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USE OF SELF HOME-MADE DIAPHRAGM FOR PROTECTION AGAINST PREGNANCY AND SEXUALLY-TRANSMITTED INFECTIONS: CASE REPORT
A. Schroth, MD, S. Luchters, MD, MSc, M.F. Chersich, MD, MSc, I. Jao, H.Dip and M. Temmerman, MD, MPH, PhD, International Centre for Reproductive Health Kenya, P.O. Box 91109, Mombasa, Kenya

Request for reprints to: Dr. A. Schroth, International Centre for Reproductive Health Kenya, P.O. Box 91109, Mombasa, Kenya

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A. SCHROTH, S. LUCHTERS, M.F. CHERSICH, I. JAO and M. TEMMERMAN

SUMMARY

This is a case report of a 44-year old woman who used a home-made diaphragm for 16 years to protect herself from pregnancy and sexually-transmitted infections. The woman stitched a piece of cloth with folded polythene inside. This case report provides a vivid illustration of the limitations of available methods of protection for women. It consists of an introduction to the topic, a description of her experiences using her home-made diaphragm and a discussion of the significance of the case. This report supports the need for additional research on female-controlled methods of protection against sexually-transmitted infections, methods that can be used without male knowledge and co-operation, such as vaginal microbicides and cervical barriers against infection, including the diaphragm.

INTRODUCTION

About 40% of Kenyan women of reproductive age are currently using contraception(1). However, the existing contraceptive method mix does not fully address the needs of women, many of whom have an unmet need for family planning and for protection against HIV and other sexually-transmitted infections (STI). Although both male and female condoms provide dual protection against pregnancy and STI, they require male co-operation, and acceptability and uptake of these methods remains poor. In response to these concerns, research initiatives have increasingly focused on female-controlled methods that may be used without male knowledge and/or co-operation, such as vaginal microbicides and cervical barriers including the diaphragm (2).

Limited evidence from observational studies suggests the diaphragm provides protection against STI and their sequelae, including gonorrhoea, pelvic inflammatory disease, tubal infertility and cervical dysplasia (3). This is biologically plausible as the cervix is a primary site of entry for several STIs, including HIV and human papilloma virus. The cervical columnar epithelium is thinner than the vaginal epithelium and, in addition, expression of CD4-cell and CCR5-chemokine receptors is higher in the cervix than vagina (3).

The diaphragm, formerly a widely used contraceptive method, is currently not available in family-planning services in Kenya. We report a case of a 44-year old Kenyan woman who used a home-made diaphragm since 1977 for protection against pregnancy and STI.

CASE REPORT

The woman, a participant in a study investigating diaphragm acceptability among women in Mombasa, Kenya, completed nine years of school, is divorced, and has had three first-trimester miscarriages and

four live births. She earns about 80US$ per month from baking and selling foodstuffs and, following her divorce, as a female sex worker. She developed a home-made diaphragm in response to a number of factors: she feared she may acquire an STIs as several of her friends had; negotiating condom use was often unsuccessful; and no alternatives were available for simultaneous protection against STIs and pregnancy.

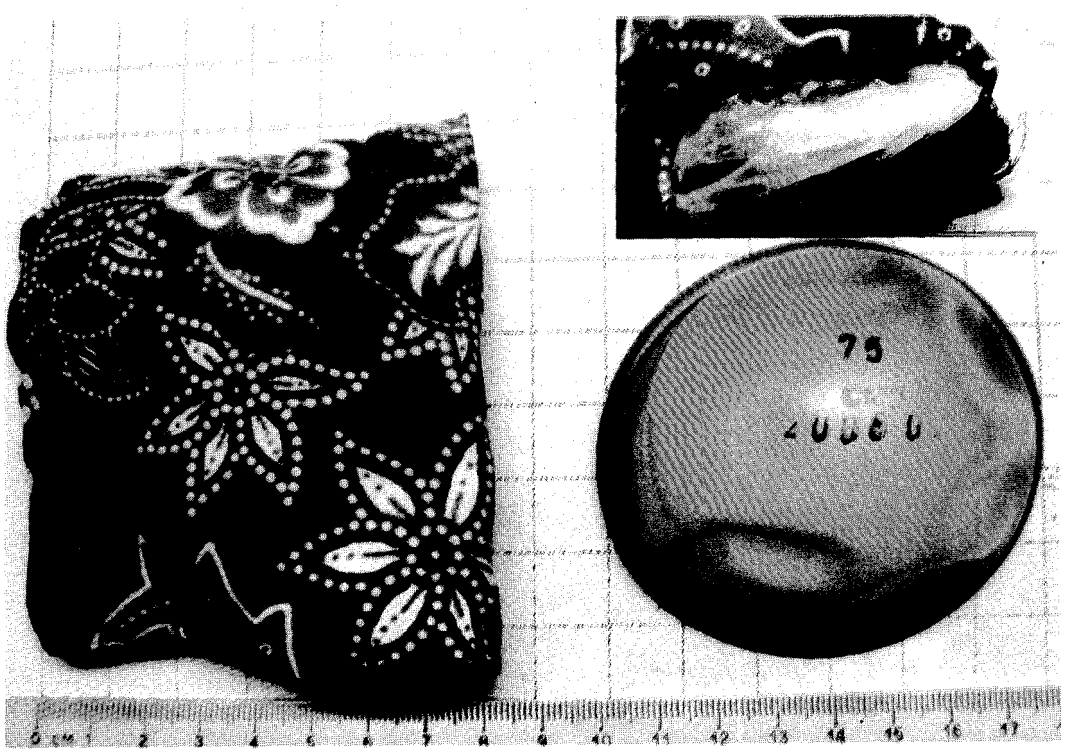
Based on knowledge of female anatomy learnt at school, she created a physical barrier to cover the cervix and prevent both 'sperm entering the uterus' and STIs. The woman stitched a piece of cloth with folded polythene plastic inside to form an 8 cm by 8 cm device (Figure 1). She tested the device by placing cotton wool behind it and pouring ink, mimicking semen, onto it. On noting the cotton wool was unstained and ink had not penetrated through her home-made diaphragm, she assumed it would provide adequate protection. Prior to each sexual act she inserted the diaphragm, without using lubricant or spermicide. Her device was treated as a disposable item, being removed and discarded immediately following intercourse, unless she anticipated more than one sexual act that day when it was left in place for a few hours. It was used during menstruation and absorbed menstrual flow, enabling her to have sex without her partner knowing she was menstruating. She used it during all sexual acts for a total of 16 years. Condoms were not used during this time. None of her sexual partners ever reported feeling the device during intercourse, enabling her to use it without their knowledge. She never disclosed its use to her husband or other partners.

For a period of time she discontinued using it as she wished to conceive. After her fourth child she reinitiated use of the home-made diaphragm. Not wishing to disclose its use to her husband, she had an intrauterine device (IUD) inserted so she could show him the family planning clinic card. After her divorce she had the IUD removed and continued using only her diaphragm. She gave several samples of the home-made diaphragm to women in her community, some of whom were reportedly reluctant to use it, fearing it would 'enter their stomach'.

She reported that while using the device she did not become pregnant, acquire an STI or have a urinary tract infection. After counselling, the woman accepted HIV testing, which was negative. Cervical cytology was carried out; no intraepithelial lesion or malignancy was noted on pap smear.

Figure 1

Self home-made diaphragm for protection against pregnancy and sexually-transmitted infections



She recently switched to the latex diaphragm, provided through the above-mentioned diaphragm acceptability study. Although the latex diaphragm is harder to remove than her device and she is concerned its smaller size provides less protection against STI infection, overall she prefers the latex diaphragm as it causes less discomfort during sex and is easier to insert.

DISCUSSION

Physical barriers covering the cervix have been used for centuries to prevent pregnancy. Ancient texts document use of lemon halves, beeswax plugs and crocodile-dung (4). Mass production of the diaphragm began more than a hundred years ago and by the 1940s, it was the most commonly used contraceptive method in several countries (4). With development of more effective and coitus-independent contraception, diaphragm use decreased markedly and, at present, is not included in the contraceptive method mix in many countries. In these settings, little is known about use of home-made diaphragms.

Recent studies of diaphragm acceptability in eastern and southern Africa have reported high continuation rates (5,6). However, cultural beliefs about objects entering the stomach through the uterus could potentially decrease uptake of the diaphragm and related technologies. Peer educators in Kenya reported these beliefs hindered enrolment in the diaphragm study. Prospective studies investigating effectiveness of the diaphragm in preventing infection with HIV and other STIs are underway in African countries including Kenya, Madagascar, South Africa and Zimbabwe.

CONCLUSION

This case report further demonstrates that women have an unmet need for dual protection against pregnancy and STI, and benefit from female-controlled methods. Though an isolated report, it adds to existing evidence that the diaphragm is potentially an invaluable technology for women, protecting against unintended pregnancy and possibly against STI. Inclusion of the diaphragm in the contraceptive method mix should be reconsidered, particularly if ongoing studies demonstrate the diaphragm to be effective in reducing acquisition of HIV and other STIs. This would assist women in high-HIV burden areas to protect themselves against HIV and other STIs, although existing cultural beliefs have to be considered during promotion of the diaphragm and similar devices.

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