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International Journal of Infectious Diseases 29 (2014) 37–39

Contents lists available at ScienceDirect

International Journal of Infectious Diseases

journal homepage: www.elsevier.com/locate/ijid

Case Report

Recurrent *Streptococcus pyogenes* genital infection in a woman: test and treat the partner!

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ARTICLE INFO

Article history:
Received 4 June 2014
Accepted 30 July 2014

Corresponding Editor: Eskild Petersen, Aarhus, Denmark

Keywords:
Streptococcus pyogenes
Vaginitis
Bacteraemia
Asymptomatic diseases
Antibiotic prophylaxis

SUMMARY

Group A Streptococcus (GAS) is a well-known cause of vulvovaginitis in prepubescent girls, but it is rarely described in adult women. We describe the case of a 64-year-old woman who presented with endometritis revealed by GAS bacteraemia, followed by recurrent vulvovaginitis due to a wild-type strain of GAS. She relapsed twice despite amoxicillin treatment. Her husband was found to be an asymptomatic carrier after GAS was identified in nasal and rectal swabs. She was cured after eradication of carriage in both herself and her husband with amoxicillin and rifampin. When recurrent *Streptococcus pyogenes* genital infections occur, test and treat the partner.

1. Introduction

Streptococcus pyogenes, or group A beta-haemolytic Streptococcus (GAS), is a Gram-positive coccus associated with a wide range of infections, mostly skin and soft tissue infections and throat infections. Genital infections include endometritis and vulvovaginitis, which are rare manifestations of GAS more frequently reported in prepubescent girls than in adult women. We describe the case of a menopausal woman with recurrent GAS vaginitis related to chronic carriage in her husband.

2. Case report

A 64-year-old woman was admitted for fever and a vaginal discharge. She was married and had given birth twice in her twenties. Ten years earlier she had undergone a right hemicolectomy for colon cancer that was in complete remission. She had presented with endometriosis 12 years previously, and had gone through menopause for 9 years, without hormonal treatment. She presented to her gynaecologist with a 10-day duration whitish vaginal discharge. He reported a normal examination and collected a vaginal sample for microbiological analysis.

The following day, the woman was hospitalized because of fever and right flank pain. A clinical examination was normal except for fever (38.7 °C) and a vaginal discharge. Blood samples showed a normal white blood cell count (leukocytes 6.6×10^9/l). The C-reactive protein level was 49 mg/l (normal <5 mg/l). Urine direct examination showed leukocyturia (1.9×10^5/ml). Blood and urine cultures were positive for a wild-type strain of GAS, as was the vaginal sample taken before this admission. Abdominal ultrasound and computed tomography scans were normal, except for a thickened womb. Pelvic magnetic resonance imaging (MRI) showed an important adenomyosis, atypical for a postmenopausal woman, associated with thickening and infiltration of the uterine horns and round ligaments suggestive of an inflammatory or infectious process. The diagnosis of GAS-related septicaemia complicating pelvic endometritis was considered, although there was no endocavitary or tubal retention. She was given intravenous amoxicillin 6 g/day, 1 mg/kg/day. Her condition and

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http://dx.doi.org/10.1016/j.ijid.2014.07.026

the inflammatory biological syndrome improved rapidly after 2 days and she was discharged with oral amoxicillin 6 g/day for 15 days.

Two months later the vaginal discharge recurred without fever or pain and swab cultures were again positive for GAS. She was treated for GAS vaginitis with a 12-day regimen of oral amoxicillin (2 g/day, 1 mg/kg/day), with the addition of rifampin 300 mg/day (5 mg/kg/day) for the 2 last days. Four months later the GAS vaginitis recurred and she was again treated with oral amoxicillin. A colonoscopy did not reveal any abnormality. A new pelvic MRI and a hysteroscopy were normal and endometrial biopsies were negative.

One month later, nasal and rectal swabs were taken for the patient and her husband (both being asymptomatic); both were positive for GAS. All of the available samples including blood culture and vaginal swabs collected during the first episode were sent to the French Reference Centre for Streptococci. Characterization of the isolated strains showed identical types of GAS, with emm-type 28 subtype 28.0. The emm-types were determined by sequencing the variable 5′ end of the emm gene after PCR amplification, in accordance with the recommendations of the US Centers for Disease Control and Prevention (http://www.cdc.gov/ncidod/biotech/strep/doc.htm). Thus, they were both considered asymptomatic gastrointestinal and nasopharyngeal GAS carriers and both received antibiotic prophylaxis with amoxicillin (2 g/day) for 12 days and oral rifampin (600 mg/12 h) for the last 2 days. No recurrence was observed after 2 years of follow-up.

3. Discussion

This menopausal woman presented with recurrent episodes of genital GAS infection including vulvovaginitis and a potentially life-threatening endometritis. The recurrences disappeared after eradication of proven carriage in the patient and her husband.

Although GAS is an established cause of vulvovaginitis in prepubescent girls, it is rarely described in adult women, in whom it is considered an emerging entity.[1] Indeed, in a study conducted in 2009, no GAS was isolated from control subjects participating in cervical cancer screening, whereas 4.8% of 1010 patients presenting with vulvovaginitis were positive for GAS.[2] It has also been described in post-partum endometriosis, but rarely in postmenarchal women.[3] In adult women, such infections could be due to the superficial infection of the vaginal walls facilitated by postmenopausal vaginal atrophy.[1] GAS vulvovaginitis has also been linked to chronic dermatological conditions, vaginal foreign body, sexual abuse, and anatomical abnormalities.[4]

GAS is not always symptomatic, and the genital and rectal tracts were found to be colonized by GAS in 0.03% of 6944 women at 35–37 weeks of pregnancy in 2000.[5] In a recent study conducted among 1600 pregnant women in the UK by Saab et al.[6], only one patient (0.06%) was found to be positive for GAS. Concerning the prevalence of asymptomatic pharyngeal GAS carriage, it is quite high in children (around 10%), but is generally lower in adults: in a Danish study conducted by Hoffman et al.[7], it was found to be 2.2% in the general population aged >14 years, while it was 10.4% below this age.

Hand contact is generally considered the primary route of GAS transmission, and GAS vulvovaginitis has been associated with a household or personal history of GAS-related skin or respiratory infection. In premenarchal girls with vulvovaginitis, 41% reported a family or personal history of dermal or respiratory infection due to GAS. However, familial contamination has also been reported in a mother with GAS-associated vulvovaginitis and perineal cellulitis and her child with GAS pharyngitis.

Sexual transmission of GAS has been described. As an example, a severe case of GAS-related peritonitis and toxic shock syndrome was reported in a 45-year-old woman with an intrauterine device; her husband was found to be an oropharyngeal carrier of an identical GAS strain. Similarly, a woman was diagnosed with GAS-related vulvovaginitis and a sore throat after having oral and vaginal sex with her husband who had GAS-associated penile erosions.

In our case, the GAS strain was the same in the patient and her husband – emm-type 28 subtype 28.0. Between 2006 and 2010, the percentage of this specific emm-type 28 in any kind of infection in the French national reference centre increased from 18% to 24%. GAS has a particular tropism for the female genital tract and also for the pharyngeal and skin sphere, particularly with emm-type 28.

Our patient presented two conditions that could have contributed to the recurrence and severity of the GAS infections. She had gone through the menopause, so was likely to have vaginal atrophy in the absence of hormonal treatment. She also had a history of peritoneal endometriosis associated with significant adenomyosis, atypical for a postmenopausal woman not on hormonal treatment, facilitating the deep infection. Her medical history was revealed by the GAS bacteraemia, likely consecutive to the GAS endometritis. This infection may be severe, as in the case of a 57-year-old woman who died as a result of fatal sepsis and disseminated intravascular coagulation following GAS cervicitis.

However, GAS is not considered a sexually transmitted infection and sexual partners are not initially considered for screening. In our case, screening revealed the patient's husband to be an asymptomatic carrier and the GAS reservoir for her recurrent infections. Such findings have not been largely reported. We found only one report of recurrent GAS vulvovaginitis in two women whose husbands were gastrointestinal carriers of GAS, with identical types of GAS in each partner (emm-type 28). Relapses were considered to occur through shedding in bed, and after eradication of GAS carriage with rifampin, the symptoms did not relapse. Similarly, as our patient reported not having had sexual relations for several years, the most likely route of transmission was thought to be indirect through hand contact and shedding in bed.[1] In addition to antibiotic prophylaxis, we thus recommend washing the bedclothes.

As there are no guidelines concerning GAS carriage, and as many antibiotic classes have been tried, the use of rifampin for GAS eradication was based on the experience acquired with meningococcal pharyngeal carriage.[1] In our case, antibiotic prophylaxis included rifampin and amoxicillin in both partners and this was demonstrated to be efficient in eradicating the GAS pharyngeal carriage. This treatment definitively stopped the GAS vaginitis relapses.

In the case of recurrent GAS vulvovaginitis we recommend screening both sexual partners for intestinal and nasopharyngeal carriage and to consider an antibiotic regimen for eradicating the bacterium and avoiding relapse. Further studies should be conducted to evaluate the need to screen sexual partners in the case of a first episode of GAS genital infection.

Acknowledgements

The authors would like to thank Professor Anne Bouvet, National Reference Centre for Streptococci, for helpful discussions. They would also like to thank Dr Pierre Gadonneix for the information concerning the patient's medical story.

Conflict of interest: There is no commercial relationship or potential conflict of interest related to this report. No funding was received.

References

1. Verstraelen H, Verhelst R, Vaneechoutte M, Temmerman M. Group A streptococcal vaginitis: an unrecognized cause of vaginal symptoms in adult women. *Arch Gynecol Obstet* 2011;**284**:95–8.

2. Bruins MJ, Damoiseaux RA, Ruijs GJ. Association between group A beta-haemolytic streptococci and vulvovaginitis in adult women: a case–control study. *Eur J Clin Microbiol Infect Dis* 2009;**28**:1019–21.
3. Claesson BE, Claesson UL. An outbreak of endometritis in a maternity unit caused by spread of group A streptococci from a showerhead. *J Hosp Infect* 1985;**6**:304–11.
4. Hansen MT, Sanchez VT, Eyster K, Hansen KA. *Streptococcus pyogenes* pharyngeal colonization resulting in recurrent, prepubertal vulvovaginitis. *J Pediatr Adolesc Gynecol* 2007;**20**:315–7.
5. Mead PB, Winn WC. Vaginal–rectal colonization with group A streptococci in late pregnancy. *Infect Dis Obstet Gynecol* 2000;**8**:217–9.
6. Saab J, Bell SM, Lahra MM. Vaginal carriage rate of *Streptococcal pyogenes* in 1600 pregnant women. *Pathology* 2012;**44**:567–8.
7. Hoffman S, Bell SM, Holmos HJ. Effect of antibiotics on symptoms and complications of sore throat. Comments on a meta-analysis from the Cochrane Collaboration; 2000;**97**:2730–2.