin.[7] While rivaroxaban demonstrates efficacy in select cohorts,[8] agents targeting inflammatory pathways (eg, TNF-α inhibitors [adalimumab/etanercept],[9] rituximab,[10] IVIg,[11] anabolic steroids,[12] ozone therapy[13]) underscore the role of immune activation. Notably, rituximab may uniquely mitigate associated neuropathic symptoms.[10]

Mechanistically, upadacitinib competitively inhibits ATP binding to JAKs, suppressing kinase activity and STAT phosphorylation.[14] Its pronounced selectivity for JAK1 (>40-fold vs JAK2)[15] enables targeted modulation of cytokine signaling (eg, IL-6/IL-7).[16] Common trial-associated AEs include acne, upper respiratory infections, and CPK elevation.[15] Our patient experienced only self-limiting herpes labialis, with no hepatic, renal, hematologic, or metabolic disturbances.

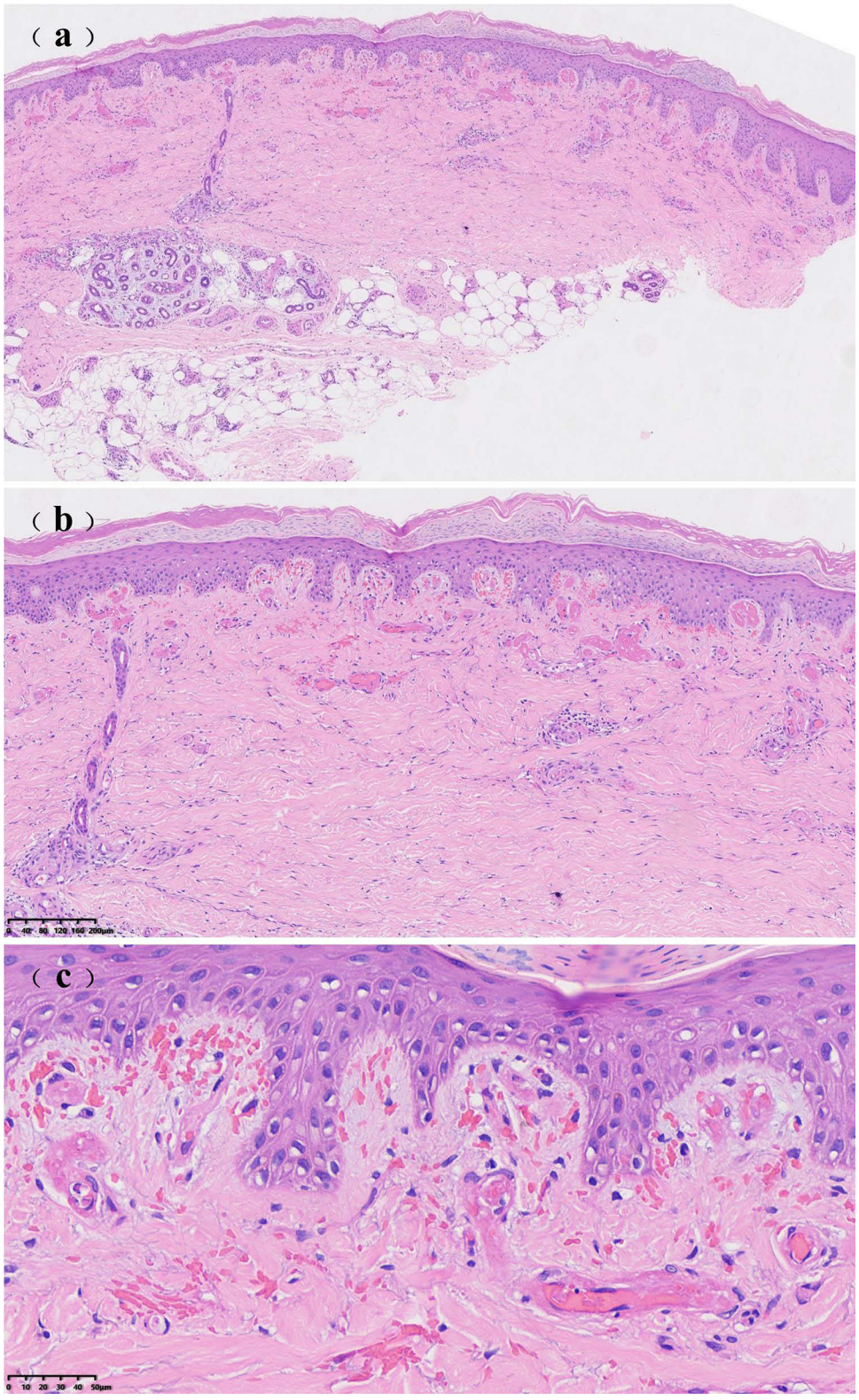

Figure 2 Histopathological image of the skin lesion on the right dorsal foot. (**a**) Parakeratosis; capillary proliferation in superficial dermis; densely arranged collagen bundles in mid and deep dermis (HE×40); (**b**) Occluded small vessels with hyaline thrombi in superficial dermis; mild perivascular lymphocytic infiltration (HE×100); (**c**) Fibrinoid deposition in superficial dermal vessel walls with extensive extravasated erythrocytes (HE×400).

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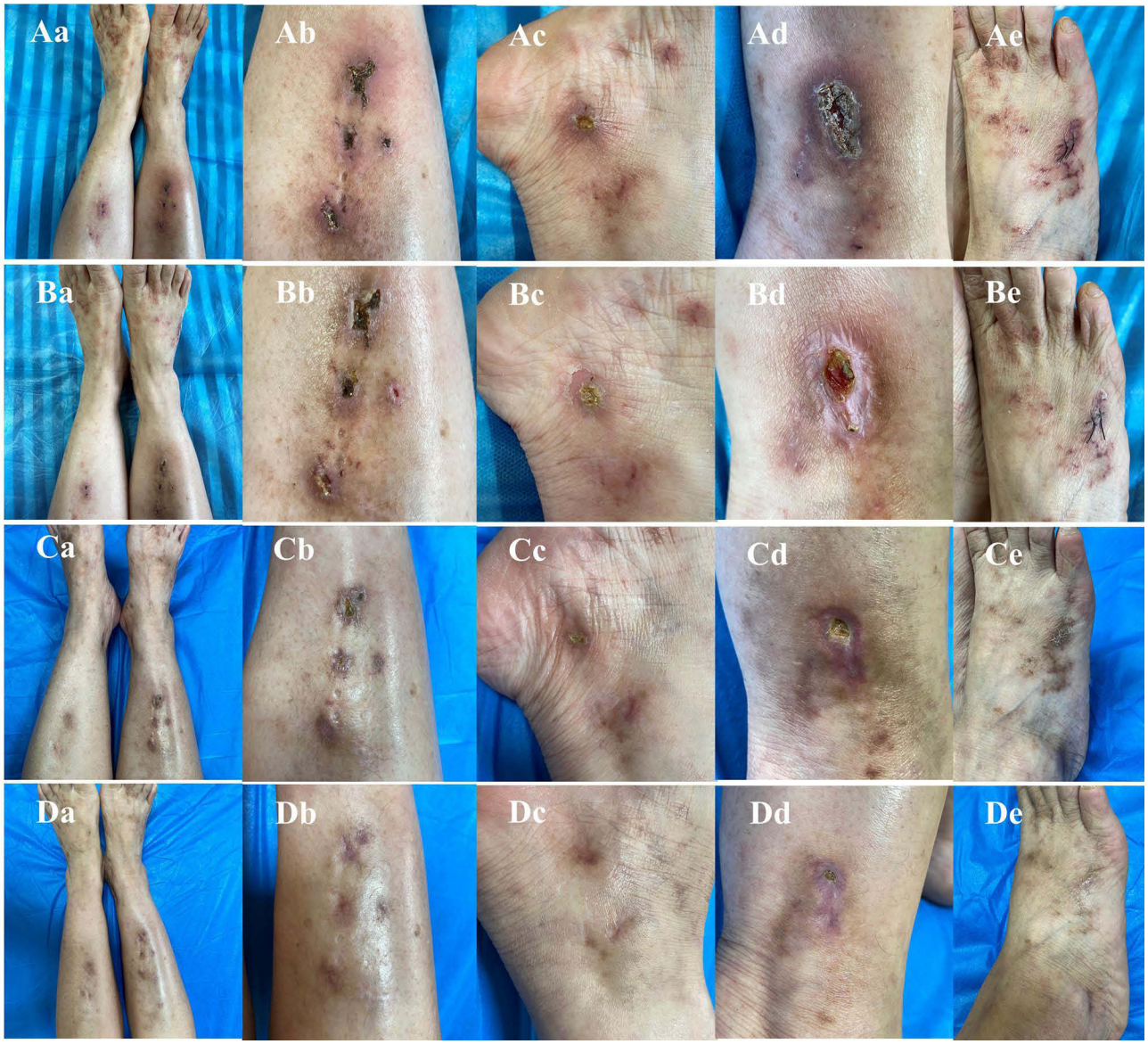

Figure 3 Clinical Images of the lower limb during the upadacitinib treatment (From left to right: overall view, right anterior tibial region, right medial malleolus, right lateral calf, and right dorsum of the foot) (**Aa**–**Ae**) 4 days of upadacitinib treatment. (**Ba**–**Be**) 9 days of upadacitinib treatment. (**Ca**–**Ce**) 24 days of upadacitinib treatment. (**Da**–**De**) 52 days of upadacitinib treatment.

Two key innovations are presented in this study. Therapeutic Alternative: JAK inhibitors rescue ~41.5% of LV cases refractory to conventional therapy.[6,16] Baricitinib (2–4 mg/day) dominates current reports,[16,17] but upadacitinib introduces a new option. Accelerated Response: Our patient achieved remission in 24 days—approaching the lowest reported value for baricitinib while remaining below its mean (Mean remission time: 7.75 ± 3.45 weeks; range, 3–13).[4] This contrasts with rivaroxaban's 7.8-week median for 50%. In a separate case series, baricitinib treatment resulted in complete lesion healing within 1, 2, and 6 months in three patients with LV.[18] Additional cases are necessary to further substantiate these findings.

Conclusion

In conclusion, while livedoid vasculopathy poses persistent therapeutic challenges, this first documented case establishes upadacitinib as a viable JAK inhibitor alternative for refractory disease. The observed rapid clinical remission (24 days) and healing of deep ulcers highlight its potential efficacy. Prospective multi-center studies with larger cohorts are warranted to validate these preliminary findings and define optimal dosing regimens.

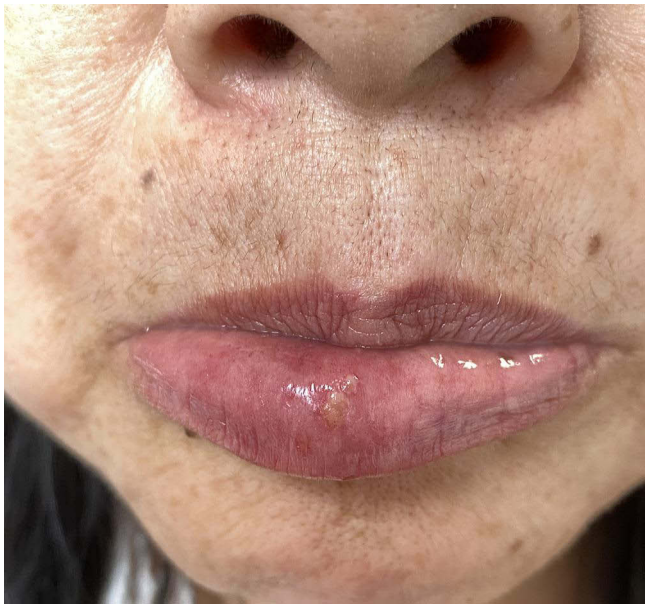

Figure 4 Clinical photograph of herpes labialis.

Ethics Statement

The patient provided written informed consent for publication of this report and accompanying images. The Ethics Committee of Jiangxi Provincial Dermatology Hospital has approved the publication of the case details.

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These authors contributed equally to this work. Cuiqin Wang and Xiaobing Wang are the first co-authors of this study.

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Disclosure

The authors report no conflicts of interest in this work.

References

1. Kerk N, Goerge T. Livedoid vasculopathy - current aspects of diagnosis and treatment of cutaneous infarction. *J Dtsch Dermatol Ges*. 2013;11(5):407–410. doi:10.1111/ddg.12064
2. Vasudevan B, Neema S, Verma R. Livedoid vasculopathy: a review of pathogenesis and principles of management. *Indian J Dermatol Venereol Leprol*. 2016;82(5):478–488. doi:10.4103/0378-6323.183635
3. Mansouri P, Mozafari N. Effective Treatment of Livedoid Vasculopathy With Oral Tofacitinib. *Clin Case Rep*. 2025;13(6):e70536. doi:10.1002/ccr3.70536
4. Han Y, Tu P. Baricitinib is potentially effective in the treatment of refractory livedoid vasculopathy. *Front Immunol*. 2022;13:1008392. doi:10.3389/fimmu.2022.1008392
5. Liu C, Jin YY, Han X, et al. Baricitinib Successfully Treated a Teenager with Refractory Livedoid Vasculopathy: a Case Report and Literature Review. *J Inflamm Res*. 2025;18:1471–1477. doi:10.2147/JIR.S495481
6. Chen P, Liang J, Li C, et al. Abrocitinib as a Novel Treatment for Multiple Skin Disorders: 3 Case Reports and a Scoping Review. *Clin Cosmet Invest Dermatol*. 2024;17:35–40. doi:10.2147/CCID.S446369
7. Eswaran H, Googe P, Vedak P, et al. Livedoid vasculopathy: a review with focus on terminology and pathogenesis. *Vasc Med*. 2022;27(6):593–603. doi:10.1177/1358863X221130380
8. Weishaupt C, Strölin A, Kahle B, et al. Anticoagulation with rivaroxaban for livedoid vasculopathy (RILIVA): a multicentre, single-arm, open-label, phase 2a, proof-of-concept trial. *Lancet Haematol*. 2016;3(2):e72–9. doi:10.1016/S2352-3026(15)00251-3
9. Gao Y, Jin H. Efficacy of an anti-TNF-alpha agent in refractory livedoid vasculopathy: a retrospective analysis. *J DermatolTreat*. 2022;33(1):178–183. doi:10.1080/09546634.2020.1737634
10. Bennett DD, Ohanian M, Cable CT. Rituximab in severe skin diseases: target, disease, and dose. *Clin Pharmacol*. 2010;2:135–141. doi:10.2147/CPAA.S10929

11. Ozden MG, Ozdemir H, Şenturk N. Intravenous immunoglobulin in resistant livedoid vasculopathy: analysis of a case series. *Dermatol Ther*. 2020;33(2):e13229. doi:10.1111/dth.13229
12. Micieli R, Alavi A. Treatment for Livedoid Vasculopathy: a Systematic Review. *JAMA Dermatol*. 2018;154(2):193–202. doi:10.1001/jamadermatol.2017.4374
13. Ozturk GY, Kocyigit BF. Healing refractory livedoid vasculopathy-related skin ulcers by ozone therapy: a case-based review. *Rheumatol Int*. 2024;44(2):369–377. doi:10.1007/s00296-023-05504-1
14. Liu Y, Li T, Shi W. Janus kinase inhibitors and biologics for treatment of livedoid vasculopathy: a systematic review. *J DermatolTreat*. 2025;36(1):2451804. doi:10.1080/09546634.2025.2451804
15. Parmentier JM, Voss J, Graff C, et al. In vitro and in vivo characterization of the JAK1 selectivity of upadacitinib (ABT-494). *BMC Rheumatol*. 2018;2(1):23. doi:10.1186/s41927-018-0031-x
16. Mohamed MF, Beck D, Camp HS, et al. Preferential Inhibition of JAK1 Relative to JAK3 by Upadacitinib: exposure-Response Analyses of Ex Vivo Data From 2 Phase 1 Clinical Trials and Comparison to Tofacitinib. *J Clin Pharmacol*. 2020;60(2):188–197. doi:10.1002/jcph.1513
17. Burmester GR, Cohen SB, Winthrop KL, et al. Safety profile of upadacitinib over 15 000 patient-years across rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and atopic dermatitis. *RMD Open*. 2023;9(1):e002735. doi:10.1136/rmdopen-2022-002735
18. Song X, Tu P. Treatment of Livedoid Vasculopathy With Baricitinib. *JAMA Dermatol*. 2022;158(5):587–589. doi:10.1001/jamadermatol.2022.0241