Contraceptions

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Contraception

used as voluntary control of fertility

choice of contraception:
- efficacy, safety, non contraceptive benefits , cost and personal consideration

Ideal contraception

Highly effective

No side effects or risks

Cheap

Independent of intercourse and requires no regular action on the part of the user

Non-contraceptive benefits

Acceptable to all cultures and religions

Easily disributed and administrated by non-healthcare personnel

Ideal contraception

100% effective

Completely reversible

Absolutely free of side effect

Failure rates

All methods will occasionally fail

Depends on two factors

How it works

How easy its to use

Failure rate for some methods vary, poor use, user failure

COC the effectiveness is high due to inhibition of ovulation(forget pills)

IUS and implanon: very effective , require the user to remember anything

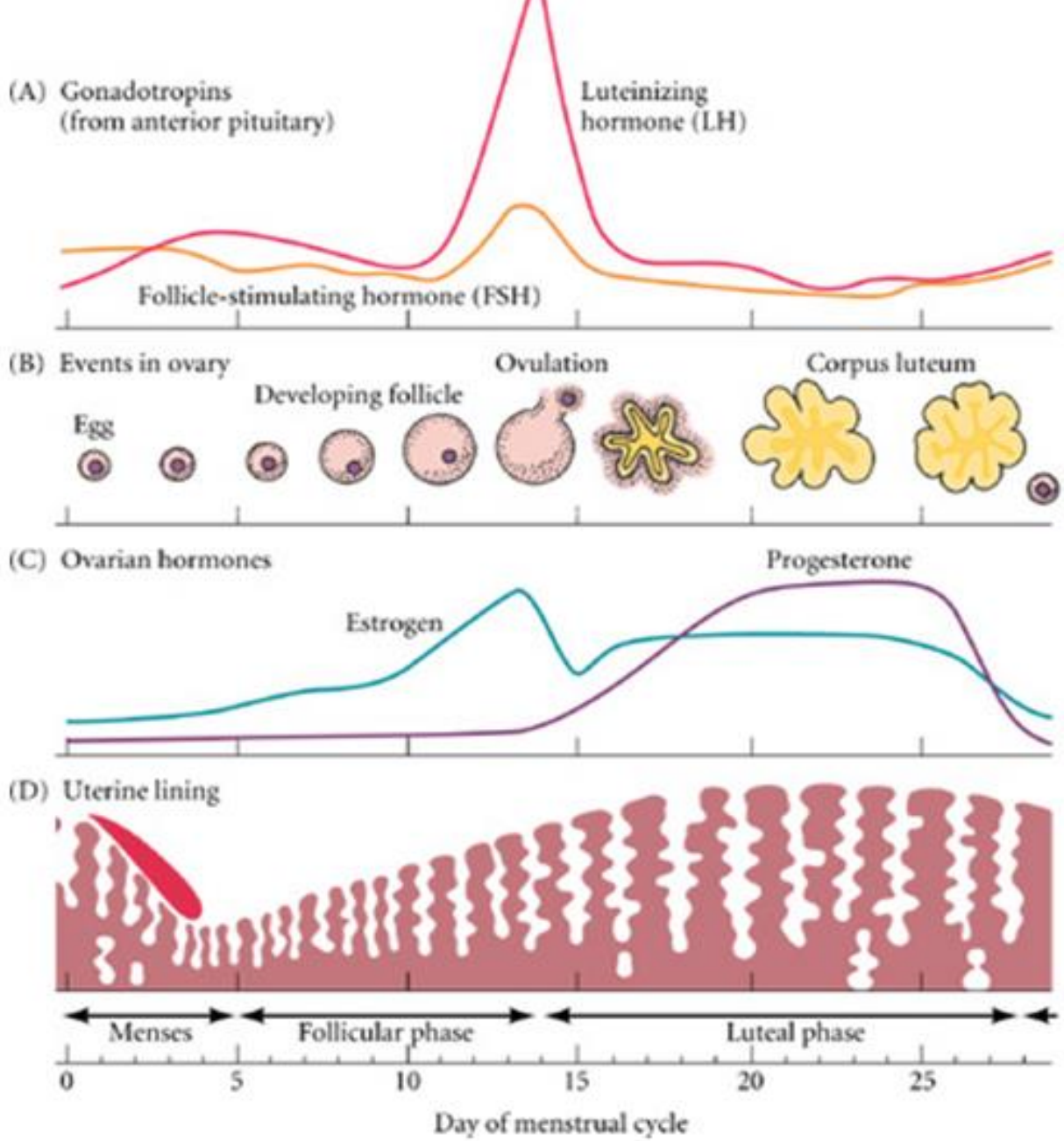
Efficacy

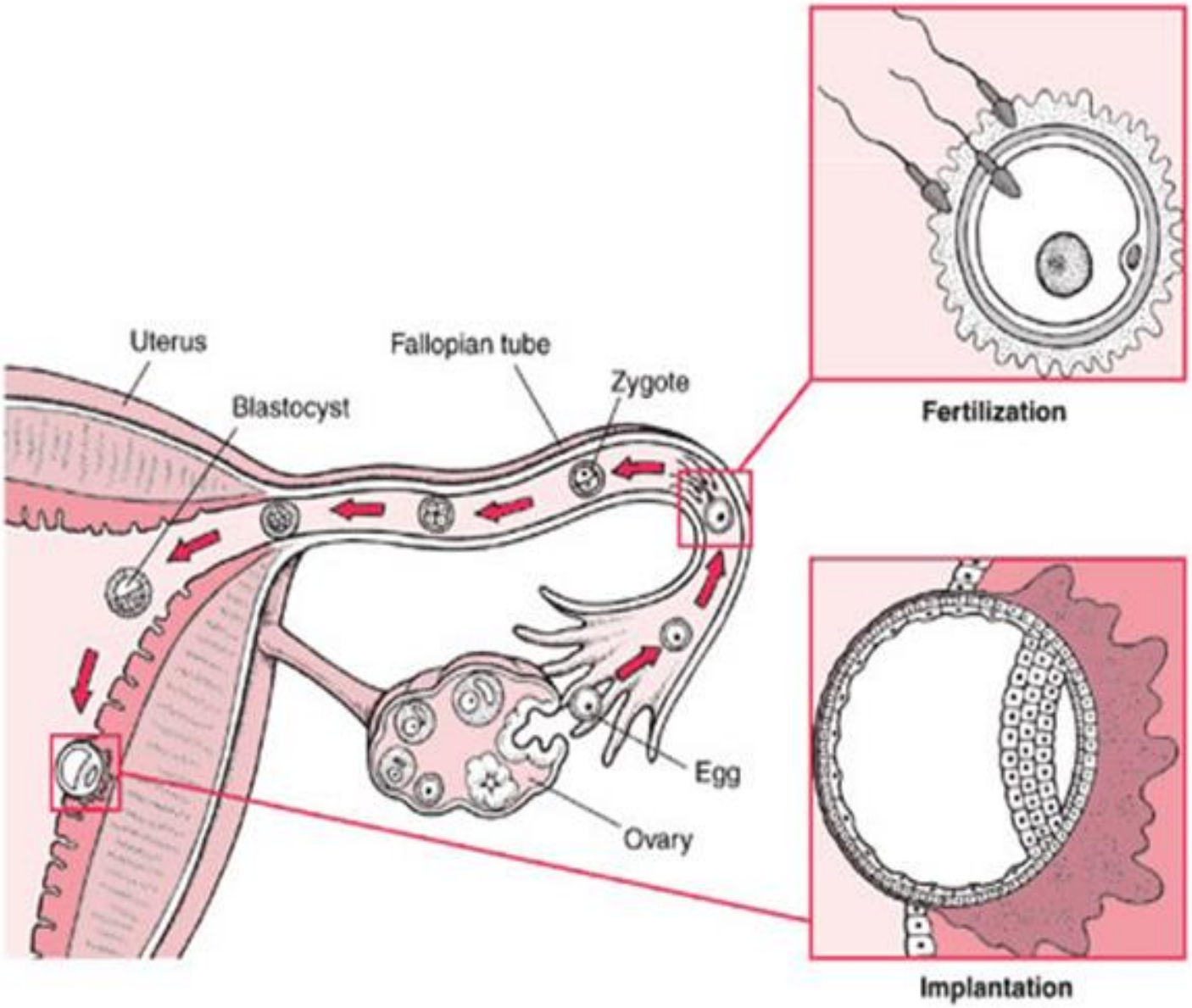
Long term evaluation of a group of sexually active women using a particular method for specified period to observe how frequently pregnancy occur

A pregnancy rate per 100 women per year

Pearl formula

Number of pregnancies / total number of months contributed by all couples x 1,200


(A) Gonadotropins
(from anterior pituitary)
Luteinizing
hormone (LH)
Follicle-stimulating hormone (FSH)
(B) Events in ovary
Egg
Developing follicle
Ovulation
Corpus luteum
(C) Ovarian hormones
Progesterone
Estrogen
(D) Uterine lining
Menses
Follicular phase
Luteal phase
0
5
10
15
20
25
Day of menstrual cycle


Uterus
Fallopian tube
Zygote
Blastocyst
Egg
Ovary
Fertilization
Implantation

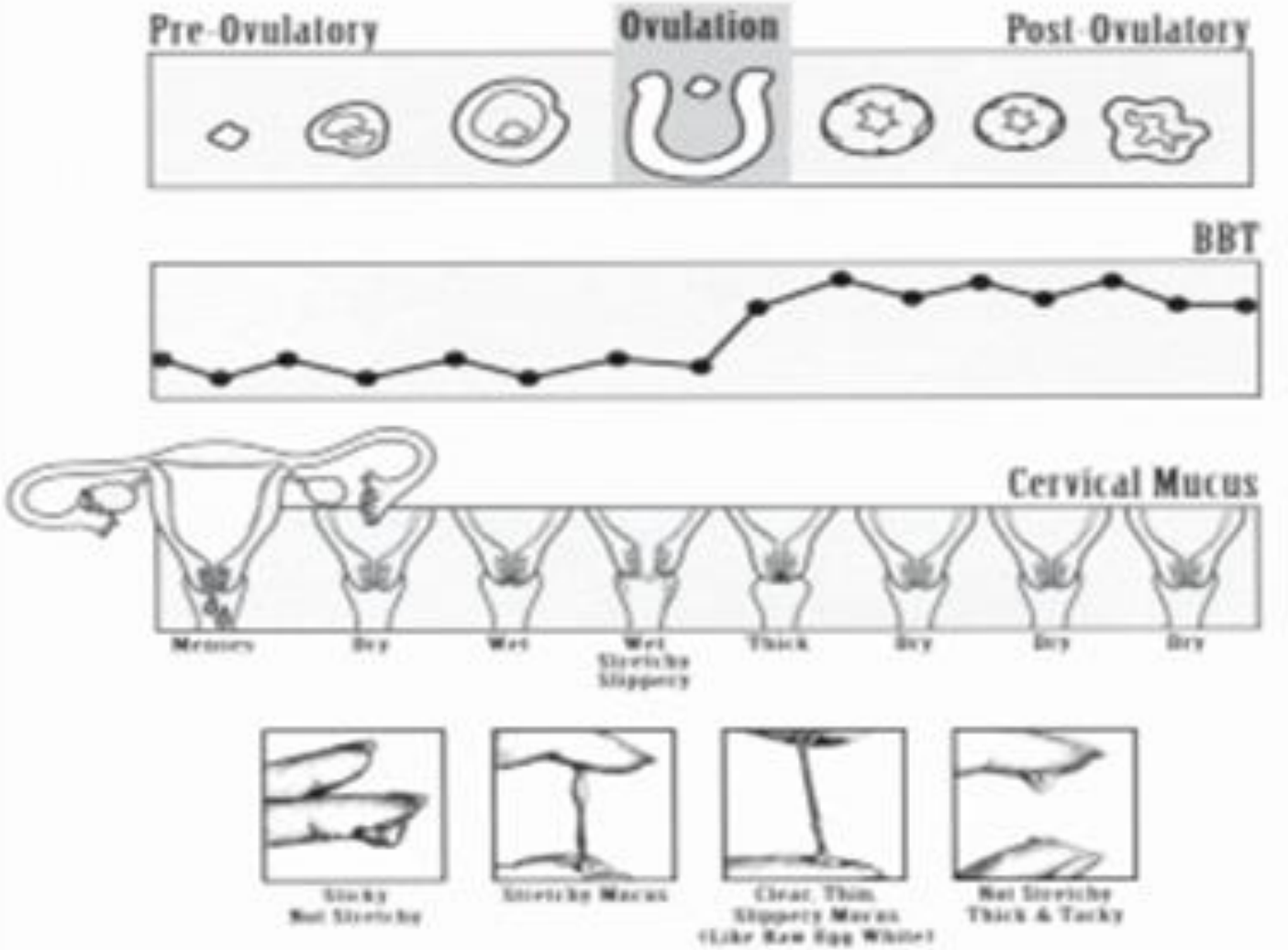

Pre-Ovulatory
Ovulation
Post-Ovulatory
BBT
Cervical Mucus
Dry
Wet
Thick
Dry
Dry
Dry

Figure 2

Contraception

Natural methods

LAM

Combined contraception

Progestogen –only contraception

Barrier methods

Intrauterine contraceptive device

- Emergency contraception

Sterilization

Lactational amenorrhoea

Breast feeding delays the resumption of fertility

Length of delay is related to the frequency and duration of breast feeding

Fully breast feeding and remains amenorrhoeic in the first 6 months (less than 2%)

Not a practical method

Can be used in areas where moderen methods of contraception may be expensive

Natural method

Conception can occur in certain days of the cycle

Abstinence from intercourse during the fertile period

Success dependant on the accurate prediction of

the ovulation

Only type of contraception acceptable to some couples for cultural and religious reasons

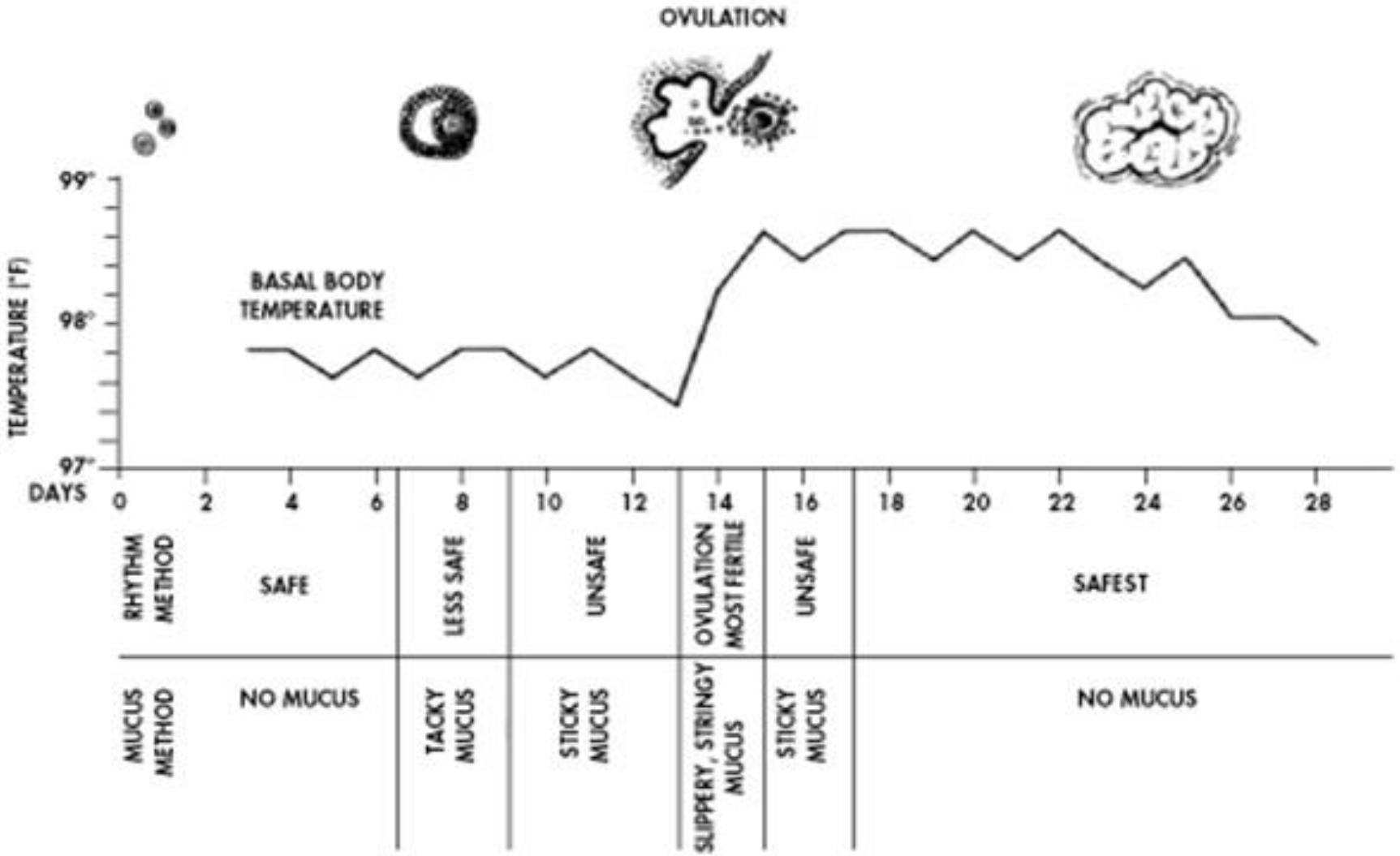
Natural family planning

Ovulation prediction

Change in basal body temperature, changes in cervical mucus, tracking cycle days

Kits , Persona, urinary hormones

-


OVULATION
TEMPERATURE (°F)
99°
98°
97°
BASAL BODY TEMPERATURE
DAYS
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28
RHYTHM METHOD
SAFE
LESS SAFE
UNSAFE
OVULATION MOST FERTILE
UNSAFE
SAFEST
MUCUS METHOD
NO MUCUS
TACKY MUCUS
STICKY MUCUS
SLIPPERY, STRINGY MUCUS
STICKY MUCUS
NO MUCUS

Combined hormonal contraception(CC)

Oestrogen : ethynil estradiol

progesteron:

Second generation(nortestosterone and levonorgestrel)

Third generation(desogestrel and gestodene)

Fourth generation –antiandrogenic(drospirenone,dienogest

FR 0.3%

Positive health benefits

Light pain-free regular bleeds

Improve premenstrual syndrome

Reduce risk of PID

Long term protection against ovarian and endometrial cancer

Treatment of acne

Reduction of formation of benign ovarian cysts

Improvement of endometriosis

Risks of CC

Cardiovascular effects

3-4 fold increase of VTE in CC users

Unaffected by age, smoking, or duration fo use

Higher in obese women and history of PIH

Third generation associated with two fold increase in risk of VTE

Risk is greatest during the first year of use

To unmasking of inherited thrombophilias

CC risks

Arterial disease:less common, more serious

Related to age and smoking

Increase for second not third generation

Dose dependent: lower dose of estrogen has no increase in risk

Ischemic stroke : two fold increase in risk

Haemorrhagic stroke: the risk is unchanged

CC risks

Malignant disease

Breast cancer: small increase in risk

10 years after stopping the pills

Ovarian and endometrial cancer: > 50 % reduction in ovarian

endometrial cancer: protection related to duration

20% after one year , 50% after 4 years and sustained for 15 years after stop

risks

Cancer of cervix: increased risk (greater sexual

activity)

Recent meta analysis: patients with persistent infection with HPV more than 5 years had increased relative risk of 2.8

More than 10 years, 4.

Trophoblast disease : no data

Contraindication of CC

Breastfeeding

Smoking , age

Multiple risk factors for cadirovascular disease

Hypertension: 160/100

Hypertension with vascular disease

Current or history of deep vein thrombosis

Major surgery with prolonged hospitalization

CC

Absolute contraindication

Past arterial or venous thrombosis

Focal migraine

TIA

Thrombophilias

Active liver disease

Liver adenoma, gallstones

Pregnancy and estrogen dependant neoplasm

Patient management

Detailed medical and family history

Blood pressure

Wighting,Breast and pelvic examination

Give it for three months then review in 6-12 monthly review

Clear advise about what to do if they miss any pills

It can be continued until age of 50 years in healthy women

Practical prescribing

Effectiveness is reduced by anticonvulsants, antifungals , antiretrivirals and antibiotics

Induce liver cytochrome P450---→reduce the efficacy

Higher dose of oestrogen, change the medication

CC increase the clearance of medications

Lamotrigine →reduce serum level

Dose should be adjusted

Side effect

Breakthrough bleeding

Headache

Wight gain(no evidence)

Loss of libido

Fluid retention

N&V

Cholasma

Breast enlargement

Combined contraception

Oral

Transdermal(contraceptive patch)

Systemically(combined injectables)

Vaginal routs(contraceptive vaginal ring)

Oral coc

Two steroids hormones

Estrogen EE20-50 microgram

Low dose pills (20-35 microgram) , safer

Estradiol valerate

synthetic progesterone

Second generation(nortestosterone and levonorgestrel)

Third generation(desogestrel and gestodene)

Fourth generation –antiandrogenic(drospirenone,dienogest)

COC

different profile

Pills with levonorgestrel is associated with the lowest VTE risk

Dianette contains antiandrogen , useful for acne treatment

Oral

21 days followed by 7 day break

Monophasic:every pill contains the same dose of steroids

Biphasic , triphasic and tetraphasic

The dose of both steroids changes during the cycle

Reduce the SE of progesterone

No evidence of better cycle control

Newer brands (24/4,84/7,365)

COC

Mechanism of action

Inhibition of ovulation

Inhibit FSH , suppress the follicular development

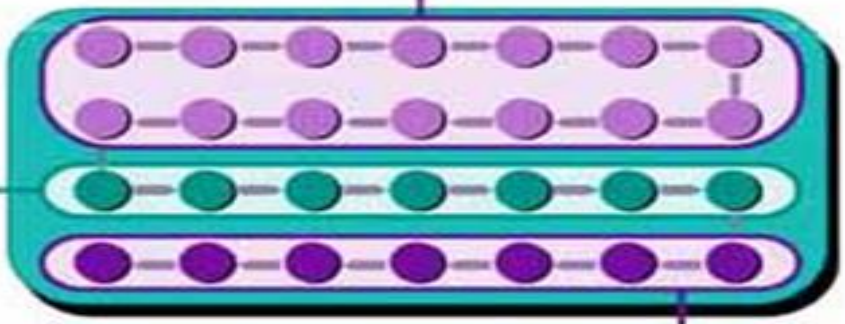
Inhibit LH,prevention of ovulation

Missed 1 pill?

- Take 1 as soon as remembered.
- Take all the others as usual

Missed 2 or more of these 14?

- Take 1 as soon as remembered.
- Take all the others as usual.
- * *Use condoms for 7 day.*



Missed 2 or more of these 7?

- Take 1 now.
- Take the others on this row, one each day, then start a new pack.
- Throw the last row of this pack away.
- **Use condoms for 7 days.*

Missed any of these 7?

- Throw the missed pills away.
- Take all the others as usual.

Transdermal

20 cm2

20 µgEE and 150 µg norelgestromin daily

Each patch last for 7 days, three patches / month

Efficacy might be reduced by overweight

More expensive than oral

Better compliance

Vaginal ring

NOVARING

15 microgram EE and 20 microgram etonorgestrel daily

Soft ethylene-vinyl-acetate copolymer

3 weeks – 7 days ring-free interval

Same risks and benefits

More expensive

Progesterone only contaception

ONLY PROGESTERONE

advantages

No effect on VTE

Minimal impact on lipid profile

Can be used in most cardiovascular diseased except current severe arterial wall disease

Lactating woman

Protects against endometrial cancer

Symptomatic relief of dysmenerorrhoea

Protect against endometriosis,, uterine myomas

disadvantages

Menstrual disturbances

Injectable)(Amenorrhoea

Functional ovarian cysts

Ectopic pregnancy

Acne,headach,breast tenderess and loss of libido

contraindication

Current breast cancer

Side effects of POP

Malignant disease

Protects against endometrial cancer

No data about ovarian cancer, cervical cancer

Increase risk of breast cancer ,1.17 %,injectable

Progestogen-only contraception

Cervical mucus modification

Endometrial modification

Suppression ovulation

Types of progesterone contraception

POP

Injectable

Implants

IUS

Progestogen only pills

Oral:

Old generation : thicken the cervical mucus , not inhibit ovulation

new: third generation: desogestrel(Cerazette) : inhibit ovulation

Same time, no break

Old generation : delay not more than 3 hours

New generation:12 hours

The efficacy is largely dependent on compliance

The overall failure rate is 0.3-4 per HWY

Mechanism of action

Local effect on cervical mucus

The endometrium(thin and atrophic)

Higher doses will inhibit ovulation

It is extremely safe, and can be used if woman has CVS risk factors

Particular indication:breast feeding and old age, CVS risk, smoking, diabetes

injectables

Two types

Depo provera 150 mg , 12 weeks

Noristerat (norethisternoe enanthate 200 mg)

Lasts for 8 weeks , rarely used

Depo provera

Depot medroxyprogesterone acetate

, Deep IM injection, 150 mg Q 12 weeks

Suppress ovulation

Cervical and endometrial effect

<0.5 per HWY

Micornized preparation , SC,104 mg

Depo-Provera

Side effect

Wight gain 2-3 kg

Delay in return of fertility,6-7 months

Persistently irregular cycle, most will become amenorrhoeic 70 %

Associated with small reduction of BMD, recovered after discontinuation

Subdermal implants

Norplant: six rod system, not available

Implanon

Single rod of 68 mg of etonogestrel

Triceps of the non dominant arm

3 years

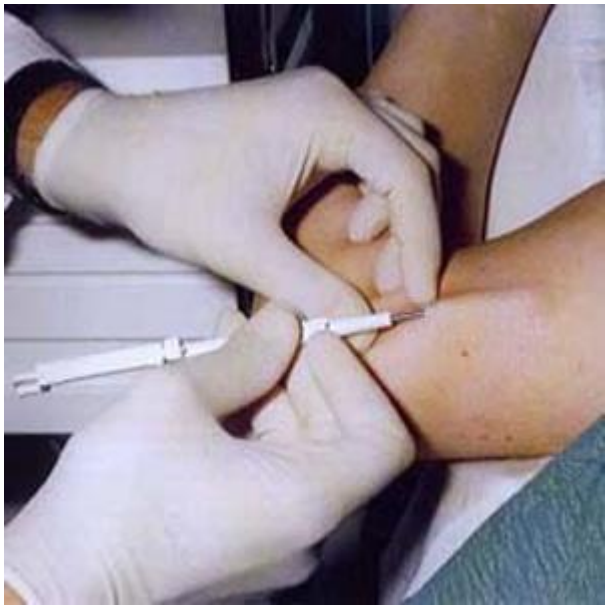
Suppressing ovulation, cervical mucus and endometrial effect

Needs to be implanted and removed by trained personnel

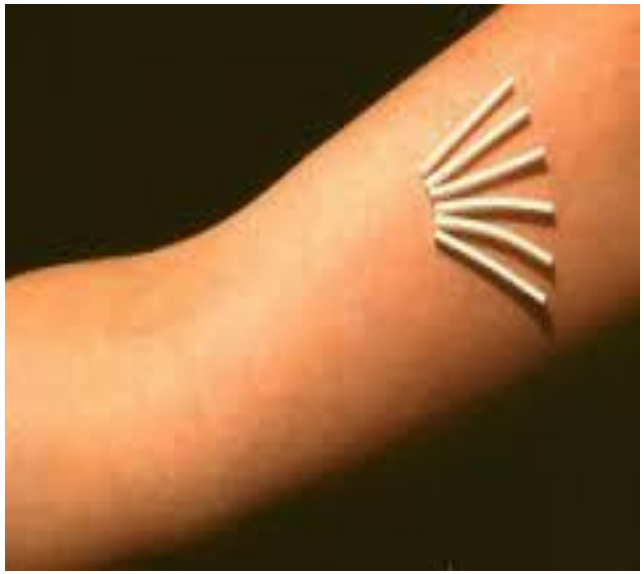
FR less than 1 in 1000 over 3 years

No compliance problems

IMPLANON



NORPLANT



IUS

Mirena

52 mg levonorgesrel releasing 20 microgram/day for 5 years

Used for management of heavy menstrual bleeding

70-95% reduction in menstrual bleeding

Intrauterine contraception

Most commonly used reversible method of

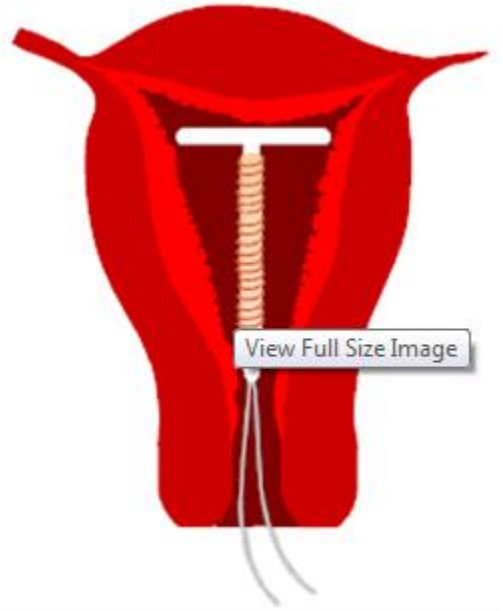
Contraception

Marked inflammatory rx

Increase concentration of macrophages prostaglandins

Toxic for sperm ,ovum and interfere with sperm trasport

FR less than 1%



IUCD

Ideal for medium to long term method of contraception

Independent of intercourse

Regular compliance is not required

Protects against intrauterine and ectopic pregnany

Higher chance than normal that it will be ectopic

Intrauterine device

1. innert

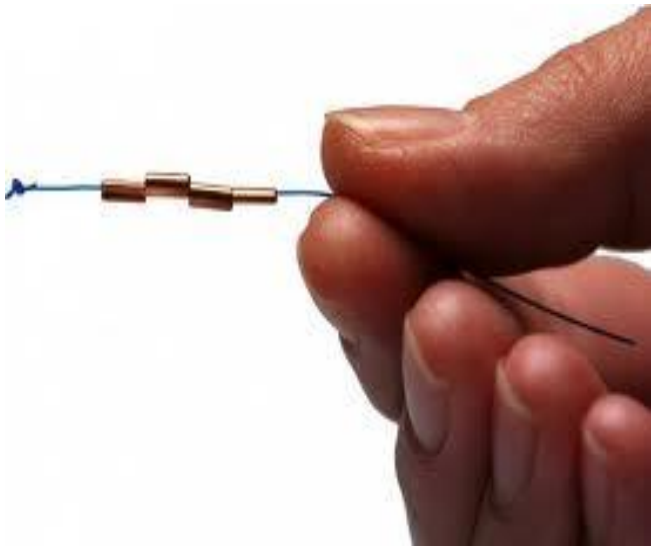
2.Copper:framed or frameless (gynefix)

Surface area of cupper 300-380 mm2

Prevent fertilization and implantation

5-10 years

> 40 years →menopause



IUD

Mirena

3.Hormone releasing(Mirena) plastic frame with 52 mg levonorgestrel reservoir 20 microgram per 24 hours over 5 years

Atrophy of the endometrium →implantation

Thickening of cervical mucus

5 years

> 45 years →menopause

Treatment of menorrhagia (reduction of blood loss during menses)

Rare side effects (low blood levels of LNG)

Insertion of IUCD

Any time, limited to the first 7 days of the cycle

Postpartum: 4 weeks

Miscarriage: immediately, second trimester miscarriage the risk of expulsion is higher

Removal: during menstruation

In menopausal : 1 year after the LMP if more the 50 years

2 years at 40 years or later

Contraindication of IUCD

History of malignant trophoblastic disease

Endometrial cancer

Pelvic TB

Current STI or pelvic inflammatory disease

Unexplained vaginal bleeding should be investigated

Distorted cavity : may make insertion difficult

Cupper allergy

Endomterial and cervical cancer

complications

Dysmenorrhoea

Menorrhagia: 3-6 months due to the effect of local PG, 15% discontinuation rate

Uterine perforation: 2 in 1000

Expulsion: 1 in 20

Pregnancy: rare

Early and mid trimester pregnancy loss and preterm delivery

Ectopic pregnancy: absolute risk is low, 1.5 per 1000 years of IUD use

Infection: over estimated

first 20 days ,1%

Detailed sexual history has to be taken

Full screening and antibiotic treatment for high risk groups if screening is limited

Long term risk is similar to that of women who are not using any contraception

Risk reduced by using aseptic techniques

No multiple partner

Mirena: lower risk because of the protective effect of the hormones

complications

IUD should be removed if no response within 48 hours

complications

Lost thread

Drawn up in the cervical canal

Expelled

Spontaneous expulsion is common in first year, , during menstruation, risk is 1 in 20

Migrated outside the uterus(unrecognized perforation)

Ultrasound

X ray

Barrier methods

Physically interrupting the progress of sperm in the female reproductive tract

Condoms for males

Females:Occlusive pessaries, caps, sponges and vaginal condoms in combination with spermicides

Condoms

One of the most popular

Fine latex rubber

Sizes and textures

Accessible,inexpensive

Protects against the STD(HIV) and carcinoma and premalignant disease of the cervix.

3-23 per HWY

Contraindicated :

latex allergy

Spermicides

Nonoxynol 9

Gel, cream, foam , pessary

For use with female diaphragm and caps, not male condom

Provides some protection against STI

Frequent use of N-9 might increase the risk of HIV transmission

High risk patients should not use it

Female condom

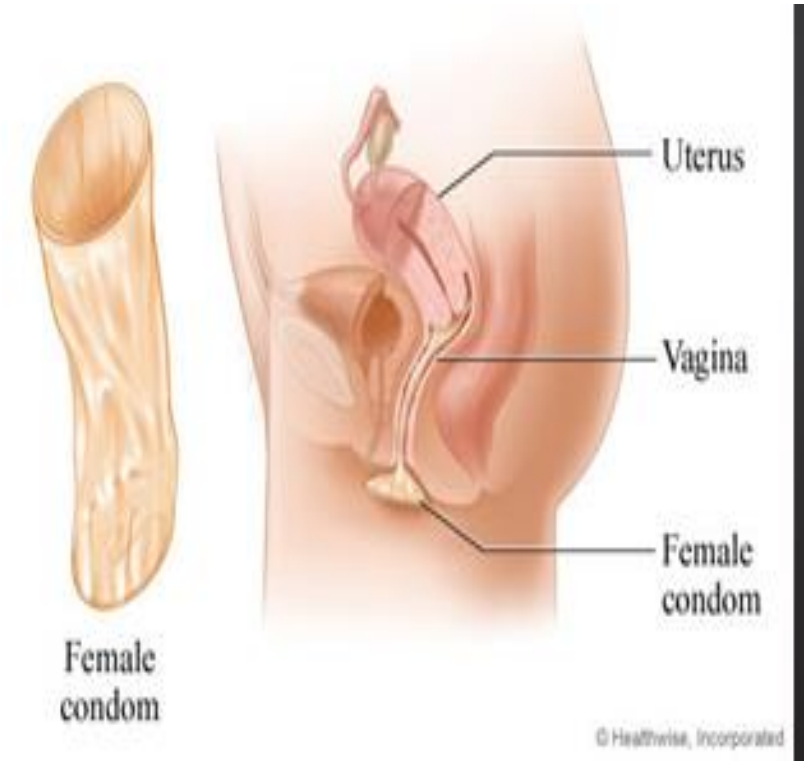
Polyurethane sheath

Lines the vagina

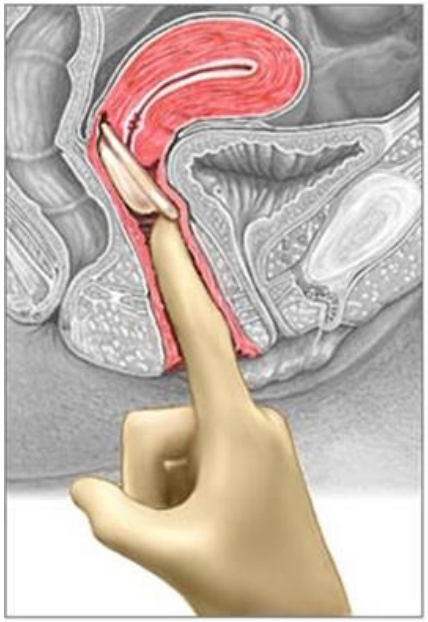
One size, single use and expensive

Not popular

5-21 per HWY



Occlusive pessaries



Barrier method: The diaphragm fits over the cervical opening, preventing sperm from entering the uterus

A.D.A.M.

DIAPHRAGM

Fitted by trained personnel

Does not confer the same degree of protection against STDs

Prior to intercourse to occlude the vagina prior to intercourse

Spermicide should be used

for maximum protection

Latex allergy,recurrent vaginal and UTI

per HWY 4-20

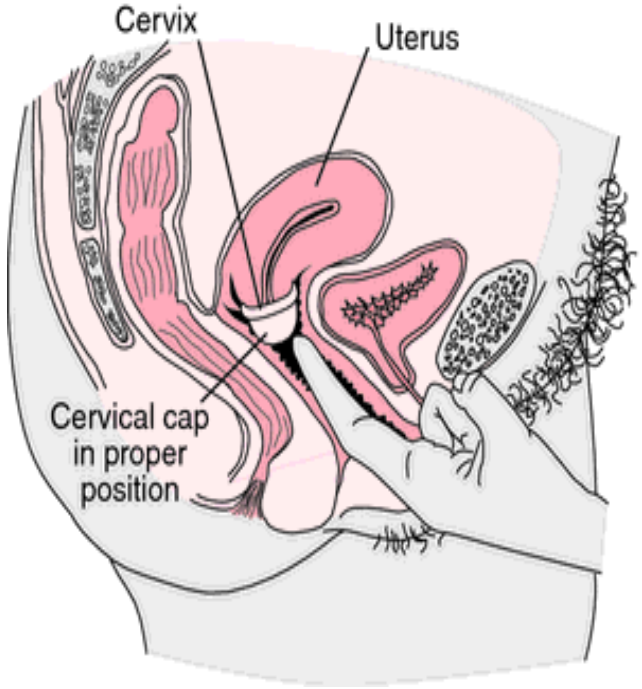
Barrier method

Cap: silicone rubber

Easier to fit and Less likely to slip

Reduced risk of UTI(less pressure to the surrounding vaginal wall)

Rarely used: difficult to insert and remove



Barrier method

Advantage:

Protects against STIs

Encouraged for high risk groups.

Emergency contraception

Back –up method

After unprotected intercourse and before implantation

After failure of barrier method, missed pills

Emergency contraception

Any drug or device used after intercourse to prevent pregnancy

Three options

1. Pill containing a progesterone receptor modulator(ulipristal acetate) 30 mg, single dose within 5 days of intercourse
2. Progesterone: levonorgestrel 1.5 mg(LNG-EC), taken as a single dose w 72 hrs of intercourse
3. IUD: 5 days after the estimated day of ovulation

Mechanism of action EC

LNG-EC

Inhibit and delay ovulation if taken several days before ovulation

Immediately before ovulation not ineffective

UPA-EC

effective

Interfere with implantation : endometrial effect

Efficacy of EC

One RCT comparing LNG and UPA

showed lower pregnancy rate in UPA

LNG prevent 69%

UPA prevent 85 %

Emergency contraception

Cupper IUCD

The most effective method

Up to 5 days of the earliest predicted ovulation

Within 5 days of unprotected intercourse

Spemicidal and blastocidal action of cupper

Sterilization

Permanent, irreversible contraception

Usually chosen by older couples ,completed family

Male or female

Can be reversed, subsequent pregnancy rate 5%

10-15 % regret the decision(age less than 30 years, no children, within a year of delivery)

During concelling we should discuss the long –acting reversible methods

Female sterilization

Female sterilization: blocking both fallopian tubes

Not alter the menstrual pattern

Coc→heavier

IUCD → lighter

laparoscopy, hysteroscopy or minilaparotomy

Proper counselling(irreversible, failure rate 1 in

200, ectopic pregnancy)

Filshie clips

Filshie clips : commonest

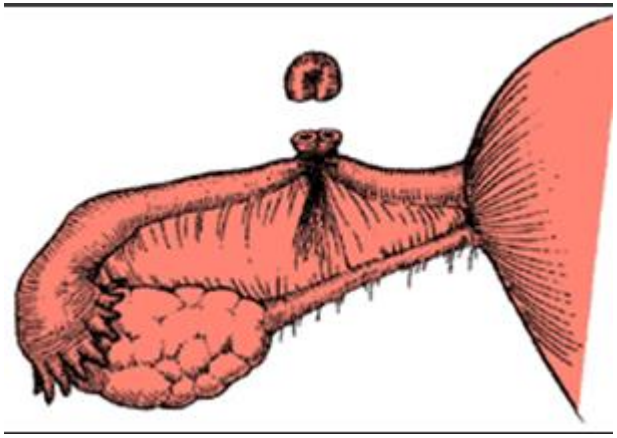
Right angel to the tube

1-2 cm from cornua

Whole width

Multiple clips is not nescessary

Pomeroy technique



loop of tube tied and

Excised

laparotomy

complications

Anaesthesia problems

Damage to intraabdominal organs

Need for lapatomy: obese,adhesions

Hysteroscopic sterilization

Intrafallopian implants

Avoiding abdominal incision,local anaesthesia

Candidates :high BMI,medical illness,previous abdominal and pelvic surgery)

Microinsert placed in the proximal section of the fallopian tube—induce inflamation—fibrosis and scar formation

Additional method of contraception

HSG at three months

Hysteroscopic sterilization

Essure:

Insertion of expanding spring measuring 2 mm in diameter and 4 cm length(stainless steel and nickel-containing Dacron fibers

Adiana : radiofrequency ablation in conjunction with a silicone micro-insert

Adverse events: tubal perforation, infection, device migration, device expulsion and vasovagal attack and pelvic pain

efficacy

Filshie clip FR 2-3 per 1000 after 10 years

Life time failure is 1 in 200

Failure rate increased during caearean section or done immediate puerperium

Lowest with minilaparotomy

Timing

Consent should be obtained one week prior to procedure

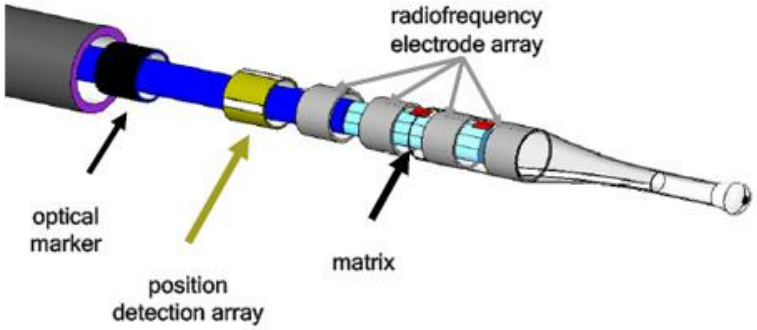
Any time during cycle

Pregnancy test day of the operation

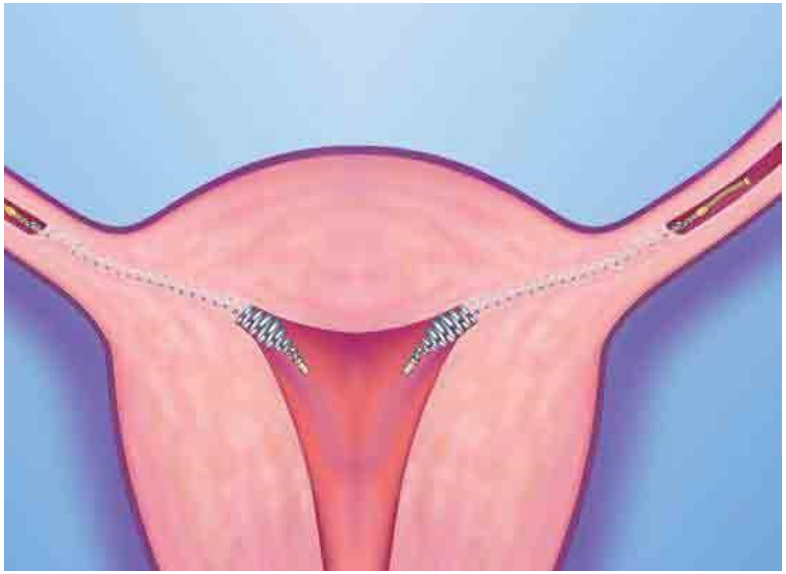
Continue the same contraception till surgery

IUCD till next cycle

ADIANA



ESSURE



Male sterilization

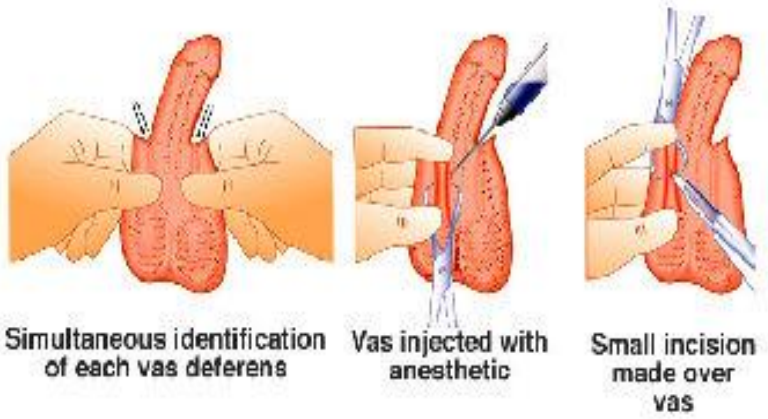
Vasectomy

Division or removal of a piece of each vas

Cheaper

out patient basis

local anaesthesia



vasectomy

Not effective immediately

Contraception should be continued until there are two consecutive semen analysis of azospermia.

First test 8 weeks after the procedure, and the second after 2-4 weeks(20 ejaculations)

Advantage: the ability to check for efficacy (SFA)

Failure rate is 1 in 2000

Vasectomy(complications)

Scrotal bruising (everyone)

Haematoma (1-2 %)

Wound infection (up to 5%)

Antisperm antibodies (leakage of sperm)

Chronic testicular pain(unknown cause)

Granuloma formation(painful)

? Atherosclerosis , testicular cancer

FR (1 in 2000), natural reversal 1 in 4000

Reversal

Success rate 52-82%

Time since vasectomy

Type of vasectomy

Techinque of reversal

Surgical expertise

consent

Careful counselling

Written consent

It should clearly indicated that sterilization is

A permanent procedure

Counselling

10 % of couples may regret being sterilized

Young age group,immeditately after delivery or at time of induced abortion

1% request reversal

counseling

Age

Family size

Problems of current contraception

? Partner

Stability of the relationship

FR

The procedure

Risks and side effect

Reversibility

Reversal of sterilization

Laparotomy, microsurgery, 70% success

5% ectopic pregnancy

Vasectomy

90% success rate

Pregnancy rate 60 % ASA

Thank you