Jarisch–Herxheimer reaction in syphilis

B. Radhakrishnan Nair, S. Murugan[1]
Androgynaecare, Department of Gynaecology and Sexual Medicine, Cochin, Kerala, [1]Department of Dermatology and Sexual Medicine, Shifa Hospitals, Tirunelveli, Tamil Nadu, India

Address for correspondence:
Dr. S. Murugan, Consultant in Sexual Medicine and HIV Medicine, Shifa Hospitals, 82, Kailasapuram, Tirunelveli, Tamil Nadu, India.
E-mail: murugan2mala@gmail.com

Abstract

Jarisch–Herxheimer reaction (JHR) is a focal, local, or systemic reaction, which follows the first dose of antisyphilitic remedy. JHR is a self-limiting reaction. The appearance of secondary syphilitic rashes following injection of benzathine penicillin was not so common nowadays to meet with JHR. Rashes were resolved completely a week after the injection. This case was reported to alert the physicians about the appearance of secondary syphilitic rashes following the antisyphilitic treatment which could be confused with hypersensitive reactions of penicillin.

Key words: Antisyphilitic therapy, Jarisch–Herxheimer reaction, secondary syphilis

Introduction

Jarisch–Herxheimer reaction (JHR) is a focal, local, or systemic reaction, which follows the first dose of antisyphilitic remedy.[1] It can occur also in other spirochetal infections such as Leptospirosis and Lyme disease and relapsing fever with appropriate antibiotic treatment. The JHR was named after Adolf Jarisch, an Austrian dermatologist, who described in 1895.[2]

The occurrence of JHR in syphilis is as follows: seronegative primary syphilis (55%), seropositive primary syphilis (95%), and secondary syphilis (95%). It is usually not seen in latent syphilis. It is also very rare in late syphilis, with the exception of patients suffering from general paresis of insane (also called paralytic dementia), where it can occur in 75% of patients. In Lyme disease, the range of JHR frequency is 7%–30%, a much lower frequency than syphilis. In leptospirosis patients treated with an antibiotic, the incidence of JHR is around 9%. In patients with tick-borne relapsing fever, the frequency of JHR occurrence is 39% compared to louse-borne relapsing fever, in which the occurrence is in a range of 37%–100% depending on different antibiotics used.[3] It usually occurs within 2–12 h after the injection and not beyond 24 h.[1,2] In early syphilis, it manifests frequently and with great severity.[1]

JHR in early syphilis is usually a self-limiting one, not very harmful. Mostly, it goes unnoticed or underreported as the individual feels it is a part of underlying disease or considers that it is due to the response to treatment. It can commonly manifest with fever, headache, malaise, and sweating, but this is all over by the next day. Unusually, it will manifest as a localized tissue manifestation in primary chancre with enlargement and swelling of the lesion and may lead to inflammatory phimosis or paraphimosis and in the case of secondary syphilis with the appearance of skin rashes (mimicking that of hypersensitivity reaction for penicillin) and produce anxiety among the physicians and the patients.[1] One such case is reported to sensitize the physicians about the first appearance of secondary manifestations following the first dose of antisyphilitic treatment as JHR.

Case Report

A 31-year-old male consulted a sexual medicine specialist, 3 months after marriage, for the complaints of sexual inadequacy with his wife. He happened to be a homosexual and not having attraction towards women. After counseling and treatment with PDE5 inhibitors, he came after another 3 months with happy news of his wife became pregnant. At that point, he sought treatment for the nonitchy rashes over penile skin, which persisted for 1 week. On examination, the penile rashes were multiple, dry papules (0.5 mm in size) over the skin of shaft of the penis and foreskin [Figure 1]. No other rash elsewhere in the body was present. Palms and soles were free. There were no lesions over anus and oral cavity. No lymphadenopathy was present. He was found to be reactive for syphilis. His venereal disease research laboratory test was reactive one in 16 dilutions. Treponema pallidum hemagglutination was reactive one in 640. HSV 1 and 2 Ig G and Ig M were negative and he was nonreactive for HIV 1 and 2. His wife was nonreactive for syphilis. He was treated with injection of

Access this article online

Quick Response Code:

Website: www.ijstd.org

DOI: 10.4103/ijstd.ijstd_3_22

How to cite this article: Nair BR, Murugan S. Jarisch–Herxheimer reaction in syphilis. Indian J Sex Transm Dis 2022;43:201-2.

Submitted: 10-Jan-2022 **Revised:** 24-Jan-2022
Accepted: 27-Jan-2022 **Published:** 17-Nov-2022

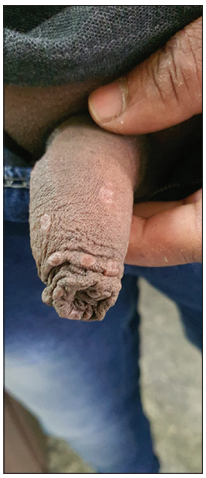

Figure 1: Penile rash on day 1

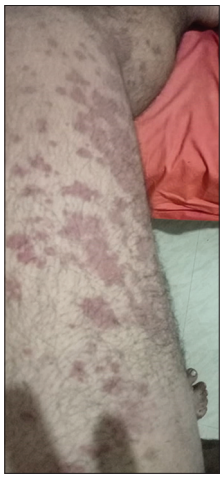

Figure 2: Macular rashes on day 2

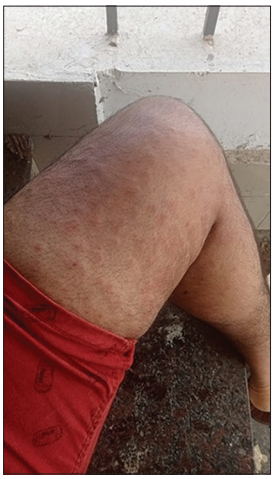

Figure 3: Non-itchy maculopapular rashes on day 2

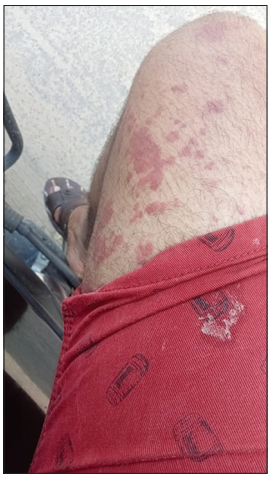

Figure 4: Florid erythematous rashes on day 3

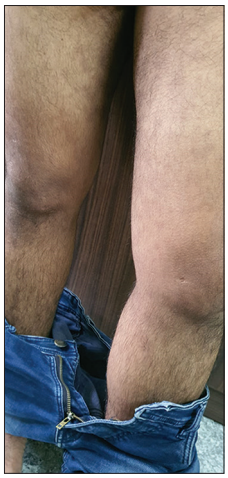

Figure 5: No rash on day 7

benzathine penicillin LA 24 mega units after the test dose. His wife was given an injection of benzathine penicillin LA 24 mega units as an epidemiological dose.

Twelve hours after the antisyphilitic treatment, he developed generalized nonitchy, erythematous, and maculopapular rashes over the trunk, abdomen, and extremities [Figures 2 and 3]. The patient was anxious that these rashes were due to hypersensitivity reaction to penicillin. The physician sought my opinion. I asked him to wait for a day. The rashes became florid on the next day (48 h after the injection) [Figure 4]. Then, he was advised to put on low-dose tablet prednisolone 5 mg twice daily for 5 days. The patient took the tablet prednisolone 5 mg twice on the 1st day and as the rashes started regressing, he took one 5 mg tablet once daily for another 2 days and stopped on his own. No history of fever, malaise or headache was present. Within a week, the rashes completely vanished [Figure 5].

Discussion

Hypersensitivity lesions of penicillin are usually urticarial hives and angioedematous type with severe itching.[4] Rarely anaphylaxis can occur. JHR are not reported nowadays frequently. They usually manifest as "FLU" like self-limiting syndrome, not lasting more than 12 h. Exaggeration of the lesions as in primary syphilis is not often met within recent years. The appearance of secondary syphilitic skin rashes, although mentioned in textbooks[1] is not seen commonly. In this case, the nonitchy, erythematous maculopapular rashes appeared 12 h after the injection of benzathine penicillin which were not present before the injection and these were very much fit with JHR. Moreover, there was no local reaction at the site test dose for injection of benzathine penicillin. JHR is self-limiting lesions. If the manifestations are so severe, steroids are indicated, especially in patients with neurosyphilis and cardiovascular syphilis.

JHR is thought to be multifactorial reason. The breakdown of the spirochete after the use of antibiotics causes the release of toxins and cytokines. JHR is thought to be caused by an acute inflammatory reaction when lipoproteins enter the patient's bloodstream. JHR causes an increase in inflammatory cytokines during the period of exacerbation, including interleukin-6, interleukin-8, and tumor necrosis factor-alpha.[2]

Conclusion

Cases of syphilis are on the rising trend. When we instituted the antisyphilitic treatment in these patients, we should be very careful and must instruct the possibility of the JHR to the patients, so that their anxiety will not be much. In most occasions, JHR is mild and not warranted any treatment. At the same time, the physician should better admit the cases of neurosyphilis and cardiovascular syphilis patients in hospital before administering antisyphilitic treatment to avoid unnecessary complications. This case is reported to remind the medical profession that exaggeration of lesions or appearance of new manifestations can occur in early syphilis following the antisyphilitic treatment due to JHR and one should not be confused with hypersensitive reactions to penicillin.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. King A, Nicol C, Rodin P. Venereal Diseases. 4th ed. London: The English Language Book Society and Bailliere Tindall; 1980.
2. Dhakal A, Sbar E. Jarisch Hexheimer Reaction. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557820/#:~:text=Jarisch%20Herxheimer%20reaction%20(JHR)%20is, Lyme%20disease%2C%20and%20relapsing%20fever. Last accessed on 2022 January 24.
3. Butler T The Jarisch-Herxheimer reaction after antibiotic treatment of spirochetal infections: A review of recent cases and our understanding of pathogenesis. Am J Trop Med Hyg 2017;96:46-52. Last accessed on 2022 February 5.
4. Available from: https://www.mayoclinic.org/diseases-conditions/penicillin-allergy/symptoms-causes/syc-20376222. Last accessed on 2022 February 5.