

CASE REPORT

Open Access



Vasculitis associated with psoriatic arthritis: a case report

Mehdi Jafarpour¹ , Bitra Rahbari² , Bahareh Mehramuz³ and Sara Daneshvar^{4*}

Abstract

Background Psoriatic arthritis is a chronic inflammatory condition associated with psoriasis, which affects joints. The coexistence of vasculitis, an inflammation of blood vessels, with psoriatic arthritis is rare, highlighting a complex interplay between autoimmune diseases that affect both joints and vascular structures.

Case presentation We report on a 56-year-old male with a long-standing history of psoriasis and psoriatic arthritis, who presented with new-onset skin lesions and neurological symptoms. Clinical evaluations confirmed the presence of leukocytoclastic vasculitis and asymmetric sensory motor axonal neuropathy. The absence of positive results from various standard tests led to a challenging diagnostic process, ultimately pointing towards vasculitis associated with psoriatic arthritis. The patient was treated with corticosteroids and immunosuppressive therapy, leading to partial symptom improvement.

Conclusions This case underlines the complex and often overlapping nature of autoimmune conditions, particularly the occurrence of vasculitis in patients with psoriatic arthritis, which is rare. It stresses the importance of considering vasculitis in patients with psoriatic arthritis who present with unexplained skin lesions and neurological symptoms. This case adds to the spectrum of psoriatic disease manifestations and suggests a need for further research to explore the underlying mechanisms and improve management strategies.

Keywords Vasculitis, Psoriatic arthritis, Psoriasis, Arthritis, Case report

Background

Psoriasis and psoriatic arthritis (PsA) are chronic immune-mediated conditions affecting the skin and joints, sharing a common genetic basis and involving inflammatory pathways. Despite advancements in understanding their pathophysiology and identifying

therapeutic targets, early diagnosis and effective management remain challenging, adding to the burden on individuals and healthcare systems [1–3]. The complexity of psoriasis and PsA underscores the need for continued exploration to enhance diagnostic precision and therapeutic outcomes. In this context, the article delves into a specific case that sheds light on the intricate relationship between psoriasis arthritis and vasculitis. Vasculitis, often associated with infectious processes, hematologic neoplasms, and autoimmune conditions, has rarely been described in conjunction with psoriasis or PsA [4, 5]. The presented case involves a male with vasculitis alongside a preexisting diagnosis of psoriatic arthritis, prompting a comprehensive review of the literature to inform clinical manifestations for this unusual concurrence.

*Correspondence:

Sara Daneshvar
daneshvarsara@yahoo.com

¹ Rheumatology at Connective Tissue Diseases Research Center, Imam Reza Hospital, Tabriz University of Medical Sciences, Flat 2, Tabriz, Iran

² Rheumatology Connective Tissue Diseases Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

³ Pathology at Clinical Research Development Unit, Sina Educational, Research, and Treatment Center, Tabriz University of Medical Sciences, Tabriz, Iran

⁴ Tuberculosis and Lung Disease Research Center, Tabriz University of Medical Sciences, Tabriz, Iran



Case history

The patient is a 56-year-old male with a two-decade history of psoriasis and psoriatic arthritis (Fig. 1a). Psoriasis was diagnosed at 36, followed by PsA at 41. The pattern of PsA involves both peripheral and axial involvement, presenting initially with pain and swelling in the small joints of the hands and feet, progressing to include spinal involvement, characterized by morning stiffness and

limited range of motion. The type of psoriasis is chronic plaque psoriasis, which predominantly affects the scalp, elbows, and knees, with occasional flare-ups (Fig. 1b).

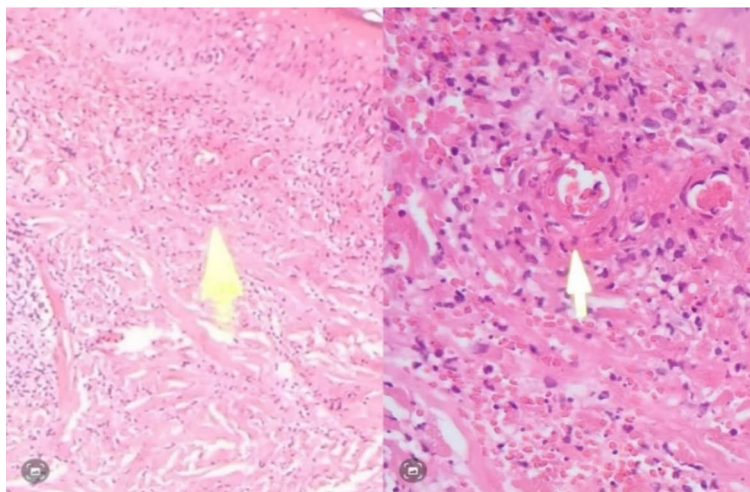
The patient's medication history includes sporadic use of NSAIDs to manage joint pain and inflammation. Methotrexate was not used in his treatment. Short courses of oral prednisone were administered during severe flare-ups of PsA, which were tapered off as



b: Clinical Presentation - Skin Lesions on Both Shins with petechiae and Purpura



a: Lateral Cervical Spine X-ray - Illustrating cervical syndesmophytes in Psoriatic arthritis



c: The biopsy of skin lesions on the shins. 10x and 40x magnifications. Dense perivascular and interstitial mixed inflammation in dermis, RBC extravasation, Leukocytoclasia and fibrinoid necrosis in vessel wall

Fig. 1 Radiology (a), clinical (b), and pathology (c) manifestations of the patient. **a** Lateral cervical spine X-ray — illustrating cervical syndesmophytes in psoriatic arthritis. **b** Clinical presentation — skin lesions on both shins with petechiae and purpura. **c** The biopsy of skin lesions on the shins. 10x and 40x magnifications. Dense perivascular and interstitial mixed inflammation in dermis, RBC extravasation, leukocytoclasia, and fibrinoid necrosis in vessel wall

symptoms improved. The patient did not use biologics such as etanercept, adalimumab, or secukinumab. Other medications included intermittent use of topical corticosteroids for psoriasis lesions, and disease-modifying antirheumatic drugs (DMARDs) were not used.

The patient denies smoking or alcohol use and has no significant family history of autoimmune diseases. There is no history of recent infections. A month ago, he presented with new-onset skin lesions on both shins, characterized by petechiae and purpura, along with numbness and tingling in both feet. The skin biopsy was performed 2 weeks after the initial appearance of the skin eruptions. He did not report any constitutional symptoms such as fever, weight loss, or malaise at the time of the skin eruptions. A rheumatology clinic examination revealed restricted neck movements in all directions, with normal hip, back, and peripheral joint examinations, and no observable psoriatic skin lesions at the time.

Methods

Differential diagnosis

The differential diagnosis considered included vasculitic syndromes, neurological disorders associated with psoriatic arthritis, and other causes of cutaneous manifestations such as drug reactions or infectious etiologies [6, 7].

Investigation

Further assessments, including tests for vasculitis and electromyography and nerve conduction velocity (EMG-NCV), were conducted alongside a skin biopsy. EMG-NCV results indicated asymmetric sensory motor axonal neuropathy, while the skin biopsy revealed leukocytoclastic vasculitis. In Fig. 1c, fibrinoid necrosis and RBC extravasation, along with mixed inflammation, are evident. Chest X-ray and sinus examinations showed no abnormalities and laboratory tests, which are shown in Table 1. Although a kidney biopsy was recommended, the patient declined.

The patient provided signed informed consent for the utilization of his information in composing a case report publication.

Treatment

Based on the data, vasculitis associated with psoriatic arthritis was suspected. The patient initiated treatment with prednisolone (30 mg/day) and azathioprine (100 mg/day). Currently, he undergoes ongoing treatment and monitoring.

Discussion

Our case contributes to the evolving understanding of vasculitis linked to psoriatic arthritis, unveiling its unique characteristics and potential complications.

Table 1 Laboratory tests

HLA-B27	Negative
RF	Negative
Anti-CCP	Negative
ANA	Negative
Anti-dsDNA	Negative
C-ANCA	Negative
P-ANCA	Negative
Cryoglobulin	Negative
HBS-Ag	Negative
ESR	40 (normal \leq 20)
CRP	47 (normal \leq 6)
WBC	7500
Hb	13.3
Plt	264,000
Cr	1.1
Urea	31
LFT	Normal
U/A	3+ protein, no RBC
24-h urine protein test	1626 mg/dl

HLA-B27 Human leukocyte antigen, B27 RF Rheumatoid factor, Anti-CCP Anti-cyclic citrullinated, peptide ANA Antinuclear antibody, Anti-dsDNA Anti-double-stranded DNA, C-ANCA Cytoplasmic anti-neutrophil cytoplasmic antibody, P-ANCA Perinuclear anti-neutrophil cytoplasmic antibody, HBS-Ag Hepatitis B surface antigen, ESR Erythrocyte sedimentation rate, CRP C-reactive protein, WBC White blood cell count, Hb Hemoglobin, Plt Platelet count, Cr Creatinine, LFT Liver function tests, U/A Urinalysis

In comparison to previously documented cases, our patient's journey unfolds without exposure to specific medication, highlighting the broad spectrum of vasculitic complications in psoriatic arthritis. For example, in a study by Moreno et al., cases elucidate a connection between psoriasis, vasculitis, and nephropathy induced by MTX. Notably, patients experienced complications during MTX treatment, resulting in renal failure and exacerbated psoriasis. The distinctiveness of our case lies in the absence of MTX exposure, shedding light on the intricate nature of vasculitic complications within psoriatic arthritis, irrespective of specific medications [8].

Our case introduces vasculitis in a patient with psoriatic arthritis, showcasing the diverse presentations within psoriatic diseases, extending beyond typical skin manifestations. A similar case has been reported in an older case report by T. Demitsu that presents a compelling case involving a 51-year-old Japanese man with a unique pustulosis, suggesting a distinct form of pustular vasculitis separate from pustular psoriasis [9]. Another study discusses cases of pustular vasculitis secondary to streptococcal infection, primarily involving the dorsal hands and responding well to intravenous methylprednisolone [10]. While both cases share elements of pustular vasculitis, our patient's lack of systemic symptoms and distinctive

skin lesions differentiates our case. Additionally, our patient did not report any recent infections.

Notably, recent literature has highlighted cases of vasculitis associated with biologic treatments, particularly anti-IL-17 therapies such as secukinumab. Anti-IL-17 agents have shown efficacy in treating both psoriasis and PsA by targeting the inflammatory cytokine IL-17, which plays a crucial role in the pathogenesis of these conditions. However, there have been reports of vasculitis occurring as a complication of these treatments. For instance, cases of cutaneous leukocytoclastic vasculitis have been documented in patients treated with secukinumab for PsA, with symptoms emerging after months of therapy. These cases suggest a complex interplay between biologic treatment and immune-mediated vascular inflammation. It is essential to monitor patients on biologic therapies for potential adverse effects, including vasculitis, to ensure comprehensive patient care and timely intervention [11, 12].

Adding depth to the discussion, the exploration of the correlation between psoriasis and psoriatic arthritis is further enriched. By considering clinical observations, genetic approaches, and therapeutic studies, these insights contribute to a more comprehensive understanding of the intricate relationship between these interconnected conditions [13]. Emphasizing the critical importance of early diagnosis for psoriatic arthritis and psoriasis, the need to promptly rule out conditions mimicking PsA is highlighted for timely therapeutic interventions [14].

Collectively, these comparisons underscore the complexity and multifaceted nature of vasculitis associated with psoriatic arthritis, emphasizing the need for continued exploration and individualized patient care strategies within the spectrum of “psoriatic disease.”

Conclusion

In conclusion, the complexities of psoriatic arthritis extend beyond joints and skin, involving vascular manifestations that merit attention. Further research is warranted to elucidate the underlying mechanisms and optimize treatment strategies. This case underscores the importance of individualized patient care, considering the unique aspects of each presentation within the spectrum of psoriatic diseases.

Abbreviations

PsA	Psoriatic arthritis
NSAIDs	Nonsteroidal anti-inflammatory drugs
EMG-NCV	Electromyography and nerve conduction velocity
RBC	Red blood cells
MTX	Methotrexate

Acknowledgements

We would like to express our gratitude to the patient who generously agreed to participate in this case report. Special thanks to the medical and support

staff at the respective centers for their invaluable assistance in patient care and data collection.

Authors' contributions

MJ, conceptualization, investigation, and writing — review and editing. BR, data curation, visualization, and review and editing. BM, data curation, visualization, and review and editing. SD, supervision, project administration, and writing — original draft preparation..

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The authors thank the Tabriz University of Medical Sciences for providing access to medical facilities and patient data.

Availability of data and materials

The data used during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This case report was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Received: 13 April 2024 Accepted: 31 August 2024

Published online: 12 September 2024

References

- Menter A (2016) Psoriasis and psoriatic arthritis overview. *Am J Manag Care* 22(8 Suppl):s216-24
- Azuaga AB, Ramírez J, Cañete JD (2023) Psoriatic arthritis: pathogenesis and targeted therapies. *Int J Mol Sci* 24(5):4901
- Schön MP, Wilsmann-Theis D (2023) Current developments and perspectives in psoriasis. *J Dtsch Dermatol Ges* 21(4):363–72
- Urrea-Pineda LY, Gómez-Jiménez S, Jaramillo-Arroyave D, Muñoz-Vahos CH, Vanegas-García AL, Vasquez G et al (2020) Cryoglobulinemic vasculitis and psoriatic arthritis: case report of an unusual association. *Reumatol Clin (Engl Ed)* 16(3):242–4
- Palazzi C, D'Amico E, Pennese E, Petricca A, Olivieri I (2006) Purpura and serum mixed cryoglobulinemia in psoriatic arthritis. *Rheumatol Int* 27(2):187–9
- Coates LC, Kavanaugh A, Mease PJ, Soriano ER, Laura Acosta-Felquer M, Armstrong AW et al (2016) Group for Research and Assessment of Psoriasis and Psoriatic Arthritis 2015 Treatment Recommendations for Psoriatic Arthritis. *Arthritis Rheumatol* 68(5):1060–71
- Maz M, Chung SA, Abril A, Langford CA, Gorelik M, Guyatt G et al (2021) 2021 American College of Rheumatology/Vasculitis Foundation Guideline for the Management of Giant Cell Arteritis and Takayasu Arteritis. *Arthritis Rheumatol* 73(8):1349–65
- Moreno JC, Vélez A, Medina I, Valverde F, Fernández-Roldán JC, Ocaña MS et al (2003) Psoriasis, vasculitis and methotrexate. *J Eur Acad Dermatol Venereol* 17(4):466–8
- Demitsu T, Ishiharajima S, Miyamoto T, Kosuge A, Usui K, Kano T et al (1993) Pustular vasculitis with clinical feature of pustular psoriasis and sternoclavicular hyperostosis. *Dermatology* 186(3):213–6
- Selvan S, Shakir R, Chan A (2013) Pustular vasculitis. *BMJ Case Rep* 2013:bcr2013008806
- Chelli C, Loget J, Vanhaecke C, Durlach A, Gagneux-Lemoussu L, Soriano C et al (2020) Cutaneous vasculitis with gut involvement during

secukinumab treatment for psoriatic arthritis. *Acta Derm Venereol* 100(6):adv00077

12. Eshwar V, Kamath A, Shastry R, Shenoy AK, Kamath P (2022) A review of the safety of interleukin-17A inhibitor secukinumab. *Pharmaceuticals (Basel)* 15(11):1365
13. Boehncke WH (2016) Psoriasis and psoriatic arthritis: flip sides of the coin? *Acta Derm Venereol* 96(4):436–41
14. Napolitano M, Caso F, Scarpa R, Megna M, Patri A, Balato N et al (2016) Psoriatic arthritis and psoriasis: differential diagnosis. *Clin Rheumatol* 35(8):1893–901

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.