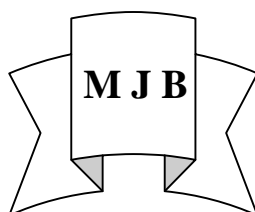


Isolation of *Proteus* species From Women with Intrauterine Contraceptive Device

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Abstract

In this study, 80 high vaginal swabs obtained from women with vaginitis who admitted to Babylon Hospital for Maternity and Children in Hilla Province were included.

It was found that four isolates of *Proteus* were isolated from women with IUCD, but there was no isolate detected from non IUCD women.

Proteus isolates were subjected for antibiotic susceptibility test. It was seen that all isolates were sensitive to azithromycin and in lesser degree to calithromycin, ceftazidime and amikacin. Also isolates showed resistance to gentamycin.

الخلاصة

في هذه الدراسة، تم الحصول على 80 مسحة مهبلية من أعلى المهبل من النساء المصابات بالتهاب المهبل والمراجعات الى مستشفى بابل للولادة والأطفال في الحلة. تم عزل من النساء اللواتي يعانين من حالات التهاب المهبل واللواتي يستعملن اللولب ولكن لم يتم عزل هذه البكتريا من اللواتي لا يستعملن اللولب *Proteus* عزلات محلية من بكتريا وبدرجة اقل azithromycin لاختبار فحص الحساسية للمضادات الحيوية، وقد لوحظ أن جميع العزلات حساسة لل *Proteus* وقد خضعت بكتريا gentamycin. وأيضا لوحظ إن جميع العزلات مقاومة ل calithromycin, ceftazidime and amikacin.

Introduction

Many disease of the genitourinary system are still common due to sexual activity, availability of contraception, change in marriage and divorce, socioeconomic and increased detection due to heightened awareness (1).

Intrauterine contraceptive device (IUCD) is a form of contraception in which a small, plastic object shaped like "T" that is placed in a woman's uterus to prevent pregnancy. However, this device do not protect against sexual transmitted disease such as HIV infection and in rare cases they can produce health risks (2).

The side effect associated with IUCD includes; heavier menstrual periods with more cramps (copper IUCD), lower abdominal pain (cramp) or back pain, Irregular periods or cessation of periods (hormonal IUCD), acne or other types of skin disorders, breast tenderness (with hormone IUCD), headache, mood changes and nausea (3).

Many bacteria is associated with urogenital tract infection especially women with IUCD such as *Klebsiella*, *E.coli*, *Acinetobacter*, *Pseudomonas*, *Bacillus*, *Streptococcus*, *Enterobacter...*etc. but the role of IUCD and *Proteus* are unclear, so this study make a trail to isolate *Proteus* from patient women suffering from vaginitis in the presence of IUCD.

Patients and Methods

High vaginal swabs are obtained from 80 women patient with variable degrees of abnormal vaginal discharge. They were examined by wet preparation, gram stained smear and bacteriological culture method. All women were attending in obstetrics and gynecology clinic at Babylon Hospital for Maternity and Children in Hilla City.

The vaginal swabs were inoculated on MacConkey agar and incubated at 37C° for 24hr. Traditional biochemical tests were used for final identification of bacterial isolates (4).

Some antibiotic discs were used to show the effect of them on isolated bacteria using disk diffusion method (4).

Results and Discussion

In this study, 80 high vaginal swab obtained from women patients suffering vaginitis were taken. It was found that out of the total 80 samples, only 37samples showed positive culture and no growth was seen in other samples (43samples) (table 1). The later may be attributed to microorganisms other than bacteria such as viral, Chlamydia and fungal infection.

Colonization in the female genital tract is stimulated greatly by the presence of a foreign body such as intrauterine contraceptive device. Colonization may be asymptomatic or minimally symptomatic, presenting only as shedding of actinomycotic granules into vaginal fluid. The clinical presentation includes foul-smelling vaginal discharge, intermittent pelvic pain, abnormal bleeding and one or more pelvic masses. Single or multiple abscesses may form in the uterine wall, usually surrounding an embedded IUCD (5).

In table (2), the result was correlated with the results obtained by (6) who have pointed that only multiload culture yielded *Acinetobacter*, *Proteus*, *Pseudomonas*, *Lactobacillus*, *Enterobacter*, *Klebsiella*, *Bacillus*, *Staphylococcus* and *Moraxella*.

However the picture is not clear in case of *Proteus* in women with use IUCD due to small numbers of infected women involved in this study and this bacteria is mainly isolated from urinary tract infection.

It has reported that 13 isolation of *Proteus* are isolated from 283 cases of vaginitis (7). Besides, *Proteus* has been isolated by a rate 4.9% from 100 cases of vaginitis (6).

The isolation rates of different bacteria spp. varied with the duration of the device in utero. The presence of a copper IUCD altered the bacterial flora of the female genital tract (8).

The creation of an acidic environment by some bacteria such as *Lactobacillus*, may promote the growth of some pathogen, while inhibiting the growth of others. Furthermore, the insertion of an IUCD breaches the protective barrier of the cervical mucus, and the IUCD tail creates transmission link into uterus (9).

The highest infection was detected among women in the 15-24 age groups, which represent the most active sexual age. The incidence of pathogenic agents decreased with age (10).

The effect of antibiotics on *Proteus* isolates is also studied. As seen in table (3) that *Proteus* spp. showed highly resistance to gentamycin. Aminoglycoside antibiotics, particularly r gentamycin have

been widely used in the treatment of gram negative bacteria infection in hospitalized patients. Perhaps because of the extensive use of gentamycin, the emergence of strains of bacteria resistance to these antibiotics has occurred in some hospitals (11).

It was also found that *Proteus* spp. resistance to amikacin, clarithromycin and ceftazidime by a rate 25%. Amikacin showed greater activity than gentamycin against *E.coli*, *Klebsiella*, *Enterobacter*, *Citobacter* and *Proteus* by virtue of their lethal effect of gentamycin-resistant strains (12). Ceftazidime provides an extremely active agent against aerobic and facultative gram negative bacteria (13).

The effect of azithromycin was also studied, it was seen that all *Proteus* isolates were sensitive to it. The newer macrolide clarithromycin and azithromycin have increased activity against several gram negative bacteria (14,15).

References

- 1- Sharief M. Eastern Mediterranean Health Journal.1998;4(3): 487-492.
- 2- Seshu P, Sarma D, William L.Arch Fam Med.1998;7:130-133.
- 3- Joanne D. American Medical Association.2007;2:22-25.
- 4- Collee G, Fraser F, Marmian P, Simmon A.The Churchill Livingston. Inc. USA, 1996.

- 5- Paavonen J.Scandinavian Journal of Infectious Disease.1983; 40:31-35.
- 6- Harrun R, Nayar S, Thum L.Malays J Reprod Health.1989;7(2):131-7.
- 7- Kaufmann E.Contracept Fertil Sex.1985;13(2):475-82.
- 8- Elhag M , Bahar M , Mubarak A.J Med Microbiol.1988; 25(4):245-51.
- 9- Alfred S, Dorothea K. Archives of Gynecology and Obsterics.1986;239(1):31-37.
- 10-Robertson D. Edinburgh, Churchill Livingstone. 1989; 108-183.
- 11-Philip M, Sharp A, Russell R.Antimicrobial Agents and Chemotherapy.1974;5(5):435-438.
- 12-James J, Rattal R, Michael S, Nancy H.Antimicrobial Agents and Chemotherapy, 1975, 9(4), p:595-599.
- 13- Harold C, Pornpen L.Antimicrobial Agents and Chemotherapy.1982;21(1):11-18.
- 14-Kirst A,Sides D.Antimicrobial Agents and Chemotherapy.1989;33:1413-1418.
- 15-Neu C, Chin X, Saha G, Labthavikul P. Eur J Clin Microbiol Infect Dis.1988;7: 541-544.

Table (1): Frequency of positive and negative culture among patients with vaginitis

Patients	Positive culture	Negative culture
With IUCD	21	14
Without IUCD	16	29
Total	37	43

Table (2): Isolation of bacteria from women patients with or without IUCD suffering from vaginitis

Isolates	Women with IUCD	Women without IUCD
<i>Acinetobacter</i>	3	2
<i>Klebsiella</i>	3	3
<i>Pseudomonas</i>	4	2
<i>E.coli</i>	5	6
<i>Proteus</i>	4	-
<i>Lactobacillus</i>	2	3
Total	21	16

Table (3) :Effect of some antibiotics on *Proteus* spp. isolates from women with IUCD suffering from vaginitis

Antibiotics	Isolate no.1	Isolate no.2	Isolate no.3	Isolate no.4
Azithromycin	-	-	-	-
Clarithromycin	-	-	+	-
Ceftazidime	-	+	-	-
Gentamycin	+	+	+	+
Amikacin	+	-	-	-

(-): sensitive

(+): resistance