Rectal occurrence of *Mobiluncus* species

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SUMMARY The simultaneous occurrence of *Mobiluncus* spp in the vagina and rectum was studied in women attending a sexually transmitted diseases (STD) department. Of 43 women with bacterial vaginosis (BV), 32 had *Mobiluncus* spp in the vagina and 23 in the rectum. In 20 women the same *Mobiluncus* species was found concomitantly in the vagina and the rectum. *Mobiluncus* spp were found in the rectum only in two women with BV, one with candidal vaginitis, and one healthy woman.

In a treatment study of 23 women, BV was cured in nine out of 10 treated with metronidazole and six out of 13 treated with tetracycline. After treatment *Mobiluncus* spp persisted in the vaginas of two out of 19 women and in the rectums of two out of 10.

The clinical syndrome of bacterial vaginosis was originally described by Gardner and Dukes as *Haemophilus vaginalis* vaginitis.¹ The recognised clinical criteria for a diagnosis of BV are: pH more than 4.5, characteristic vaginal discharge, positive amine test, and clue cells in the wet smear.² Three of these criteria have to be satisfied to establish the diagnosis of BV.³ The introduction of quantitative culture techniques showed the predominance of anaerobic bacteria at the expense of vaginal lactobacilli in women with BV.^{4,5}

Mobiluncus is an aerobic, motile and curved, rod shaped bacterium associated with BV.^{6,7} It has been assigned to a new genus, *Mobiluncus*, containing the two species *M. mulieris* and *M. curtisii*.⁸ Subspeciation within the genus, however, is not firmly established.^{9,10}

Mobiluncus spp are found in about half the women who have BV.⁷ With improved microbiological methods they have also been found in women with genital infections other than BV, as well as in some healthy women.⁷

The normal ecological niche for *Mobiluncus* spp is not known. In a small preliminary study we reported the occurrence of *Mobiluncus* spp in the rectums of most women with *Mobiluncus* associated BV (Påhlson *et al*, second world congress on STD, Paris 1986). In that study, as well as women with BV, we included those with other lower genital tract infections and healthy women to see whether *Mobiluncus* spp occurred regularly in the rectum. In the therapeutic

trial reported here we investigated the persistence of *Mobiluncus* spp simultaneously in the vagina and the rectum.

Patients, materials, and methods

PATIENTS

We studied 67 women attending the sexually transmitted disease (STD) department of the University Hospital, Uppsala, presenting with different clinical conditions and women with no signs of genital infection (healthy women).⁷

METHODS

The clinical procedures, including examination, collection of specimens for direct microscopy, and microbiological studies, have been described previously.⁷ The rectal specimens were obtained with a charcoal coated cotton swab, first used to prepare the direct smear (using sterile slides) and then inserted in PYG (peptose, yeast extract, and glucose) medium for transport to the laboratory.

Culture of *Mobiluncus* spp was performed after alkaline pretreatment as described previously.¹¹ *Mobiluncus* spp were also diagnosed in direct smears from the vagina and rectum using monoclonal antibodies and immunofluorescence microscopy.¹²

Urethritis was defined as 10 or more polymorphonuclear leucocytes (PMNL) per microscopic field ($\times 1000$).¹³ Cervicitis was defined as mucopus in the cervical os and more than 10 PMNL per microscopic field ($\times 1000$).¹⁴

Included in the treatment study were 23 women with BV whose wet smears contained motile rods. All but

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four were also positive for *Mobiluncus* using immunofluorescence. Thirteen women were treated with tetracyclines (lymecycline 0.3 g twice a day for 10 days): five of them had BV and cervicitis, five had BV and simultaneous chlamydial infections, and another three were treated epidemiologically for chlamydial infection. Ten women were treated with metronidazole (0.5 g twice a day for seven days): nine had BV, and one had trichomoniasis. All attended for a second visit within one week after the end of treatment, when the same clinical procedure was followed.

Results

Findings of *Mobiluncus* spp in different diagnostic groups are shown in the table. Out of 43 women with BV, 32 yielded *Mobiluncus* spp from the vagina and 23 from the rectum; in 20 of these women the microbe was found concomitantly in the vagina and the rectum. In all women yielding *Mobiluncus* spp from both anatomical sites simultaneously, the same species was found in the vagina and the rectum, except in six women who yielded both species from one site and only one from the other.

In two women with BV, one with candidal vaginitis, and one healthy woman, *Mobiluncus* spp were found in the rectum only. Of 25 rectal *Mobiluncus* isolates, 10 were *M. mulieris*, 11 were *M. curtisii*, in one patient both strains were found together, and in two patients species identification was not possible.

In the treatment study of 23 women, BV persisted in seven after treatment with tetracycline and in one (the patient with trichomoniasis who was reinfected) after receiving metronidazole. After treatment *Mobiluncus* spp were found in the vaginas of two women: one who had normal findings after treatment with tetracyclines, and the woman who was reinfected with trichomoniasis. Before treatment 10 out of 23 women harboured *Mobiluncus* spp in the rectum. In two of these women *Mobiluncus* spp were found after treatment. Both

Table Incidence of *Mobiluncus* spp (*M. mulieris* and *M. curtisii*) in vaginas and rectums of 67 women with different clinical diagnoses, shown by culture and monoclonal antibodies and immunofluorescence

Diagnosis	n	<i>Mobiluncus</i> spp in:		
		Vagina	Rectum	Both sites
Bacterial vaginosis (BV)	19	13	10	9
BV and cervicitis	12	9	8	7
BV and chlamydial infection	11	9	5	4
BV and trichomoniasis	1	1	0	0
Chlamydial infection	1	0	0	0
Candidosis	6	0	1	0
Non-specific urethritis or cervicitis	5	0	0	0
Healthy	12	1	1	0

women were treated with metronidazole and had normal findings at the second visit. In one of the two women *M. curtisii* persisted. The same species was found in the other woman, but she had yielded *M. mulieris* before treatment and both species had been found in her vagina.

Discussion

In this study we found *Mobiluncus* spp in the rectums of 54% (23/43) of women with BV, and in 87% (20/23) of those women the same species was concomitantly found in the vagina. Holst *et al* found rectal *Mobiluncus* spp in seven (21%) out of 34 women with BV.¹⁵ *M. curtisii* was isolated from all seven and five also yielded *M. mulieris*. We found equal numbers of each species alone, and in only one woman were both strains found together. One explanation for these divergent findings could be the different microbiological methods used. The difficulties of isolating *Mobiluncus* spp are accentuated with rectal samples because of the large numbers of contaminating bacteria. Alkaline pretreatment and the use of monoclonal antibodies are, in our opinion, satisfactory substitutes for a truly selective culture method, but further studies are necessary in the search for selective principles for the culture of *Mobiluncus* spp in the presence of large numbers of other bacteria.

In the treatment study of 23 women both drugs eliminated *Mobiluncus* spp from the vagina, except *M. mulieris* from one woman treated with tetracycline and *M. curtisii* in the patient reinfected with trichomoniasis. Irrespective of this, BV persisted in 54% (7/13) of the patients treated with tetracyclines. This corresponds to the fact that *Mobiluncus* spp are sensitive to tetracyclines,^{16,17} but does not support a causative role for *Mobiluncus* spp in BV.

Reinfection could be an explanation for finding *Mobiluncus* spp after treatment, but is not supported by the rare occurrence of *Mobiluncus* spp in men.^{18,19}

Mobiluncus spp were found in the rectums only of four women (6% of the 67 patients). Two of these had BV, the other two not. This finding, as well as the persistence of *Mobiluncus* spp in the rectum after treatment in a few cases, supports the hypothesis that *Mobiluncus* spp have their normal habitat in the rectum. From this study it does not seem likely that all women harbour *Mobiluncus* spp in the rectum. The detection limit for the microbiological methods used, however, was around 10⁴ to 10⁵ (Pålsson C, unpublished observation). The number of organisms in the rectum may vary, and a larger number in the rectum could be a prerequisite for colonisation of the vagina.

The rectum seems to be the primary habitat of *Candida* spp in patients with candidal vulvovaginitis,²⁰ and group B β streptococci seem to cause infections in

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neonates after transmission, via the mothers' genital areas, from reservoirs in the rectums.²¹ The process seems to be the same with *Mobiluncus*: colonisation of the vagina from the rectal reservoir is associated with BV, and dissemination has caused purulent infections (postoperatively and de novo) and sepsis.²²⁻²⁴

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