# 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

# 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

-

# 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

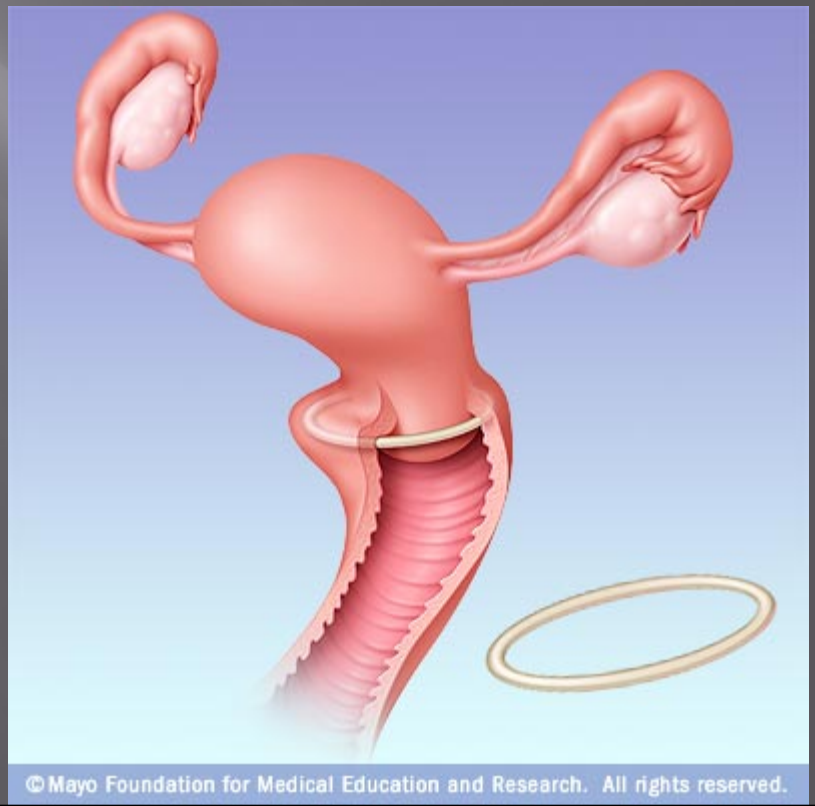
# Transdermal

- 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

Amenorrhoea(Injectable)

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

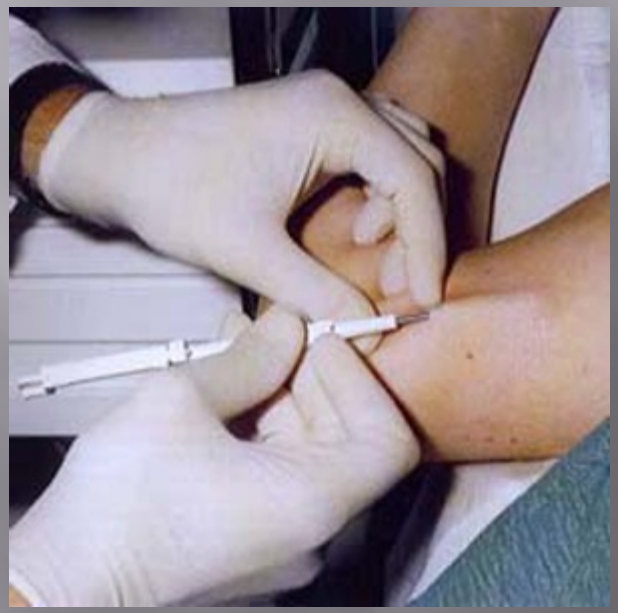
Suppressing ovulation, cervical mucus and endometrial effect

Needs to be implanted and removed by trained personnel

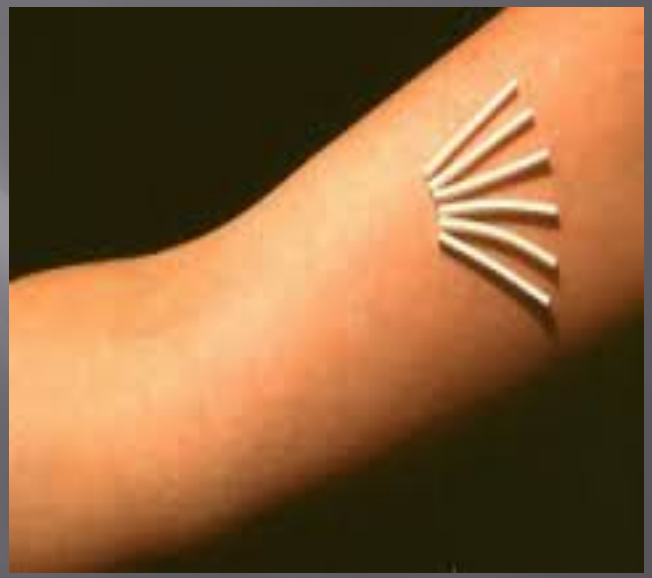
FR less than 1 in 1000 over 3 years

No compliance problems

IMPLANON



NORPLANT



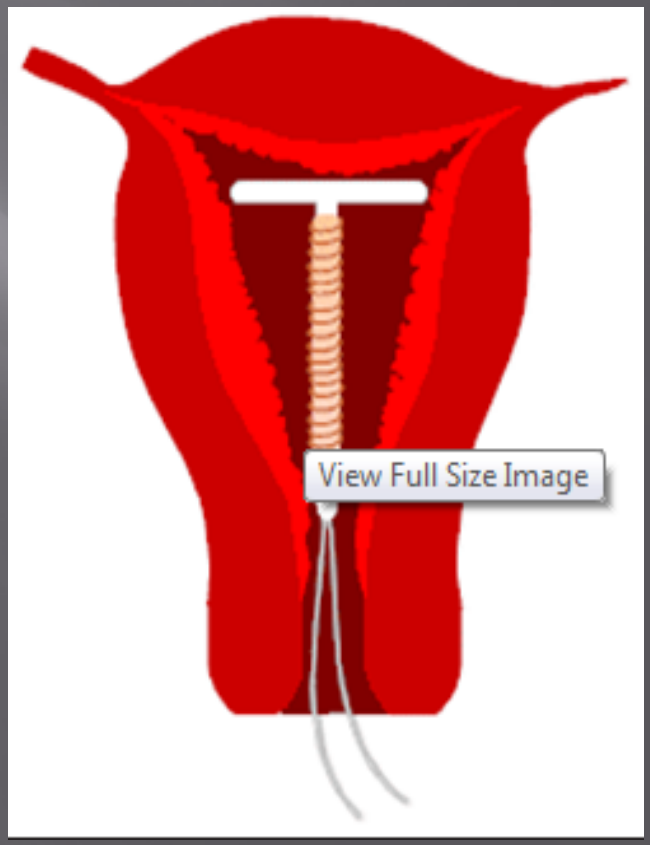
# IUS

- 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

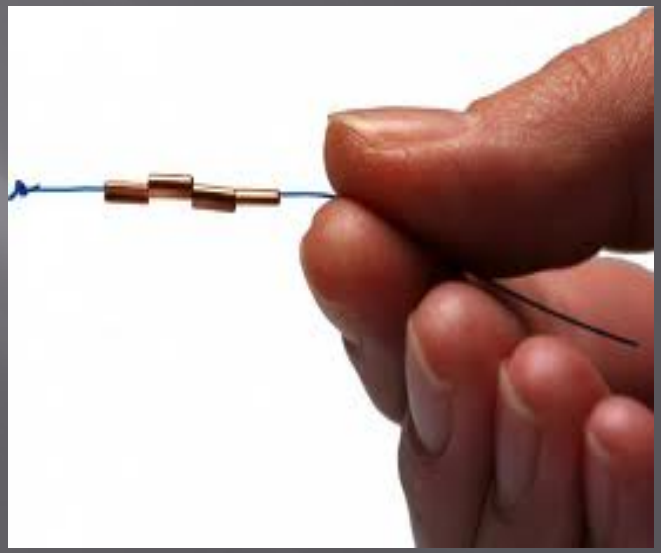
1. innert
2. Copper:framed or frameless (gynefix)

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

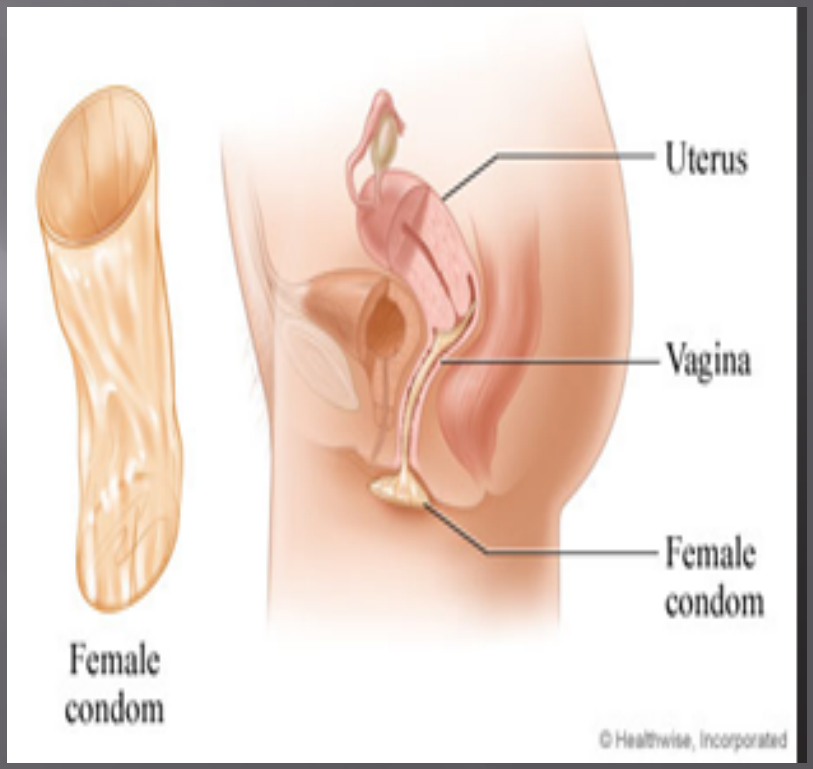
Polyurethane sheath

Lines the vagina

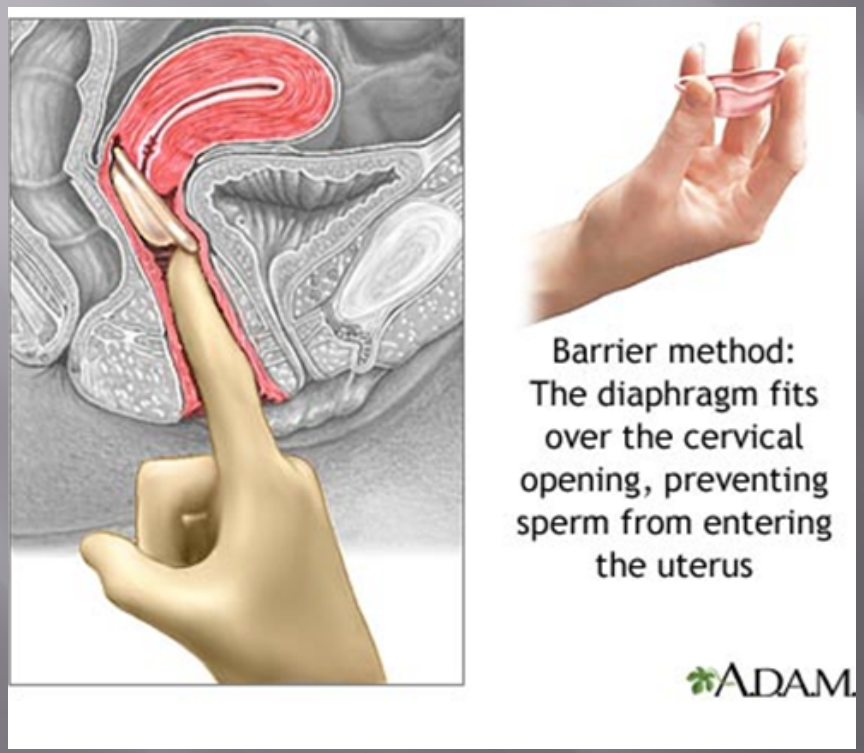
One size, single use and expensive

Not popular

5-21 per HWY



# Occlusive pessaries




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

4-20 per HWY

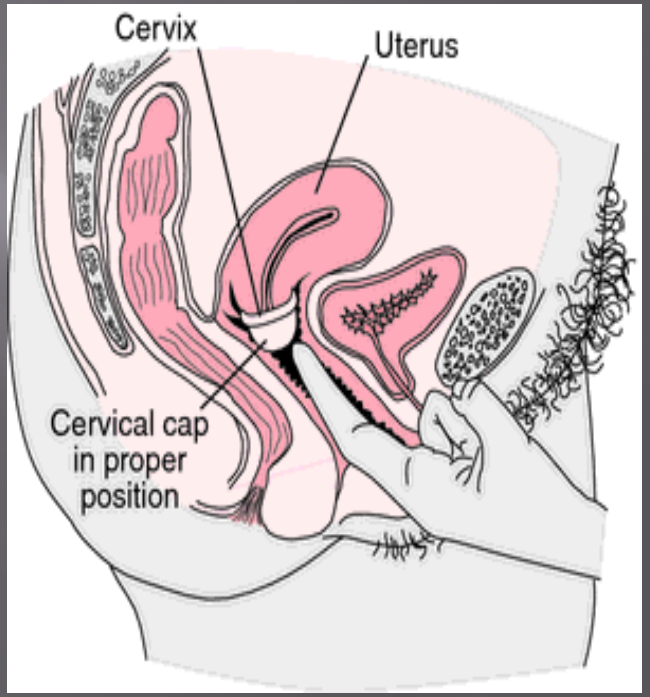
# Barrier method

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

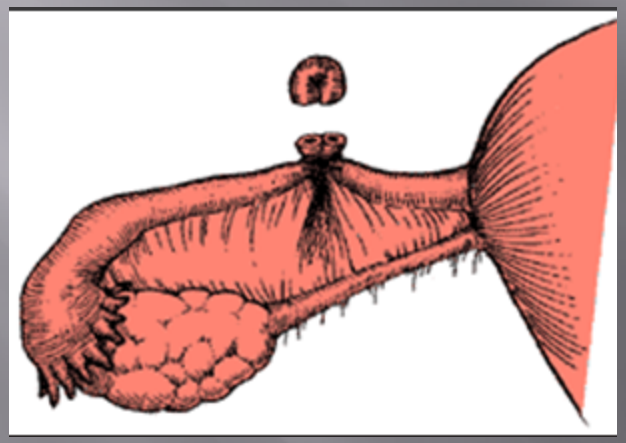
Proper counselling(irreversible, failure rate 1 in 200, ectopic pregnancy)

# 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

# Male sterilization

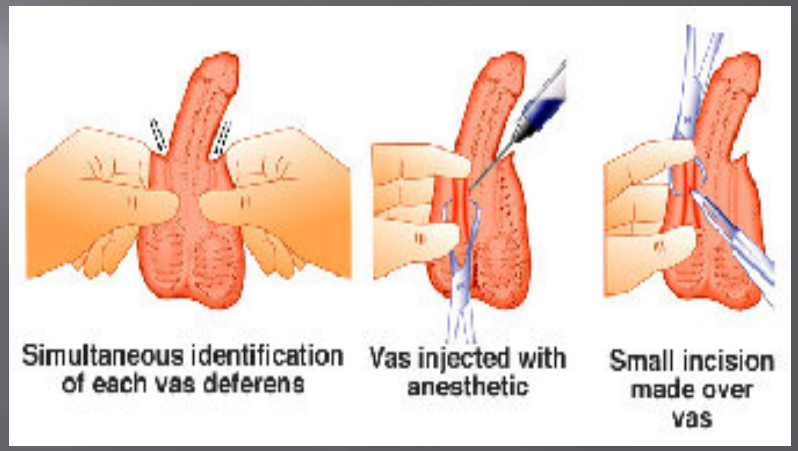
Vasectomy

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