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Verrucous Carcinoma

Verrucous carcinoma of the vulva is a rare variant of squamous cell carcinoma, with about 50 cases reported. These are well-demarcated tumors with a pushing border, are slow growing, and rarely metastasize. Treatment consists of excision with free margins. This lesion has been associated with second malignant tumors.

Other Reported Malignancies

A variety of metastatic lesions to the vulva have been documented, most commonly from the gynecologic tract. Nongynecologic metastatic disease to the vulva is rare.

CONTRACEPTION

method of
MICHAEL A. THOMAS, M.D.
University of Cincinnati College of Medicine
Cincinnati, Ohio

The use of effective, reversible contraception can allow sexually active couples who do not desire pregnancy to have control of their fertility potential. It has been shown that approximately 90% of fertile sexual partners conceive in 1 year if no method of contraception is used. Of the 57.4 million women of reproductive age in the United States, 72% are at risk for pregnancy. Only 93% of the women at risk ever use a form of contraception, with more unmarried than married women failing to use contraception. The combination oral contraceptive pill (OC) is the most commonly used single form of pregnancy prevention (32% of women). Female and male sterilization combined is used by 36% of the population, making it the most common form of fertility control. Condoms and vaginal methods account for 20% of users, but barrier contraceptives are increasing in popularity and use because of fear of acquired immune deficiency syndrome (AIDS) and other sexually transmitted diseases. The lowest expected and typical failure rates of common contraceptive methods are listed in Table 1.

TABLE 1. **First-Year Contraceptive Failure Rates in the United States (%)**

Method	Lowest Expected	Typical
Chance	85	85
Withdrawal	4	18
Periodic abstinence		20
Calendar	9	
Ovulation method	3	
Symptothermal	2	—
Postovulation	1	
Spermicides	3	21
Diaphragm	6	18
Cervical cap	6	18
Intrauterine device		
Progestasert	2	
ParaGard	0.8	
Contraceptive pill		
Progestin-only	0.5	
Combination	0.1	
Medroxyprogesterone acetate (Depot-Provera)	0.3	0.3
Norplant	0.04	0.04
Sterilization		
Women	0.2	0.4
Men	0.1	0.15

Adapted from Trussell J, Hatcher RA, Cates W, et al: Contraceptive failure in the United States: An update. Stud Fam Plann *21*:51–54; 1990.

NATURAL FAMILY PLANNING

Natural family planning involves preventing conception by charting the menstrual cycle, observing the physiologic changes that take place during the cycle, then abstaining from sexual intercourse during the periovulatory period. This method of pregnancy prevention involves the charting of the menstrual cycle (rhythm), basal body temperature, cervical mucus, or a combination of these methods (symptothermal charting). All of these methods of *fertility awareness* require a couple to be highly motivated and willing to abstain from sexual intercourse for prolonged spans of time (depending on cycle length).

BARRIER METHODS

Condoms

At this time, the condom is the only reversible and in the United States. Latex rubber condoms provide protection against transmission of the AIDS virus and other sexually transmitted diseases. The fear of AIDS and other sexually transmitted diseases has correlated with an increase in sales of 60% over a 3-year period of observation. Condom use more than doubled from 21% to 58% between 1979 and 1988 among adolescent males. Overall, it is estimated that more than 40 million couples in the world use condoms. In Japan, 50% of married couples do so, although this statistic may change with the approval of hormonal contraception in this country.

The average first-year failure rate for the typical condom user is about 12%, although some investigators believe that this first-year rate among more *perfect* users is 2%. This failure rate is most commonly due to breakage rather than to retrograde spill of semen.

Because women are twice as likely to acquire a sexually transmitted disease as men during intercourse, women have begun to take a more active role in the acquisition of this male method of contraception. Women now purchase 40 to 50% of all condoms sold, with 16% of unmarried women relying on the method with or without another form of contraception.

Vaginal Spermicides

There are many spermicidal products (creams, jellies, suppositories, film, and foam) on the market today, all of which can be purchased over-the-counter without a prescription. They are simple to use, are

disease transmission. Most of these preparations contain nonoxynol 9, with a few products in the United States containing octoxynol 9. Both are surfactants that destroy the sperm cell membrane and act as a physical barrier to sperm penetration into the cervix. Depending on the agent and its concentration, spermicides can be used alone or with a diaphragm or condom.

To be effective, the spermicide must be placed high in the vagina and in contact with the cervix. The insertion should take place shortly before the start of intercourse, although the contraceptive film should be in place for a minimum of 5 minutes to allow time to melt. The maximum period of effectiveness is usually no more than 1 hour, and insertion of more spermicide must take place before the initiation of another act of intercourse. Douching or other attempts to remove the spermicide should not take place for 6 hours after intercourse.

The first-year failure rate for the typical user is about 21% but, depending on the agent, can be 36%. These high pregnancy rates are primarily related to inconsistent use rather than to failure of the method during use. Although no comparison studies between spermicidal agents have been performed, foam is believed to be more effective than the others. Significant protection against gonorrhea and chlamydia has been noted in clinical studies. The use of nonoxynol 9 has been found to protect against the acquisition of gonorrhea, with a relative risk of 0.75. This protective effect, although not infallible, is also provided against genital herpes, trichomonas, syphilis, and AIDS.

Irritation of the vulva, vagina, or penis is a temporary side effect experienced by some spermicide users. Changing to another agent should be attempted before completely abandoning this method of contraception.

Diaphragm and Cervical Cap

The vaginal diaphragm consists of a rubber dome that is circumferentially supported by a firm spring rim. Spermicidal jelly or cream is applied to the internal surface and around the rim. The diaphragm is inserted into the vagina right before the initiation of intercourse so that the posterior rim rests in the posterior fornix and the anterior rim behind the pubic bone, immediately below the urethra. It must be left in place for at least 6 hours after intercourse before removal. Because these devices are available in a range of sizes (the number corresponds to the rim diameter in millimeters), they must be fitted by a physician. If the diaphragm is too small, it does not stay in place. If too large, it becomes uncomfortable when forced into place.

The cervical cap is a small, flexible, cuplike device that is self-inserted around the base of the cervix. In contrast to the soft rubber caps made today, the previous devices were constructed of silver, copper, or plastic. Before insertion, one third of the inner portion of the cap is filled with spermicide. When properly placed over the cervix, similar to the diaphragm, it acts as a physical barrier to reduce cervical exposure to sperm. The addition of a spermicide provides extra protection by destroying any sperm that happen to traverse the protective barrier. The cap should be kept in place for at least 6 to 8 hours after intercourse before removal.

Concurrent studies of the effectiveness of the diaphragm and cervical cap show no significant differences. One study found the first-year failure rate for diaphragm users was 16.7 pregnancies per 100 woman-years of use versus a rate of 17.4 for cervical cap users. Other studies have documented rates of 2.4 per 100 woman-years of use with the diaphragm (established users).

The use of a vaginal barrier method and a spermicide significantly reduces the risk of all sexually transmitted diseases, including AIDS. One study showed the risk of contracting pelvic inflammatory disease and subsequent tubal infertility with this method was equivalent to that of OCs and approximately half the risk of that seen in women using no contraception. The diaphragm has been shown to reduce the risk of cervical dysplasia and/or cancer. It works as a barrier to reduce cervical exposure to infected semen.

INTRAUTERINE DEVICE

Before 1986, the intrauterine device (IUD) was the contraceptive of choice of 10 million American women, who made up 10% of the reproductive-aged women using contraceptive agents. By the end of 1986, many IUD manufacturers removed their products from the market because of fear of litigation as a backlash to emerging findings from Dalkon Shield usage. Today, only two IUDs have been approved for use by the Food and Drug Administration (FDA) in the United States: the Progestasert (a progesterone-containing device that is approved for 1 year of use) and the ParaGard (a T-shaped copper device that is approved for 10 years of use).

It was originally thought that the mechanism of action of the IUD was primarily through its ability to produce changes in the endometrium that inhibit implantation. Researchers have documented other mechanisms of contraceptive action by which the IUD appears to work, however, including (1) interference with sperm transport from the cervix to the fallopian tube and (2) inhibition of sperm capacitation or survival. Investigators have shown no evidence of fertilization by the measurement of serial concentrations of human chorionic gonadotropin in IUD users; it is doubtful that the IUD serves as an abortifacient.

User characteristics, such as age, parity, and the ability to detect expulsion, also play a role in the differences in the effectiveness of the IUD. The age and parity of the user correlate inversely with the failure rate. Patients who are not able to detect a partial or complete expulsion in an expedient manner have a high pregnancy rate. The overall first-year

failure rate is 3%. The lowest pregnancy rate with the Progestasert is 2% and with the ParaGard is 0.8%.

The ideal candidate for IUD use is the multiparous woman in a monogamous sexual relationship who has no recent history of a sexually transmitted disease and is not prepared to end her reproductive potential through sterilization. Nulligravidity should not necessarily preclude a patient from IUD usage; it is a patient's sexual behavior (number of partners) that appears to correlate with the possibility of acquiring a pelvic infection.

LONG-ACTING STEROID CONTRACEPTIVES

Long-acting steroid preparations provide a prolonged period of contraceptive protection with effectiveness comparable with daily oral preparations. The primary type of long-acting agents currently used in the United States are injectable (depot medroxyprogesterone acetate [DMPA][Depo-Provera]) and subdermal (levonorgestrel [Norplant] capsules).

Depot Medroxyprogesterone Acetate

DMPA is injected as a standard dose of 150 mg every 12 weeks. DMPA at this dose provides a failure rate of less than 1 per 100 woman-years of use. Investigators in South Africa have attempted to use a dose of 450 mg every 6 months. By allowing a longer interval between visits to the physician, continuation rates increased from 57% to 73%. Symptoms of amenorrhea, headaches, and abdominal bloating were more frequent, however.

A study conducted by the World Health Organization revealed the following relative cancer risks in DMPA users (with a risk of 1.0 being equivalent to the risk in nonusers): breast, 1.0; cervix, 1.2; ovary, 0.7; endometrium, 0.3; and liver, 1.0. These results suggest no increased risk in cancers of the breast and liver and a decreased risk associated with cancers of the ovary and endometrium. There was an insignificant increase in the risk of cervical cancer, but this association does not rise with increasing length of use of DMPA and may be related to possible confounding variables (such as multiple sexual partners and failure to use a concomitant barrier method of contraception) that may increase cervical exposure to human papillomavirus.

Implantable Levonorgestrel

The Norplant system consists of six subdermal capsules that release a constant dose of a synthetic progestin. This device is placed in the upper medial aspect of the nondominant arm and serves as a reversible form of contraception that is approved for 5 years of use.

The use of Norplant in 10,000 women revealed annual pregnancy rates over 5 years of no more than pregnancies during the first year of use occurred before device insertion. In comparison with OCs, Norplant has a lower failure rate because noncompliance, a user-dependent variable, is eliminated. Norplant is the most effective reversible contraceptive now available in the United States.

Irregular menstrual bleeding is the most common side effect noted among users of Norplant. Approximately 80% of patients experience a significant change in menstrual pattern during the first year of use. The percentage of patients who continue to have menstrual irregularities is somewhat lower after the first year, but these more normal periods do not necessarily mimic the pattern that had been established before rod placement. Studies have shown that patients who have cyclic menstrual cycles tend to have a higher rate of ovulation and, consequently, an increased pregnancy rate.

Table 2 lists the five contraindications to the use of the Norplant system. Because of the lack of estrogen in this device, more women potentially can use this form of contraception without risk than can use combination OCs. Because Norplant effectiveness is not related to patient compliance, the timing of sexual intercourse, age, breast-feeding, or smoking status, its use should be considered in women who have had problems with other contraceptive agents in the past but wish to leave their options open for future childbearing.

Approximately 20% of women have the device removed before the end of the first year. The most common reason for this high rate of discontinuation is the development of the irregular bleeding pattern seen in 80% of Norplant users. The key to patient acceptance and compliance is thorough counseling before insertion.

ORAL CONTRACEPTIVE PILLS

Since the introduction of the combination OC in 1960, more than 50 million women in the United States and 150 million worldwide have used this method of birth control. Current use is estimated at 13.8 million women in the United States and 60 million around the world. OCs are formulated as a progestational agent alone or as a combination of a synthetic estrogen and progestin.

Types of Oral Contraceptive Pills

Progestin-Only Oral Contraceptive Pill

The progestin-only OC is taken daily without a steroid-free interval. Because a lower dose of proges-

TABLE 2. **Norplant Contraindications**

Undiagnosed vaginal bleeding
Confirmed or suspected pregnancy
Active hepatic disease or tumors
Active thrombophlebitis or thromboembolism

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