

Reactive Arthritis Induced by Bacterial Vaginosis: Prevention with an Effective Treatment

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ABSTRACT

We report a 42-year-old woman with reactive arthritis induced by bacterial vaginosis who presented with oligoarthritis with an additive form, arthralgia, and enthesitis. She hasn't had a history of diarrhea or dysuria or vaginal secretion, or sexually transmitted infections (STIs). The laboratory tests were normal except for a high erythrocyte sedimentation rate (ESR). Her pelvic examination revealed homogeneous white grey and malodorous vaginal discharge on the vaginal wall and Pap smear and Gram-stained smear of vaginal swab was consistent with bacterial vaginosis. She responded to metronidazole therapy and her six-month follow up hasn't shown recurrence of arthritis. As reactive arthritis (ReA) is a paradigm of a rheumatic disease in which the initiating infectious cause is known, so early use of antimicrobial drugs may prevent the development of musculoskeletal symptoms which are triggered by infections.

Keywords: Bacterial vaginosis, *Gardenella vaginalis*, reactive arthritis

INTRODUCTION

Bacterial vaginosis (BV) is the most common infection of the female reproductive tract.^[1-3] BV refers to clinical syndromes resulting from replacement for normal lactobacilli vaginal flora with anaerobic bacteria including *Prevotella* sp., *Mobiluncus* sp., *Mycoplasma*, and most commonly *Gardenella vaginalis*.^[1-5]

Reactive arthritis (ReA) occurs worldwide in 1-4% of patients a few days to six weeks with an average of four weeks, after infection of the urogenital or enteric tract, and 30-70% of them are positive for human leukocyte antigen (HLA)-B27.^[6,7] ReA has been described in association with pathogens including *Shigella* spp., *Salmonella* spp., *Yersinia* spp., *Campylobacter jejuni*, *Klebsiella pneumoniae*, *Brucella* spp., *Clostridium difficile*, *Giardia lamblia*, *Entamoeba* spp., *Blastocystis hominis*, *Cryptosporidia*, *Chlamydia trachomatis*, *Ureoplasma ureolyticum*, *Mycoplasma hominis*, *Neisseria gonorrhoea*, *Streptococci*, *Staphylococci*, *Leptospira*, *Borrelia*, and *Mycobacterium tuberculosis*.^[8-12] Only few cases of ReA linked to *Gardenella vaginalis* have been reported.^[13-16]

We describe a 42-year-old woman presenting with ReA affecting several joints and enthesitis who suffered from BV.

CASE REPORT

A 42-year-old woman presented with a history of pain and swelling of her several joints. At first, she complained of tenderness and pain and warm swelling of her right ankle and after two days she also had a similar problem in her left ankle. Her ankle swelling was reduced by ibuprofen. After that, she had arthralgia in the knees and her right elbow and then swelling of the metatarsal joints have developed within two weeks. She claimed that resting and ibuprofen could reduce, but not cure her swelling and pain. She hasn't had a history of diarrhea or dysuria or vaginal secretion, or sexually transmitted infections (STIs). She has been married and living with her husband. On physical examination, she had difficulty walking due to heel pain, a fever (38.8 C), swelling of her right ankle and right metatarsophalangeal joints. She had tenderness on both of achilles tendons attachments, the base of her right fifth metacarpal, and both patellar tendon insertions. There was no rash or vision problem. Laboratory data were normal for hemoglobin, leukocytes, erythrocyte, serum electrolytes, chemistry studies, and urine analysis except for erythrocyte sedimentation rate (ESR) which was 42 and C-reactive protein (CRP) was slightly elevated. Tests for human immunodeficiency virus (HIV) antibody, hepatitis B and C, brucellosis antibody, *Chlamydia trachomatis* antibody, cold agglutination test, rheumatic factor, lupus erythematosus (LE) cells, Antinuclear antibody (ANA) and Anti double stranded (ds) DNA were negative. She was advised to continue taking ibuprofen. Therapy with non-steroidal anti-inflammatory drugs wasn't effective completely. These tests were repeated after four weeks and no new change has been observed. Her joints problem lasted more than three months. Her pelvic examination revealed homogeneous white grey and malodorous vaginal discharge on the vaginal wall. Her Pap smear and Gram-stained smear of vaginal swab showed benign cellular changes, predominance of Gram-variable coccobacilli consistent with shift in vaginal flora, mild inflammation. Treatment with metronidazole resulted in resolution of the symptoms.

DISCUSSION

The typical pattern of ReA is an asymmetric mono or oligoarthritis, predominantly affecting

lower extremities such as the knees, ankles, and feet.^[12] This patient had oligoarthritis, but both her ankles were involved.

Enthesitis, inflammation occurring at the point of attachment of skeletal muscles to bone, is common in ReA and presents with a localized pain, swelling, and tenderness. The plantar aponeurosis and Achilles tendon attachments to the calcaneum are very common and often cause heel pain and difficulty walking. This patient had tenderness on both of Achilles tendons attachments, the base of her right fifth metacarpal, and both patellar tendon insertions and complained of difficulty walking too. However, diagnosis of ReA is based on having mono- or oligoarthritis of the lower extremities and exclusion of other diagnosis.^[17] ReA happens after a urogenital or enteric infection.^[6,18] The number of infectious agents associated with ReA is gradually increasing.^[19] STI is also well recognized as a provoking cause of ReA which named sexually acquired ReA (SARA).^[20] Although, ReA linked to *Gardenella vaginalis* infection is rare, but *Gardenella vaginalis* as a triggering pathogen has been reported. Based on our knowledge, only four cases of ReA linked to *Gardenella vaginalis* infection were described. Two of them are female and others are male.^[13-16]

Finding a source of active infection and triggering agent might be helpful to diagnose and treat the patient successfully. The vaginal Gram-stained smears used as a diagnostic test of BV^[21] and Pap smear screening can be used for detecting BV with minimal costs and high specificity.^[22,23] The homogeneous white grey and malodorous vaginal discharge on the vaginal wall and Pap smear and Gram-stained smear results in our patient was compatible with BV and *Gardenella vaginalis*.

The recurrence of BV after treatment has been reported.^[24,25] The results of clinical trials indicate that a woman's response to therapy and the likelihood of relapse or recurrence are not affected by treatment of her sex partner(s).^[3] Early eradication of infection may reduce or limit the dissemination of bacteria or bacterial antigens to the joint, so the initiation of the subsequent ReA might prevent.^[11,26] ReA is a paradigm of a rheumatic disease in which the initiating infectious cause is known.^[11] Early uses of antimicrobial drugs may prevent the development of musculoskeletal

symptoms which are triggered by urogenital and some enteric infections.^[26,27] This patient recovered with metronidazole and no recurrent sign of ReA has been observed during her six-month follow-up.

CONCLUSIONS

Bacterial vaginosis and *Gardenella vaginalis* should be considered as one of triggering pathogens in differential diagnosis of ReA. The identification of microbes or microbial elements in the joint or their possible persistence at other sites may help to determine a possible source and effective antimicrobial drugs may prevent the development of ReA.

REFERENCES

1. Sweet RL. Gynecological conditions and bacterial vaginosis: Implicating for the non-pregnant patient. *Infect Dis Obstet Gynecol* 2000;8:184-90.
2. Glacomini G, Calcinai A, Moretti D, Cristofani R. Accuracy of cervical/vaginal cytology in the diagnosis of bacterial vaginosis. *Sex Transm Dis* 1998;25:24-7.
3. Wokowski KA, Berman S. Sexually transmitted diseases treatment guideline 2010. *MMWR* 2010;59:1:110.
4. Giacomini G, Reali D, Vita D, Barahmandpour S, D'Acunto A. The diagnostic cytology of nonspecific vaginitis. *Diagn Cytopathol* 1987;3:198-205.
5. Cook RL, Reid G, Pond DG, Schmitt CA, Sobel JD. Clue cells in bacterial vaginosis: Immunofluorescent identification of the adherent gram-negative bacteria as *Gardenella vaginalis*. *J Infect Dis* 1989;160:490-6.
6. Leirisalo-Repo M, Sieper J. Reactive arthritis: Epidemiology, clinical features, and treatment. In: Weisman M H, van der Heijde D, Reveille J D. editors. *Ankylosing Spondylitis and the spondyloarthropathies*. Philadelphia: Mossby Elsevier; 2006. p. 53-64.
7. Braun J, Kingsley G, van der Heijde D, Sieper J. On the difficulties of establishing a consensus on the definition of and diagnostic investigations for reactive arthritis. Results and discussion of a questionnaire prepared for the 4th International Workshop on Reactive Arthritis, Berlin. Berlin, Germany, July 3-6, 1999. *J Rheumatol* 2000;27:2185-92.
8. Toivanen A, Toivanen P. Reactive arthritis. *Curr Opin Rheumatol* 1997;9:321-7.
9. Muller KD. Importance of microbiological examination for the diagnostic of post enteritis reactive arthritis. *Z Rheumatol* 1990;49:364-8.
10. Lakhanpal S, Cohen SB, Fleischmann RM. Reactive arthritis from *Blastocystis hominis*. *Rheumatol Arthr* 1991;34:251-3.
11. Rihl M, Klos A, Kohler L, Kuipers JG. Reactive arthritis. *Best Practice and Research. Clin Rheumatol* 2006;20:1119-37.
12. Kim PS, Klausmeier TL, Orr DP. Reactive Arthritis: A review. *J Adolescent Health* 2009;44:309-15.
13. François S, Guyadier-Souguères G, Marcelli C. Reactive arthritis due to *Gardnerella vaginalis*. A case-report. *Rev Rheum Engl Ed* 1997;64:138-9.
14. Estivill X, Blanch L, Santesmasses A, Puig ML, Cadafalch J, Nolla J. Polyarthritis and exanthema in *Gardnerella vaginalis* vulvovaginitis. *Med Clin (Barc)* 1984;82:738.
15. Toussiro E, Plesiat P, Wendling D. Reiter's syndrome induced by *Gardnerella vaginalis*. *Scand J Rheumatol* 1998;27:316-7.
16. Schapira D, Braun-Moscovici Y, Nahir AM. Reactive arthritis induced by *Gardnerella vaginalis*. *Clin Exp Rheumatol* 2002;20:732-3.
17. Seiper J, Rudwaleit M, Braun J. Diagnosing reactive arthritis: Role of clinical setting in the value of serologic and microbiologic assay. *Arthritis Rheum* 2002;46:319-27.
18. Hughes R, Keat A. Reactive arthritis: The role of bacterial antigens in inflammatory arthritis. *Baillieres Clin Rheumatol* 1992;6:285-308.
19. Pope JE, Krizova A, Garg AX, Thiessen-Philbrook H, Ouimet JM. *Campylobacter* reactive arthritis: A systematic review. *Semin Arthritis Rheum* 2007;37:48-55.
20. Keat AC, Maini RN, Pegrum GD, Scott JT. The clinical features and HLA associations of reactive arthritis associated with non-gonococcal urethritis. *Q J Med* 1979;48:323-42.
21. Nugent RP, Krohn MA, Hillier SL. Reliability of diagnosing bacterial vaginosis is improved by a standardized method of Gram stain interpretation. *J Clin Microbiol* 1991;29:297-301.
22. Tokyol C, Aktepe OC, Cevrioğlu AS, Altindış M, Dilek FH. Bacterial vaginosis: Comparison of Pap smear and microbiological test results. *Mod Pathol* 2004;17:857-60.
23. Karani A, De Vuyst H, Luchters S, Othigo J, Mandaliya K, Chersich MF, *et al.* The Pap smear for detection of bacterial vaginosis. *Int J Gynaecol Obstet* 2007;98:20-3.
24. Chen JY, Tian H, Beigi RH. Treatment considerations for bacterial vaginosis and the risk of recurrence. *J Womens Health (Larchmt)* 2009;18:1997-2004.
25. Bradshaw CS, Morton AN, Hocking J, Garland SM, Morris MB, Moss LM, *et al.* Predisposing factors for bacterial vaginosis, treatment efficacy and pregnancy outcome among term deliveries; Results from a preterm

- delivery study. BMC Womens Health 2007;7:20.
26. Bardin T, Enel C, Cornelis F, Salski C, Jorgensen C, Ward R, *et al.* Antibiotic treatment of venereal disease and Reiter's syndrome in a Greenland population. Arthritis Rheum 1992;35:190-4.
27. Hannu T, Mattila L, Siitonen A, Leirisalo-Repo M. Reactive

arthritis following an outbreak of Salmonella typhimurium phage type 193 infection. Ann Rheum Dis 2002;61:264-6.

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