Asian Journal of Research in Dermatological Science

3(2): 9-14, 2020; Article no.AJRDES.58182

Cutaneous Manifestations of Rheumatoid Vasculitis Revealing a Severe Rheumatoid Arthritis

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Authors' contributions

This work was carried out in collaboration among all authors. Authors MAS, Raja Amri and Rabie Ayari designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors ZA, ML and AC managed the analyses of the study. Authors MB and IC managed the literature searches. All authors read and approved the final manuscript.

Article Information

Editor(s):
(1) Dr. Kanwardeep Kaur Tiwana, Guru Gobind Singh Medical College, India.
Reviewers:
(1) Julian Penev, Medical University of Varna, Bulgaria.
(2) K. G. Padmanaban, The Tamil Nadu Dr. M. G. R. Medical University, Chennai, India
Complete Peer review History: http://www.sdiarticle4.com/review-history/58182

Case study

Received 10 April 2020
Accepted 20 June 2020
Published 27 June 2020

ABSTRACT

Rheumatoid Arthritis (RA) is a systemic inflammatory disorder with articular and extraarticular manifestations. Rheumatoid Vasculitis (RV), an extraarticular systemic manifestation of RA, is the most serious and unusual complication of long-standing RA, associated with a poor prognosis. We report an exceptional case of rheumatoid arthritis revealed by a cutaneous manifestation of RV.

We report the case of a non-smoking 51-year-old patient with no known history, who presented with a 15-day history of a rash spreading on the legs and the palms of the hands with bilateral and symmetrical polyarthritis affecting both large and small joints, in association with an inflammatory neck pain. Physical examination revealed painful unilateral subcutaneous nodules located on the

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left leg and on the palms of the hands. Laboratory tests revealed an inflammatory syndrome. The diagnosis of RA revealed by cutaneous manifestations of RV was established using the ACR-EULAR 2010 classification criteria with a total score of 9. Histological examination of a subcutaneous nodule of the leg showed leukocytoclastic vasculitis associated with a polymorphic inflammatory infiltrate made mostly of neutrophils. A corticosteroid therapy of 1 mg/kg/day was initiated. The evolution was good under treatment.
The prevalence of RV has been reported to be declining, with the decrease possibly attributable to the advances in the treatment of RA. Nevertheless, this serious complication should always be considered when establishing the diagnosis of RA even in the early stages.

Keywords: Rheumatoid arthritis; rheumatoid vasculitis; cutaneous manifestation; necrotizing vasculitis; skin biopsy; corticosteroid therapy.

1. INTRODUCTION

Rheumatoid arthritis (RA) is a systemic inflammatory disorder with articular and extraarticular manifestations. The most frequent cutaneous manifestations are rheumatoid nodules [1]. Rheumatoid vasculitis (RV), an extraarticular systemic manifestation of RA, is the most serious and unusual complication of long-standing RA. It is associated with a poor prognosis. Cutaneous manifestations of RV are the most common form, but they can be associated with severe systemic vasculitis [2]. RV is usually diagnosed after years of evolution [3]. We report an exceptional case of rheumatoid arthritis revealed by a cutaneous manifestation of RV.

2. CASE PRESENTATION

We report the case of a non-smoking 51-year-old patient with no known history, who presented with a 15-day history of general condition deterioration, eye redness, a rash spreading on the legs and the palms of the hands. She suffered from bilateral and symmetrical polyarthritis affecting both large and small joints, in association with an inflammatory neck pain. Physical examination revealed a low-grade fever of 38°C, painful unilateral red subcutaneous nodules located anteriorly on the left leg and on the palms of the hands (Fig. 1).

The examination showed also a synovitis affecting the wrists and metacarpophalangeal joints, as well as a positive patellar tap test. The

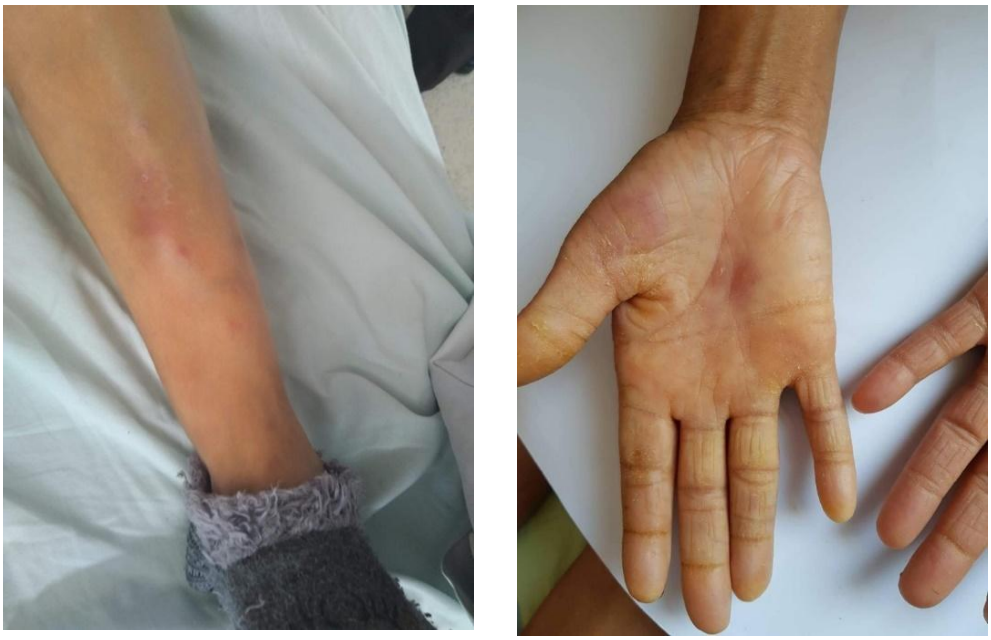


Fig. 1. Subcutaneous nodules located on the left leg and on the palms of the hands

ophthalmologic examination concluded with scleritis. Laboratory tests revealed an inflammatory syndrome, lymphopenia at 800 el/µL and a strongly positive rheumatoid factor. Other tests were performed, and they were negative (hepatitis B, C, and syphilis serologies, anti-CCP and anti-nuclear antibodies, and anti-neutrophil cytoplasmic antibodies). The supplement dosage was normal. The diagnosis of RA was established using the ACR-EULAR 2010 classification criteria with a total score of 9: involvement of more than 10 joints, a strongly positive rheumatoid factor, and a high C-reactive protein level. X-rays of the hands (Fig. 2) showed erosions with pinching of the metacarpophalangeal joints of the right index and both middle fingers as well as erosions of the proximal interphalangeal joints of the left index and ring finger.

Histological examination of a subcutaneous nodule of the leg showed leukocytoclastic vasculitis associated with a polymorphic inflammatory infiltrate made mostly of neutrophils (Fig. 3).

The diagnosis of sarcoidosis and tuberculosis have been eliminated. A cervical spine X-ray was performed to explore the cause of the inflammatory neck pain (Fig. 4). A C1-C2 distasis was noted and investigated with a Spinal MRI revealing a peri-odontoid synovial pannus with a rotatory C1-C2 subluxation complicated by a spinal cord compression (Fig. 5).

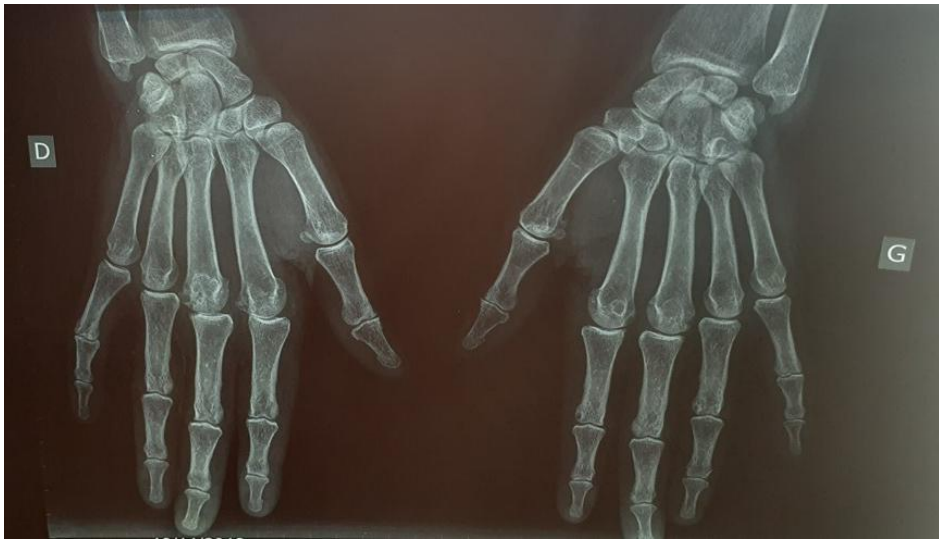


Fig. 2. Erosions with pinching of the metacarpophalangeal and proximal interphalangeal joints of fingers

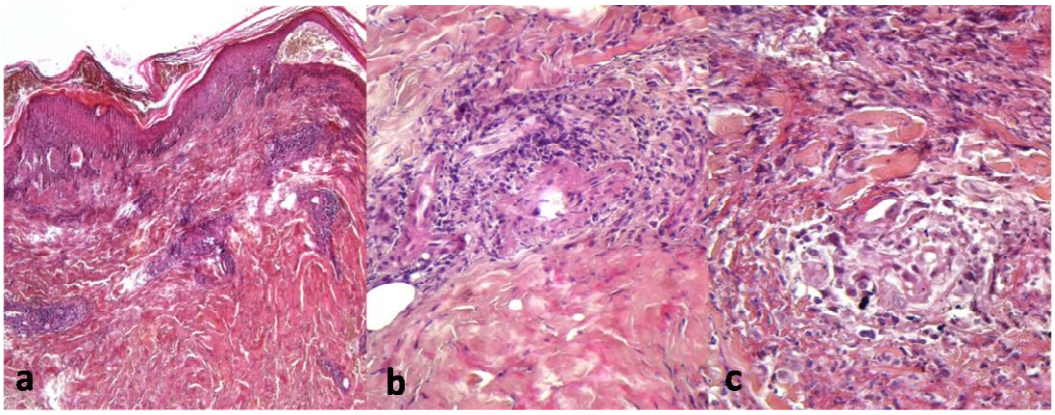
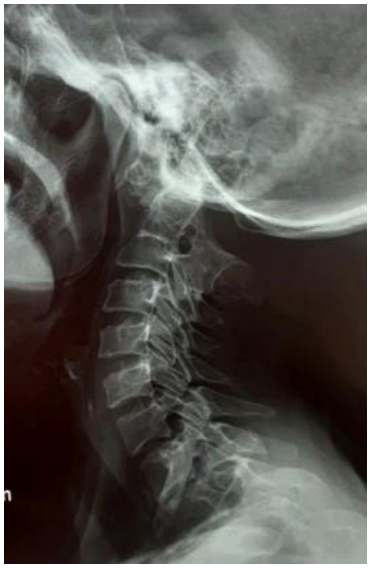
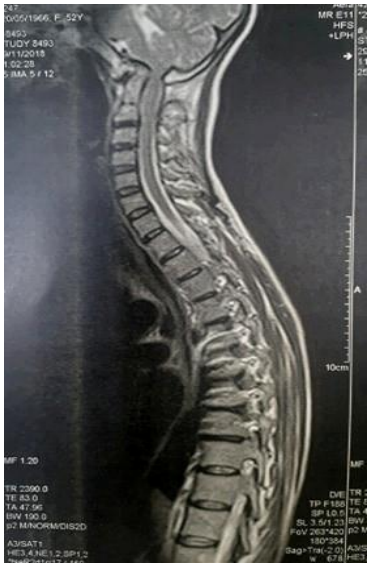


Fig. 3. Histological examination of a subcutaneous nodule of the leg





Figs. 4 and 5. Cervical spine X-ray and spinal MRI

The diagnosis of RA revealed by cutaneous manifestations of RV was established. A corticosteroid therapy of 1 mg/kg/day was initiated, associated with a cervical immobilization. A C1-C2 arthrodesis is scheduled. The evolution was good under treatment with apyrexy, appetite recovery and disappearance of arthritis and vasculitis lesions.

3. DISCUSSION

Rheumatoid vasculitis is a rare condition, affecting approximately 1 to 5% of patients with RA [3]. The prevalence of systemic RV seems to be declining, reflecting an improved control of RA [4,5]. However, large monocentric series of patients affected with RV were reported recently, suggesting that RV is still a serious complication of RA with substantial morbidity and mortality [6].

RV is a vasculitis of small- and medium-size vessels with a large polymorphism ranging from isolated skin manifestations to severe systemic vasculitis. RV may affect virtually any organ of the body, but usually the skin and peripheral nerves are involved. The central nervous system and viscera can also be affected [6]. Systemic forms are associated with a poor prognosis and significant morbidity and mortality [7].

Cutaneous manifestations of Rheumatoid vasculitis are rare. Various studies, mainly in Mediterranean countries, have revealed a low prevalence of this form [2,8,9]. However, two studies carried out in Japan and Sweden [10,11] revealed a higher prevalence at 3.8 and 3.6% respectively.

The most common cutaneous presentations of RV are digital micro-infarctions, skin ulcers, vascular purpura and gangrene of the fingers and toes. Our patient presented with an atypical rash made of subcutaneous nodules mimicking erythema nodosum, but the unusual localization of these nodules motivated the biopsy. Generally, vasculitis complicates long-standing, nodular and destructive RA forms with severe joint deformity of male patients [3]. This was not the case in our observation as our patient is a female with no history who presented initially with a complicated RA including RV, scleritis, and atlanto-axial rotational subluxation.

Studies have suggested that, in addition to smoking, rheumatoid factor and anti-nuclear antibodies positivity, reduced serum complement and long-standing disease as well as high corticosteroids dosage are risk factors for developing RV [3,7].

The pathogenesis involved in rheumatoid vasculitis are not completely elucidated. Immune complexes seem to have a major role in causing direct damage to the walls of the vessels. This is supported by high rheumatoid factor levels, particularly the IgM type as well as the presence of hypocomplementemia and cryoglobulinemia [7].

The diagnosis of RV can be very difficult to establish. It is based on clinical manifestations, paraclinical evaluation and especially on the histopathological examination showing a necrotizing vasculitis. All other causes of vascular disease should be excluded. Scott and Bacon's diagnostic criteria suggest that the association of vasculitis with some clinical manifestations in a RA-evoking-context has a strong diagnostic value [12].

Regarding the management of RV, there is no clear consensus given the rarity of this condition. Generally, aggressive treatment is used due to the high morbidity and mortality rates being reported, ranging from 28 to 44% [13,14,15,16,17,18]. The treatment is based on corticosteroid therapy. In some severe cases, cyclophosphamide can be associated, leading to a better and early response while decreasing the recurrence [7,12]. Some clinical evidence supports the use of biological agents (anti–tumor necrosis factor drugs: Anti-TNF alpha) and Rituximab [7,19,20,21].

4. CONCLUSION

The prevalence of RV has been reported to be declining, with the decrease possibly attributable to the advances in the treatment of RA. Nevertheless, this serious complication should always be considered when establishing the diagnosis of RA even in the early stages.

The detection of clinical manifestations of RV can lead to early diagnosis, prompt treatment and lower morbidity and mortality rates.

CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
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