

Vulvar Abscess Caused by Methicillin-resistant Staphylococcus Aureus (MRSA) in a Postmenopausal Woman

Tae-Hee Kim¹, Bel Seap², Soo Ah Kim³, Gyeong-Eun Heo¹

¹Department of Obstetrics and Gynecology, Soonchunhyang University College of Medicine, Bucheon, Korea, ²Department of Maternity, Khmer-Soviet Friendship Hospital, Phnom Penh, Cambodia, ³Department of Obstetrics and Gynecology, School of Medicine, Chosun University, Gwangju, Korea

Infections of the vulva can present a complex differential to the gynecologist, ranging from superficial skin infections to life-threatening *necrotizing fasciitis*. Recognition and timely treatment remain universal to skin and soft-tissue infections as the subcutaneous anatomy of the vulva can facilitate rapid spread to other tissues with significant morbidity and mortality. Employing a multidisciplinary team approach to care for *vulvar cellulitis and abscess* can guide treatment from antibiotic therapies to more aggressive surgical debridement. In this report, we describe a case of vulvar abscess caused by Methicillin-resistant staphylococcus aureus (MRSA) in a postmenopausal woman with underlying diseases of bronchiectasis and atelectasis. (**J Menopausal Med 2016;22:118-121**)

Key Words: Abscess · Cellulitis · Methicillin-resistant staphylococcus aureus · Postmenopause · Vulva

Introduction

Vulvar cellulitis and abscess often present diagnostic and therapeutic dilemmas for the gynecologist. Generally a presumptive diagnosis based on the presentation, physical examination, and risk factors for severe disease guides initial therapy. Although cultures may be of benefit to direct specific antibiotic coverage, in general, laboratory testing and imaging are less useful than a thorough history. Therefore, although these diseases may first present to a gynecologist, a multidisciplinary approach is advocated to collaborate when needed between division of infectious diseases, general surgeon, and dermatology to maximize the accurate diagnosis and treatment of patients with vulvar cellulitis and abscess.

Case Report

A 56-year-old Chinese woman, in 6-year postmenopausal state, visited to the outpatient of gynecology department with the chief complaint about a painful lump on the right side of the labium major. On examination, there were high fever with a body temperature of 38.9°C, pulse rate 120/minute and blood pressure 120/80 mmHg. Pelvic examination revealed an enlarged, firm, tender, swollen and inflamed of labium major on the right side (Fig. 1). Her laboratory work-up revealed low hemoglobin of 10.5 g/dL, elevated white blood cell count of 17,140 with increased erythrocyte sedimentation rate (ESR) 70. Her serum of hepatitis B, human immunodeficiency virus (HIV) and rapid plasma reagin (RPR) research laboratory tests were negative

Received: February 8, 2016 Revised: March 7, 2016 Accepted: March 14, 2016

Address for Correspondence: Bel Seap, Department of Maternity, Khmer-Soviet Friendship Hospital, YothapokhemarakPhoumin (Street 271), Sangkat Tumnup Teuk, Chamkarmorn District, Phnom Penh 12306, Cambodia

Tel: +855-23-217-384, Fax: +855-23-217-384, E-mail: belseap@gmail.com, khmer-soviet_hosp@online.com.kh

Copyright © 2016 by The Korean Society of Menopause

©This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>).



Fig. 1. This postmenopausal woman has a vulvar abscess caused by Methicillin-resistant staphylococcus aureus (MRSA) involving the right labium major. Note the increased size, a background of erythema about the right labium major when compared with the left labium.

and postmenopausal state was confirmed by hormone test (estradiol [E2] < 10 and follicle stimulating hormone [FSH] = 67.1). Her urine and blood culture were sterile.

The results of vaginal swab to detect sexual transmitted disease (*Trichomonas vaginalis*, *Mycoplasma hominis*, *Mycoplasma genitalium*, *Chlamydia trachomatis*, *Neisseria gonorrhoea* and *Urea plasma urealyticum*) were negative but *Klebsiella pneumoniae* (*K. pneumoniae*) was discovered. Vulvar culture was identified as the presence of plenty of *Staphylococcus aureus*. After two days of antibiotics (cefotetan + metronidazole), she presented with cough and hemoptysis then she was transferred to department of respiratory. Chest computed tomography and bronchoscopy were performed with the result of bronchiectasis in left upper lung (LUL) field and Atelectasis in right middle lung (RML) field. Five days later, she was transferred back to gynecology department and consulted with infectious disease department then antibiotics were switched to ciprofloxacin and trimethoprim-sulfamethoxazole. After 11 days of antibiotics combined with conservative therapy, she completely recovered (Fig. 2) from her symptoms and vaginal swab was negative.

Discussion

The incidence of post-menopausal distress in women, who admitted to the emergency department, is increasing.¹



Fig. 2. This postmenopausal woman has a vulvar abscess caused by Methicillin-resistant staphylococcus aureus (MRSA) was received antibiotics combined with conservative therapy. Note the size and background color of both labia majorare similar on hospital admission day 11.

The genitourinary syndrome of menopause (GSM) is a new term that describes various menopausal symptoms and signs associated with physical changes of the vulva, vagina and lower urinary tract.²

Vulvar abscess is a common gynecologic problem that has the potential to result in severe illness.³ These abscesses typically originate as simple infections that develop in the vulvar skin or subcutaneous tissues. Spread of infection and abscess formation in the vulvar area is facilitated by the loose areolar tissue in the subcutaneous layers and the contiguity of the vulvar fascial planes with the groin and anterior abdominal wall. Vulvar abscesses, including Bartholin gland abscesses, are often mixed polymicrobial infections, consisting primarily of MRSA, enteric gram-negative aerobes, and female lower genital tract anaerobes.⁴ The vulvar skin is colonized with organisms found on the skin and in the vagina and rectum. *Staphylococcus aureus*, streptococcal species, *Escherichia coli* (*E. coli*), and other gram-negative enteric organisms are commonly isolated from vulvar abscesses. Anaerobic bacteria, such as *Peptostreptococcus* or beta-lactamase-producing anaerobes (*Bacteroides fragilis*) may also be present in this polymicrobial infection.⁵ MRSA is the most common pathogen among vulvar abscesses that require incision and drainage.⁵ The general principle managements of vulvar abscess can be differentiated based upon the appearance or absence of an associated abscess cavity, risk factors for rapidly progressive disease, such as necrotizing fasciitis, and systemic signs of illness. The Infectious Diseases Society of

America in 2014 released guidelines for treatment of skin and soft-tissue infections that provides evidence-based comprehensive recommendations based on a mild, moderate, severe classification and organized by presence or absence of a purulent abscess.⁶ If an abscess is present with mild cellulitis without risk factors, treatment with antibiotics and serial surveillance after incision and drainage is reasonable.⁵ Because of the high prevalence of MRSA, antibiotic coverage should include this organism.³ Previous research has documented a high susceptibility of MRSA to trimethoprim-sulfamethoxazole, which also provides coverage to other microbes commonly isolated from the vulva, such as *Proteus*, *E. coli*, and group B *Streptococcus*.⁷ Duration of therapy is guided by the resolution of symptoms.

The patient presented with inflammatory skin disease at the vulva should be considered of Lichen sclerosus (LS) which refers to a benign, chronic, progressive dermatologic condition characterized by marked inflammation, epithelial thinning, and distinctive dermal changes. LS is the risk of squamous cell carcinoma of the vulva in 4% to 5%. The diagnosis of LS is based upon the presence of characteristic manifestations, ideally with histological confirmation.⁸ Ezrin is widely present in the vaginal wall. This has implications for the strength and resilience of this tubular structure and may be the case in other internal genital tissues.⁹ Although omega-3 fatty acid composition changed in diet, vaginal epithelial morphology unchanged. Estrogen did effect on vaginal cell, but omega-3 fatty acid did not effect on ezrin and merlin vagina.¹⁰

In this case report, we isolated *Staphylococcus aureus* from vulvar majora abscess in a postmenopausal woman, a carrier of *K. pneumoniae* in vaginal flora, with underlying diseases of bronchiectasis in LUL and atelectasis in RML. *K. pneumoniae* belongs to the normal flora of the human mouth and intestine. Infections with *K. pneumoniae* are usually hospital-acquired and occur primarily in patients with impaired host defenses. The patient was received antibiotics combined with conservative therapy (without incision and drainage) and a multidisciplinary approach with department of infection. From our finding in this case and comparing to literature, two interesting points were noted that a carrier of *K. pneumoniae* in vaginal flora and vulvar abscess caused by MRSA in a postmenopausal woman,

which is a rare case report.

Recent literature confirms an increase in the prevalence of community-acquired MRSA skin and soft-tissue infections. Inpatient treatment is more common in women with medical comorbidities, larger abscesses, and signs of systemic illness and MRSA was the most common organism isolated in women with vulvar abscesses. Although community-acquired MRSA is a virulent organism, most of the MRSA isolated were sensitive to trimethoprim-sulfamethoxazole. The vulva may be an area that is particularly susceptible to a MRSA skin and soft-tissue infection. The gynecologist evaluating a patient with a vulvar abscess should consider MRSA as a cause. An antibiotic regimen with activity against MRSA, such as trimethoprim-sulfamethoxazole, should be initiated in similar populations with vulvar abscesses.

Acknowledgement

This work was supported by the Soonchunhyang University Research Fund.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

References

1. Lee SH, Kim TH, Lee HH, Lee WS, Chung SH. The clinical manifestation of the gynecologic emergency in postmenopausal women. *J Korean Soc Menopause* 2012; 18: 119–23.
2. Kim HK, Kang SY, Chung YJ, Kim JH, Kim MR. The recent review of the genitourinary syndrome of menopause. *J Menopausal Med* 2015; 21: 65–71.
3. Thurman AR, Satterfield TM, Soper DE. Methicillin-resistant *Staphylococcus aureus* as a common cause of vulvar abscesses. *Obstet Gynecol* 2008; 112: 538–44.
4. Bhide A, Nama V, Patel S, Kalu E. Microbiology of cysts/abscesses of Bartholin's gland: review of empirical antibiotic therapy against microbial culture. *J Obstet Gynaecol* 2010;

- 30: 701–3.
5. Kilpatrick CC, Alagkiozidis I, Orejuela FJ, Chohan L, Hollier LM. Factors complicating surgical management of the vulvar abscess. *J Reprod Med* 2010; 55: 139–42.
 6. Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJ, Gorbach SL, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2014; 59: e10–52.
 7. Reichman O, Sobel JD. MRSA infection of buttocks, vulva, and genital tract in women. *Curr Infect Dis Rep* 2009; 11: 465–70.
 8. Park J, Kim TH, Lee HH, Lee W, Chung SH. Lichen sclerosus in a post-menopausal woman: a case report. *J Korean Soc Menopause* 2012; 18: 70–3.
 9. Fadiel A, Lee HH, Demir N, Richman S, Iwasaki A, Connell K, et al. Ezrin is a key element in the human vagina. *Maturitas* 2008; 60: 31–41.
 10. Lee HH, Kim TH, Park J, Lee A, Park Y, Byun DW, et al. Expression of ezrin in vagina cells of postmenopausal rats after dietary administration of omega-3 Fatty Acid formula. *J Menopausal Med* 2014; 20: 97–103.