

Bacterial Vaginosis: The Leading Cause of Vaginal Discharge in Women Attending an STD Clinic in Copenhagen

Sir,

Vaginal discharge, itching and erythema are common genital complaints in sexually active women attending STD clinics. The leading cause of these symptoms has for many years been classical STDs, such as trichomoniasis, gonorrhoea and chlamydia (1). Endogenous genital infections, such as bacterial vaginosis and vaginal candidiasis, on the other hand, have been found in a significant proportion of women attending out-patient gynaecological clinics and general practitioners (2, 3).

Since 1986 approximately 2,500–3,000 women have been examined each year due to various genital symptoms and signs. Since a significant change in disease pattern has occurred from 1986 to 1997 we found it relevant to report these data.

In addition we have analysed in detail the aetiological factors implicated in vaginal discharge, vulvo-vaginal itching and erythema in 76 consecutive symptomatic female patients seen during a 2-month period in the clinic in 1997.

RESULTS

Bacterial vaginosis (BV) was diagnosed in 47 (62%) of 76 symptomatic women (see above), making BV the most prevalent infection in this population. Vulvo-vaginal candidiasis was seen concomitantly with BV in 6 (15%) women, and in a further 6 (15%) women BV was associated with either chlamydia, gonorrhoea or trichomoniasis.

Vulvo-vaginal candidiasis was present in 21 (28%) of the 76 symptomatic women. One third simultaneously had BV, whereas STDs were not detected.

Chlamydia, gonorrhoea and trichomoniasis were found in 6 (8%), 3 (4%) and 3 (4%) women, respectively. In 12 (16%) women examined no pathological agents were detected.

In 1986, 46% of 3,026 female patients attending our clinic had a diagnosis of chlamydia, gonorrhoea and/or trichomoniasis. In comparison only 8% of 2,745 women seen in 1997 had 1 or more of these infections (Table I).

DISCUSSION

The major functions of STD clinics are diagnosis and treatment of STDs. It is somewhat paradoxical that non-sexually transmitted disease, such as BV and candidiasis, now constitute the most prevalent infectious diseases in symptomatic females attending an STD clinic in Copenhagen. This phenomenon is similar to that observed in a STD clinic in Uppsala in 1987 where BV was the only clinical diagnosis in 24% of the women attending the clinic (4).

Exogenous STDs usually predominate in STD clinics (1), which was also the case in our clinic until 1988. However, since then, BV and candidiasis have become the predominant infections associated with discharge among our female patients. BV and candidiasis have been reported to be diagnosed in a significant number of symptomatic women attending out-patient gynaecological clinics (2) and primary care physicians (3, 5). It can be concluded that the disease pattern among women attending our STD clinic with vaginal discharge now resembles that seen in women consulting primary healthcare clinics and gynaecologists, with a predominance of endogenous, non-sexually transmitted diseases.

These findings also emphasize that direct microscopy of vaginal secretions is of increasing importance in the examination of symptomatic women in STD clinics (5).

REFERENCES

1. Staerfelt F, Gundersen TJ, Halsos AM, Barlinn C, Johansen AG, Norregaard KM, Eng J. A survey of genital infections in patients attending a clinic for sexually transmitted diseases. *Scand J Infect Dis* 1983; Suppl 40: 53–57.
2. Fleury FJ. Adult vaginitis. *Clin Obstet Gynecol*. 1981; 24: 407–438.
3. McCue JD. Evaluation and management of vaginitis. An update for primary care practitioners. *Arch Intern Med* 1989; 149: 565–568.
4. Hallén A, Pålsson C, Forsum U. Bacterial vaginosis in women attending STD clinic: diagnostic criteria and prevalence of *Mobiluncus* spp. *Genitourin Med* 1987; 63: 386–389.

Table I. Number of diagnosed cases of selected STDs, from 1986 to 1997 in female patients attending an STD clinic in Copenhagen. The figures in brackets are percentages

STD	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Chlamydia	678 (22)	606 (20)	377 (15)	297 (13)	188 (7)	251 (9)	260 (8)	169 (6)	148 (5)	133 (5)	131 (5)	185 (7)
Gonorrhoeae	540 (18)	408 (13)	131 (5)	87 (4)	50 (2)	26 (1)	33 (1)	11 (0.4)	12 (0.4)	5 (0.2)	3 (0.1)	4 (0.1)
Trichomoniasis	191 (6)	52 (2)	10 (0.4)	13 (0.5)	4 (0.2)	16 (0.6)	1 (0.3)	1 (0.3)	1 (0.3)	16 (0.6)	18 (0.7)	15 (0.5)
Candidiasis	209 (7)	353 (12)	248 (10)	236 (11)	264 (10)	265 (9)	179 (6)	197 (6)	160 (6)	187 (8)	193 (8)	191 (7)
Bacterial vaginosis	71 (2)	155 (5)	163 (6)	140 (6.2)	201 (8)	179 (6)	255 (8)	233 (8)	244 (8)	261 (11)	239 (10)	190 (7)
No. of women examined	3,026	3,051	2,565	2,244	2,597	2,820	3,151	3,032	2,892	2,436	2,403	2,745

5. Wathne B, Holst E, Hovelius B, Mårdh PA. Vaginal discharge – comparison of clinical, laboratory and microbiological findings. *Acta Obstet Gynecol Scand* 1994; 73: 802–808.

Carsten S. Petersen¹, Anne Grethe Danielsen¹ and Jan Renneberg²
Departments of ¹Dermato-venereology and ²Microbiology, Bispebjerg Hospital, University of Copenhagen, DK-2400 Copenhagen, Denmark.

Accepted March 3, 1999.

Methicillin-resistant *Staphylococcus aureus* Non-gonococcal Urethritis

Sir,

Non-gonococcal urethritis is one of the commonest sexually transmitted diseases. The aetiological agents include *Chlamydia trachomatis*, *Ureaplasma urealyticum*, *Trichomonas vaginalis* and *Mycoplasma genitalium* (1). The case presented here is an uncommon occurrence of Methicillin-resistant *Staphylococcus aureus* (MRSA) non-gonococcal urethritis.

CASE REPORT

A 25-year-old unmarried man presented with urethral discharge and pain during micturition for the last 2 days. He had had a single unprotected penovaginal sexual encounter with a female sexworker 5 days earlier. He had a history of many heterosexual exposures with multiple partners during the past 5 years, but no history of any previous sexually transmitted diseases. Examination revealed copious, purulent urethral discharge with marked erythema and oedema of the meatus, prepuce and penile skin. Gram-stained urethral smear showed many polymorphonuclear cells, gram-positive cocci but no Gram-negative diplococci. Urethral discharge cultures were put on Modified Thayer-Martin medium, Chocolate agar, MacConkey agar and Brain Heart Infusion agar supplemented with haemin and vitamin K. Cultures were negative for *Neisseria gonorrhoeae*. Pure growth of *Staphylococcus aureus* was obtained, and showed antimicrobial resistance to penicillin, tetracycline, erythromycin, chloramphenicol, streptomycin, cephalexin, ceftriaxone, oxacillin and susceptibility to amikacin and vancomycin by stokes disc diffusion technique. The organism also demonstrated β lactamase production, NCCLS breakpoint oxacillin MIC of >2 $\mu\text{g/ml}$ and susceptibility to amoxicillin-clavulanic acid (augmentin) disc thus indicating a low level methicillin resistance probably due to hyperproduction of β lactamase (2). *Chlamydia trachomatis* antigen detection by DIF test was negative. VDRL and TPHA were non-reactive and ELISA for HIV I and II was negative. The patient was given ceftriaxone 250 mg i.m. and showed no response when seen after 48 h. He was, then, treated with 2 tablets orally of amoxicillin 250 mg with clavulanic acid 125 mg (augmentin) every 8 h with marked improvement in symptoms and signs within 48 h and continued the medication for 10 days with clinical and microbial clearance both on smear and culture. His sexual partner did not attend for examination.

DISCUSSION

Staphylococcus aureus is not mentioned among the common aetiological agents for non-gonococcal urethritis (NGU), though it has been isolated and implicated in NGU patients (3–6) and also in patients with trichomonal urethritis (7). The present case is reported because of the uncommon occurrence

of MRSA in NGU urethritis, which to the best of our knowledge has not been reported so far. With the first reports of MRSA in 1960s, its occurrence has now been recorded worldwide both as a nosocomial and community-acquired pathogen that is becoming progressively resistant to many widely used antibiotics (8, 9). Thus, occurrence of MRSA as a sexually transmitted pathogen assumes significance and is a matter of concern. *Staphylococcus aureus* infection is initiated when there is a break in the continuity of skin or mucosa. Promiscuous sexual behaviour in the present case probably increased the patient's risk of infection. This particular factor has not been explored in any previous study and needs to be examined in detail especially with MRSA causing NGU.

REFERENCES

1. Shahmanesh M. Problems with nongonococcal urethritis. *Int J STD AIDS* 1994; 5: 390–399.
2. Geha DJ, Uhl JR, Gustaferrero CA, Persing DH. Multiplex PCR for identification of Methicillin-Resistant Staphylococci in the clinical laboratory. *J Clin Microbiol* 1994; 32: 1768–1772.
3. Lejamm K, Czabenowska BJ. Clinical and microbiological observations on nongonococcal infections of male and female genito-urinary tract. *Br J Vener Dis* 1961; 37: 164–169.
4. Pillai A, Deodhar L, Gogate A. Microbiological study of urethritis in men attending a STD clinic. *Indian J Med Res* 1990; 91: 443–447.
5. Hovelius B, Thelin I, Mårdh PA. *Staphylococcus saprophyticus* in the aetiology of nongonococcal urethritis. *Br J Vener Dis* 1979; 55: 369–374.
6. Oboho KO. Problems of venereal disease in Nigeria. 2. *Staphylococcus aureus* as a possible cause of non-gonococcal urethritis. *Fam-Pract* 1984; 1: 222–223.
7. Al-Sanori TM. The species attribution of Staphylococci isolated from patients with trichomonal urethritis. *Mikrobiol-Z* 1995; 57: 63–69.
8. Barber M. Methicillin-resistant staphylococci. *J Clin Pathol* 1961; 14: 385–393.
9. Brumfitt W, Hamilton-Miller J. Methicillin-resistant *Staphylococcus aureus*. *N Engl J Med* 1989; 320: 1188–1196.

Accepted February 26, 1999.

P. Sharma¹ and A. Singal²
Departments of, ¹Microbiology and ²Dermatology, University College of Medical Sciences & Guru Teg Bahadur Hospital, Delhi 110095, India.