

Intrauterine Drug Delivery System



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What is an Intrauterine Contraceptive Devices (IUD)?

IUD's are medicated or non-medicated devices which exerts it's contraceptive action in the uterine cavity continuously for a prolonged period of time. (about 1 to 10 years)

It is a small object that is inserted through cervix and placed in the uterus to prevent pregnancy.

Mechanism :- They work by changing the lining of uterus and fallopian tube affecting the movements of eggs and sperms so that fertilization does not occur.

Types of IUD's:-

1. Medicated IUD's:

These are available in ring shaped IUD's made up of plastic fabricated form polyethylene, polypropylene.

2. Non- Medicated IUD's:

- Copper IUD's
- Progesterone releasing IUD's

Copper bearing IUD's:

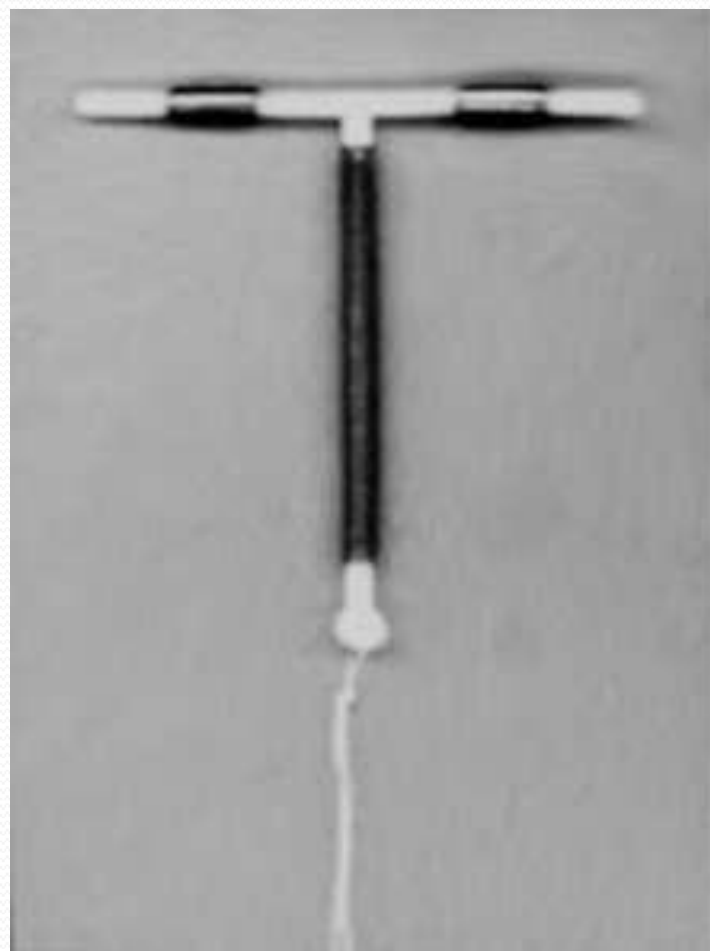
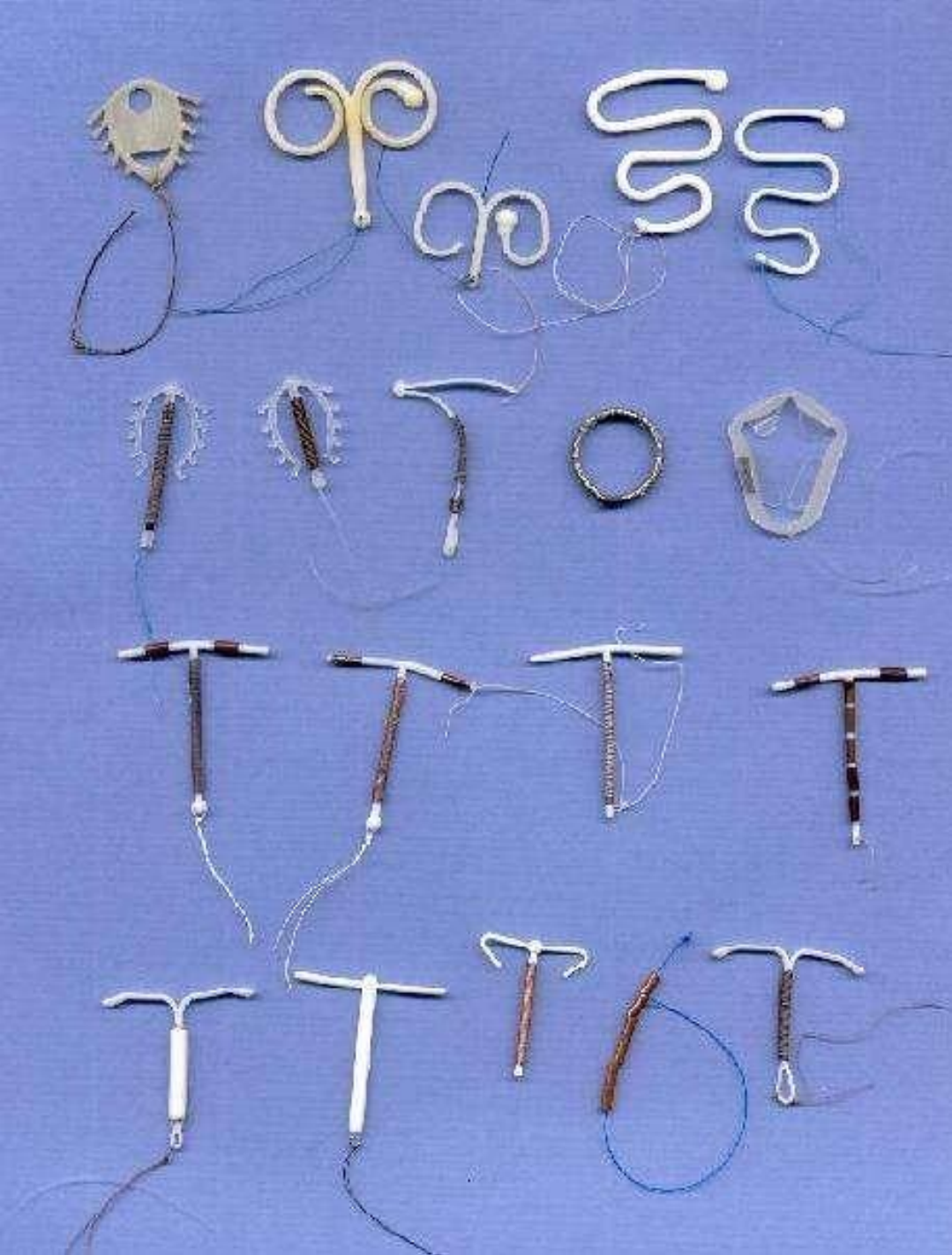
A) 7 Shaped IUD:

- Further development of the concept of intra-uterine contraception by metallic copper has resulted in copper bearing IUD, which contains 89 mg copper wire, wound around the vertical limb of a 7-shaped polypropylene device, used for 3 years as intra-uterine contraceptive treatment.
- This device release copper ion at a mean daily dose of $9.87\mu\text{g/day}$ continuously in the uterine cavity for up to 40 months.
- The Cu-7 appears to be substantially smaller than other.

- It can be easily inserted because of its special 7-configuration in addition to its small size.
- Insertion can usually be accomplished without the need for cervical dilation and further more removal is generally painless.

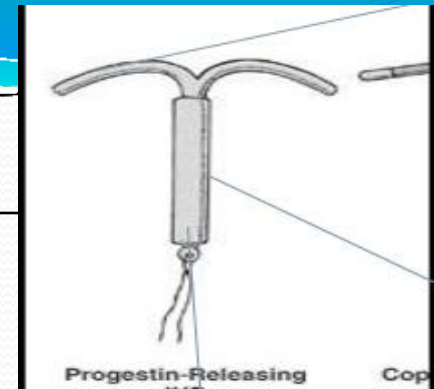
B) T Shaped IUD:

- T-shaped IUD containing 200mm² contraceptive copper wire winding around the vertical leg of a T-shaped polyethylene device in the manner as copper-7 device.
- It is used for 3years of contraceptive treatment.



Progesteron releasing IUD's:-

- The device has solid poly ethyl vinyl acetate side arms and hollow core. Microcrystalline Pg is suspended in the core.
- Pg release rate is 65mcg/day.
- It is a T- shaped IUD having vertical limb which is suspended with a drug containing silicon capsule and coated with a polymer for achieving slower release rate.



Advantages of the IUD:

- Provides long-term birth control.
- Cost effective.
- Can be removed when a woman would like to become pregnant.
- Convenient

Disadvantages of IUD:

- ❑ Between 2 and 10% fall out, most commonly in the first year of use.
- ❑ Increased risk of miscarriage if an IUD is left in the uterus during pregnancy.
- ❑ In rare cases, the IUD may attach to or perforate the wall of the uterus.



Thank You