

# **Infertility Update**

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**Director of IVF Program**

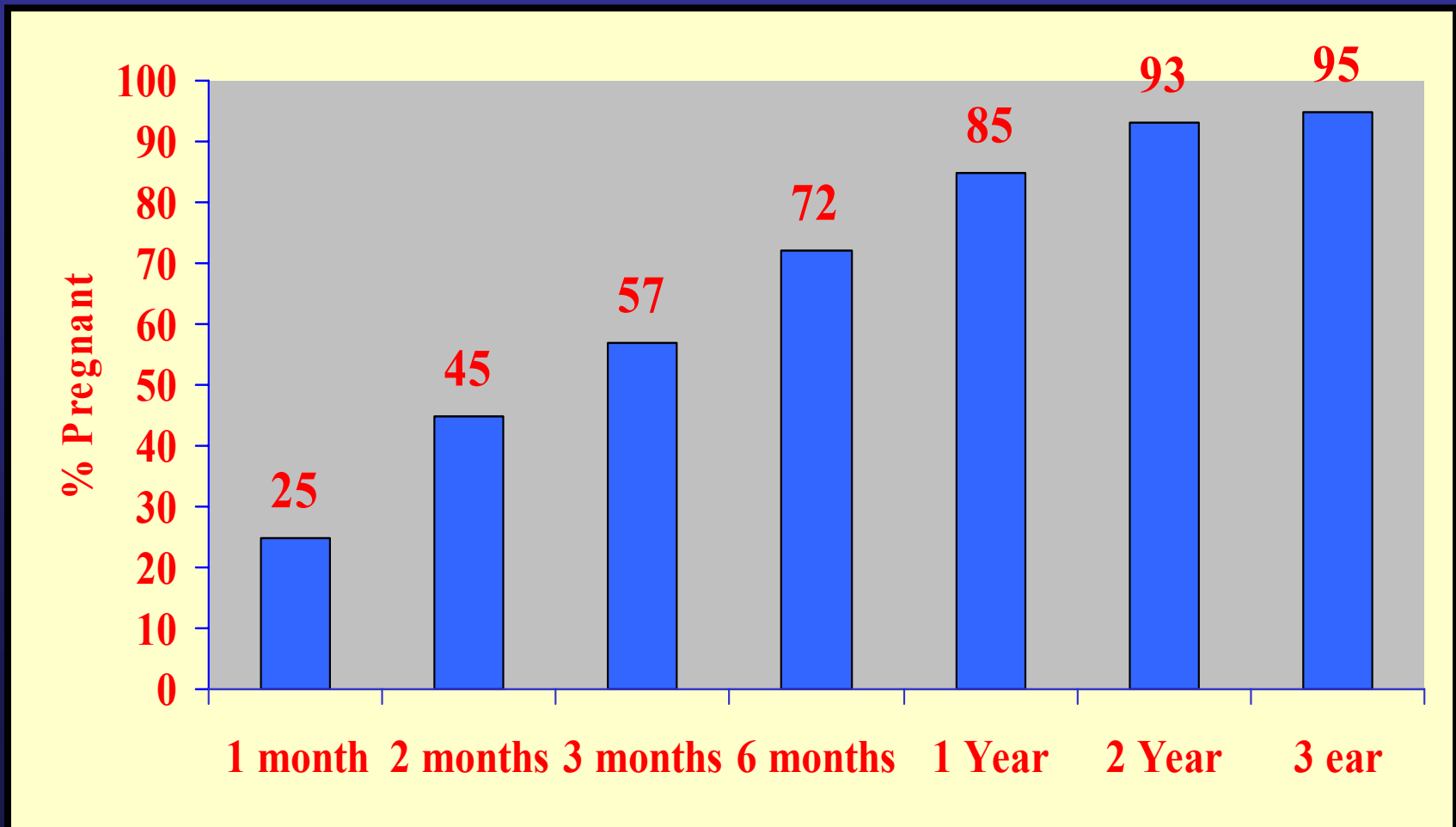
**University of Texas Southwestern**

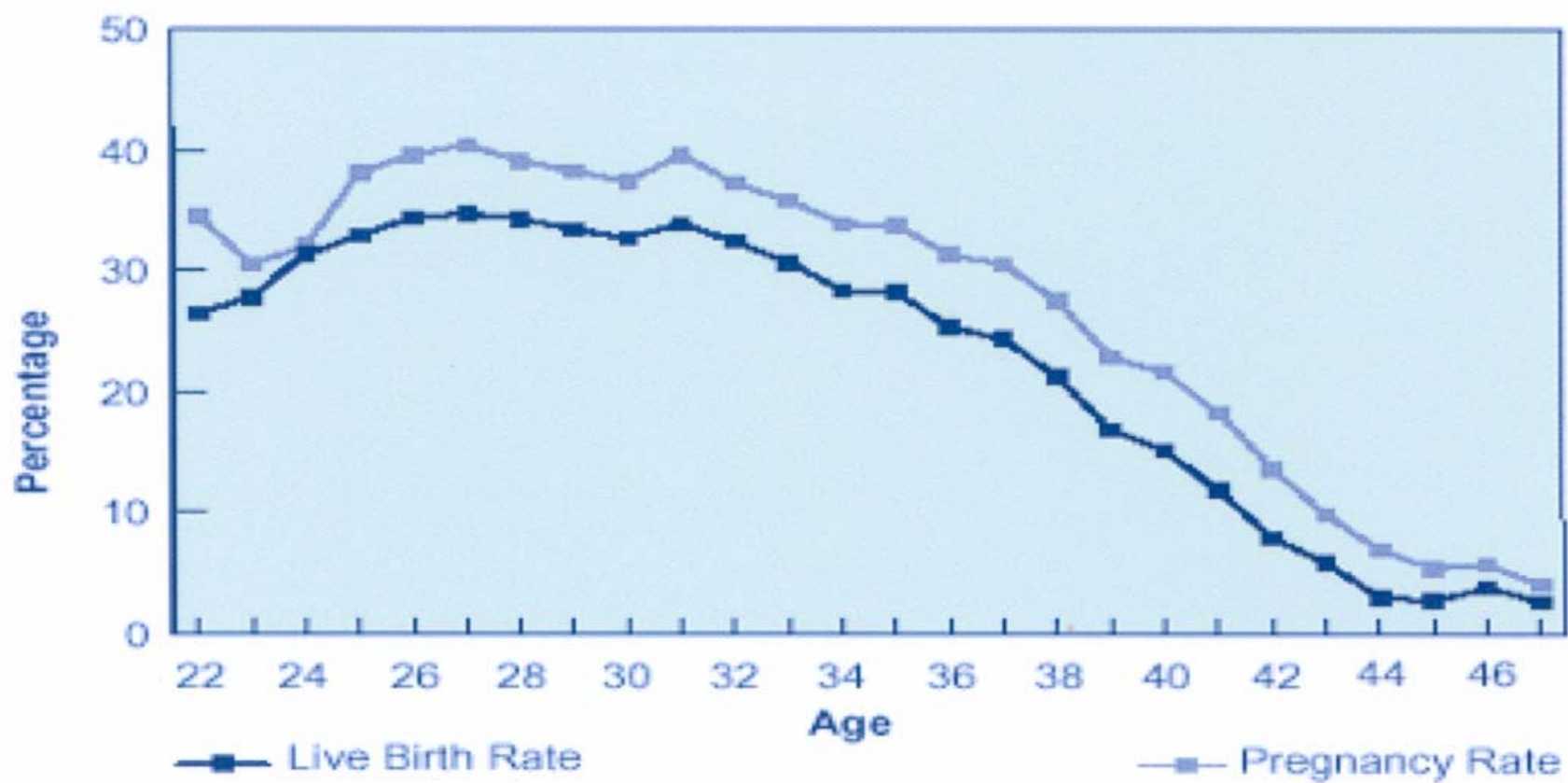
**Medical Center at Dallas**

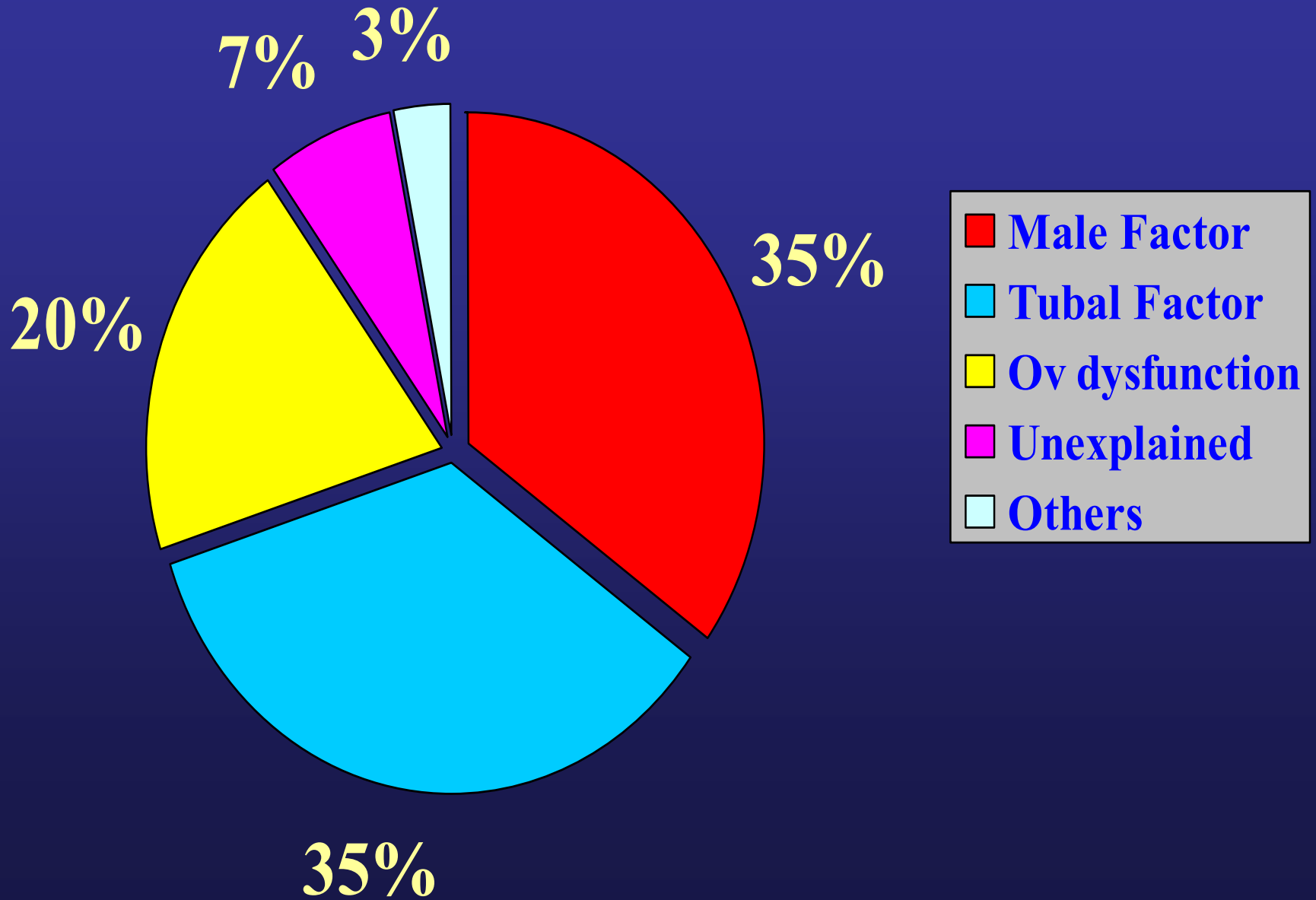
# Infertility

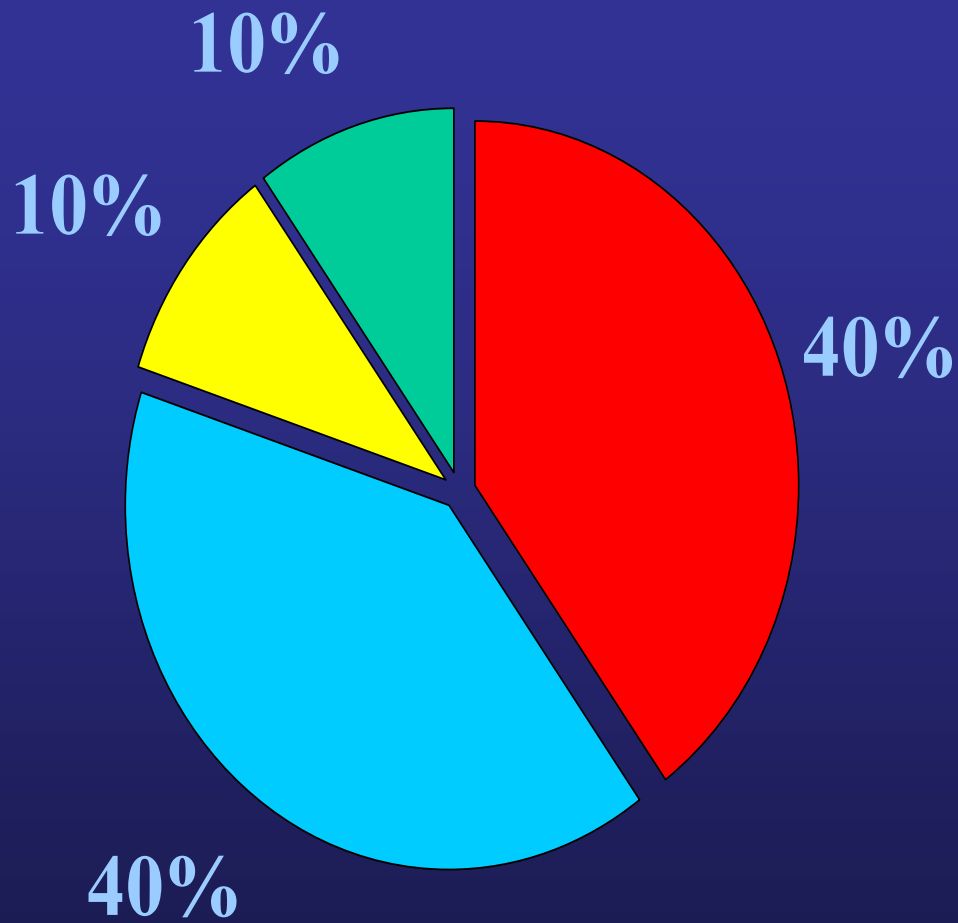
- Inability to conceive after one year of adequate unprotected intercourse (*six months if the woman is over age 35*)

# Time Required for Conception in Couples Who Will Attain Pregnancy



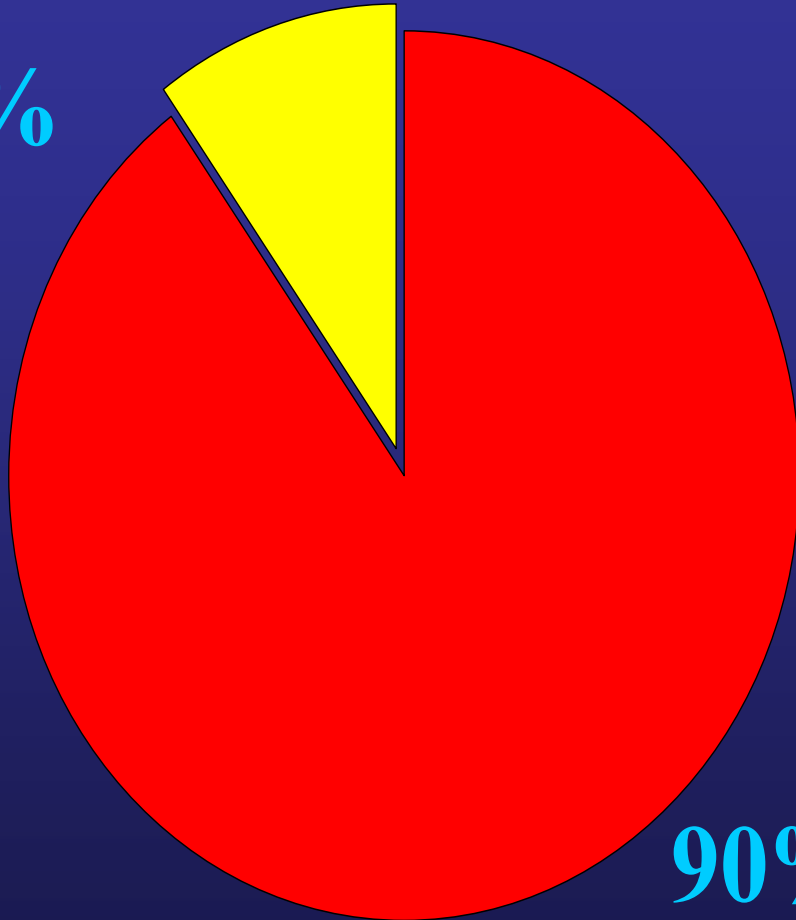




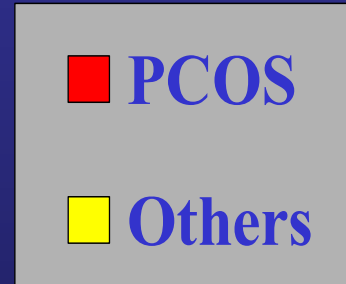


- **Anovulation**
- **Tubal Factor**
- **Male**
- **Pelvic Factor (Endometriosis, adhesion)**
- **Unexplained**
- **Uterine/cervical (fibroid)**

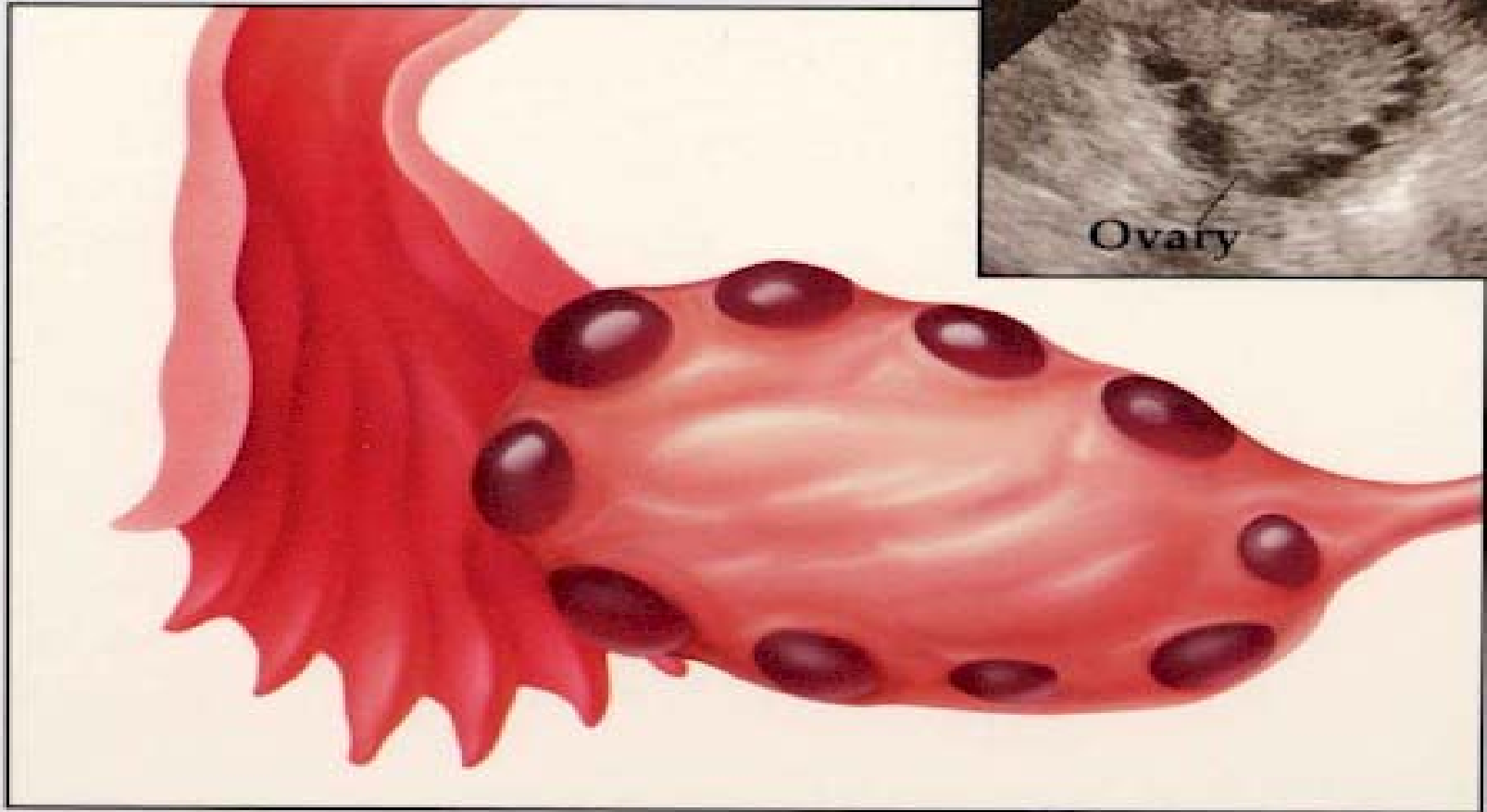
10%



90%



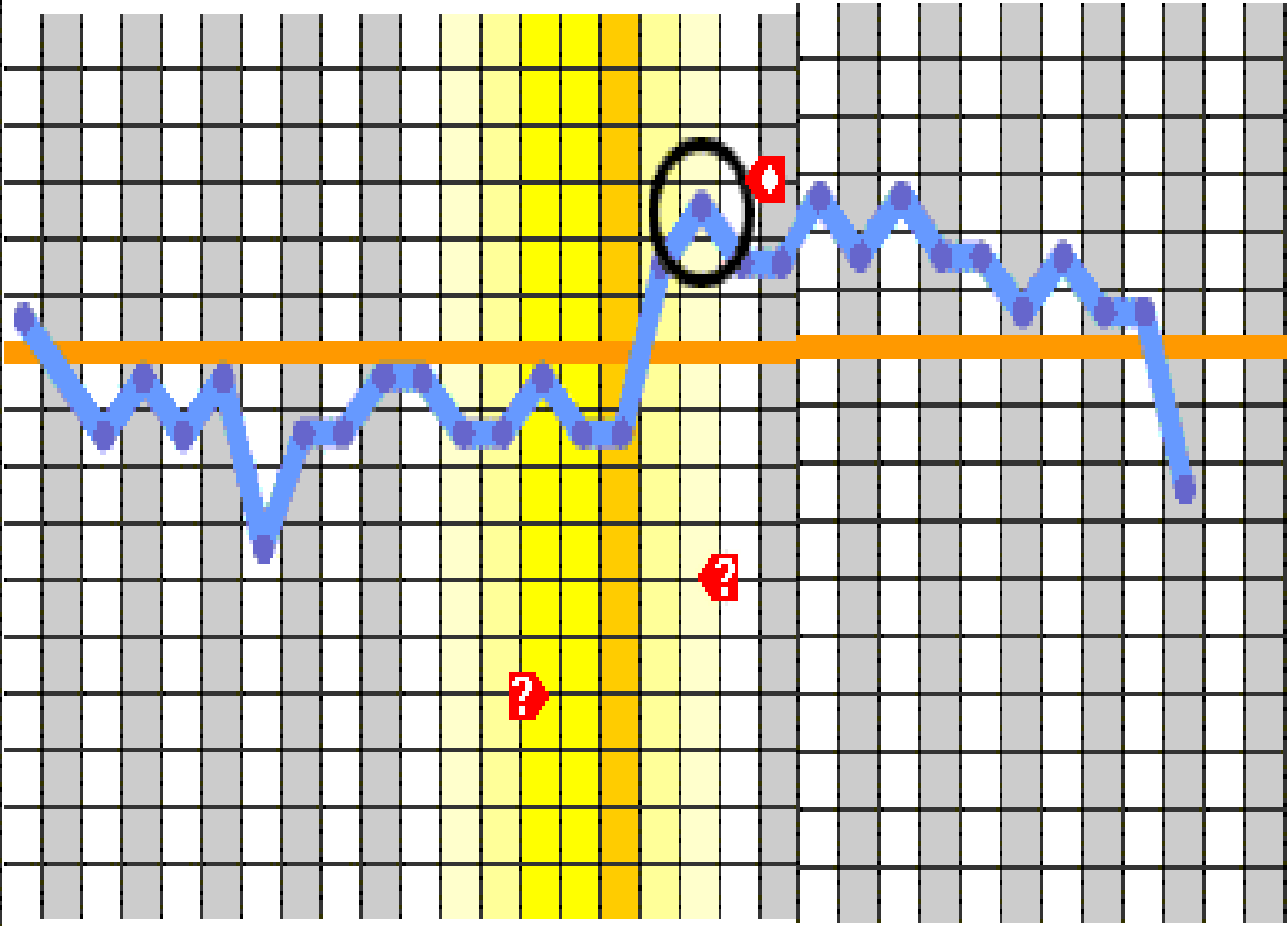
# Anovulation



# Ovulation

- History
- BBT
- LH kits
- Mid luteal phase Progesterone (**cycle length - 7**)
- Ultrasound
- EMB (day 21-26)

98.9
98.8
98.7
98.6
98.5
98.4
98.3
98.2
98.1
98.0
97.9
97.8
97.7
97.6
97.5
97.4
97.3
97.2
97.1
97.0
96.9



- **Anovulation**
- **Tubal / Pelvic Factor**
- **Male**
- **Unexplained**
- **Uterine/cervical (fibroid)**

# Tubal & Pelvic Factors

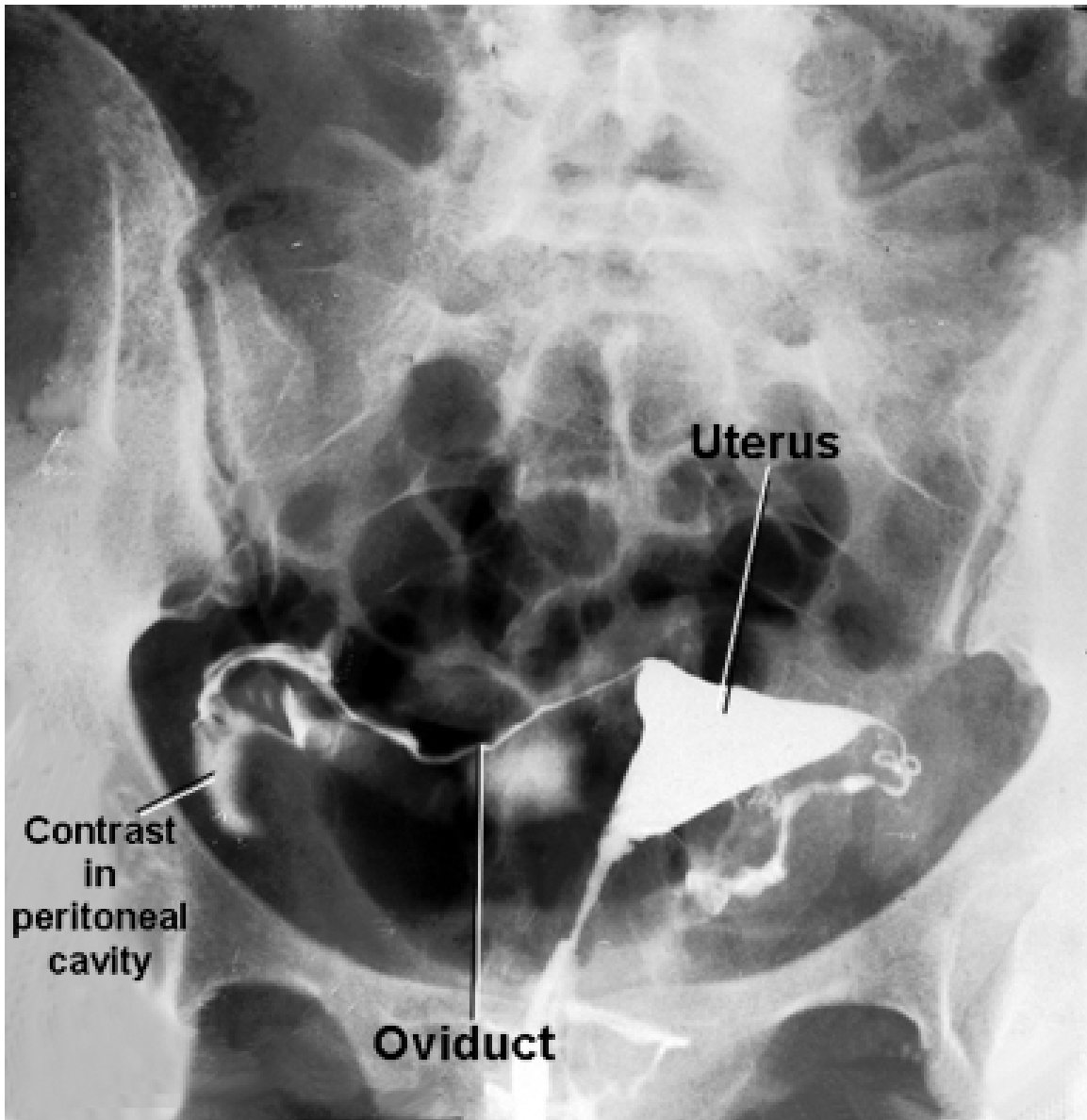
- Tubal disease, PID
- Tubal surgery
- Pelvic adhesions
- Endometriosis

# Tubal Factor

- Tubal infertility after PID (12%, 24%, 50%)
- One-half of patients who found to have tubal damage and/or pelvic adhesion have no history of antecedent disease

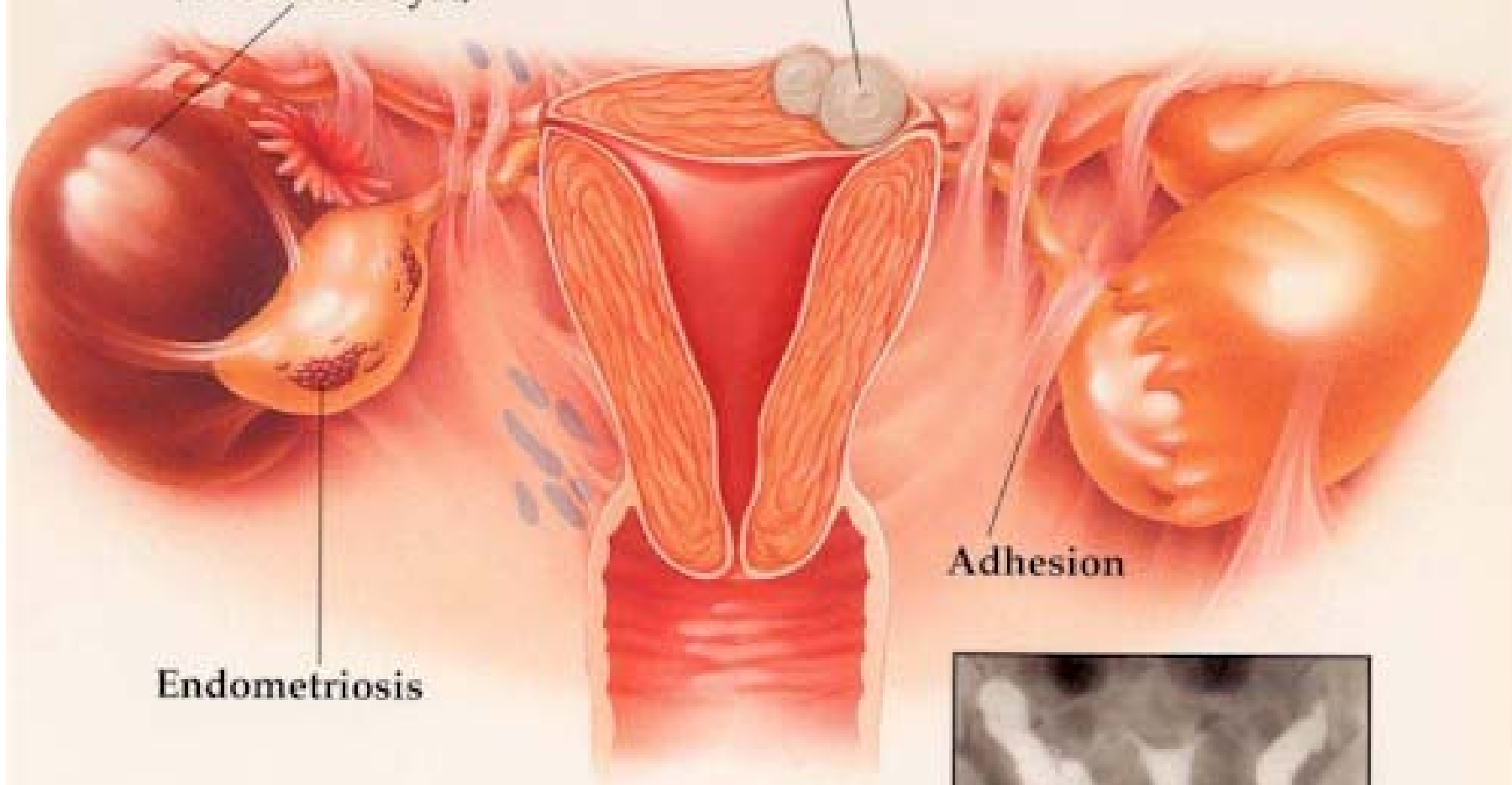
# Tubal Factor

- Hysterosalpingography
- Hysteroscopy / laparoscopy
- Falloscopy



**Endometriosis  
(Chocolate Cyst)**

**Fibroid Tumor**

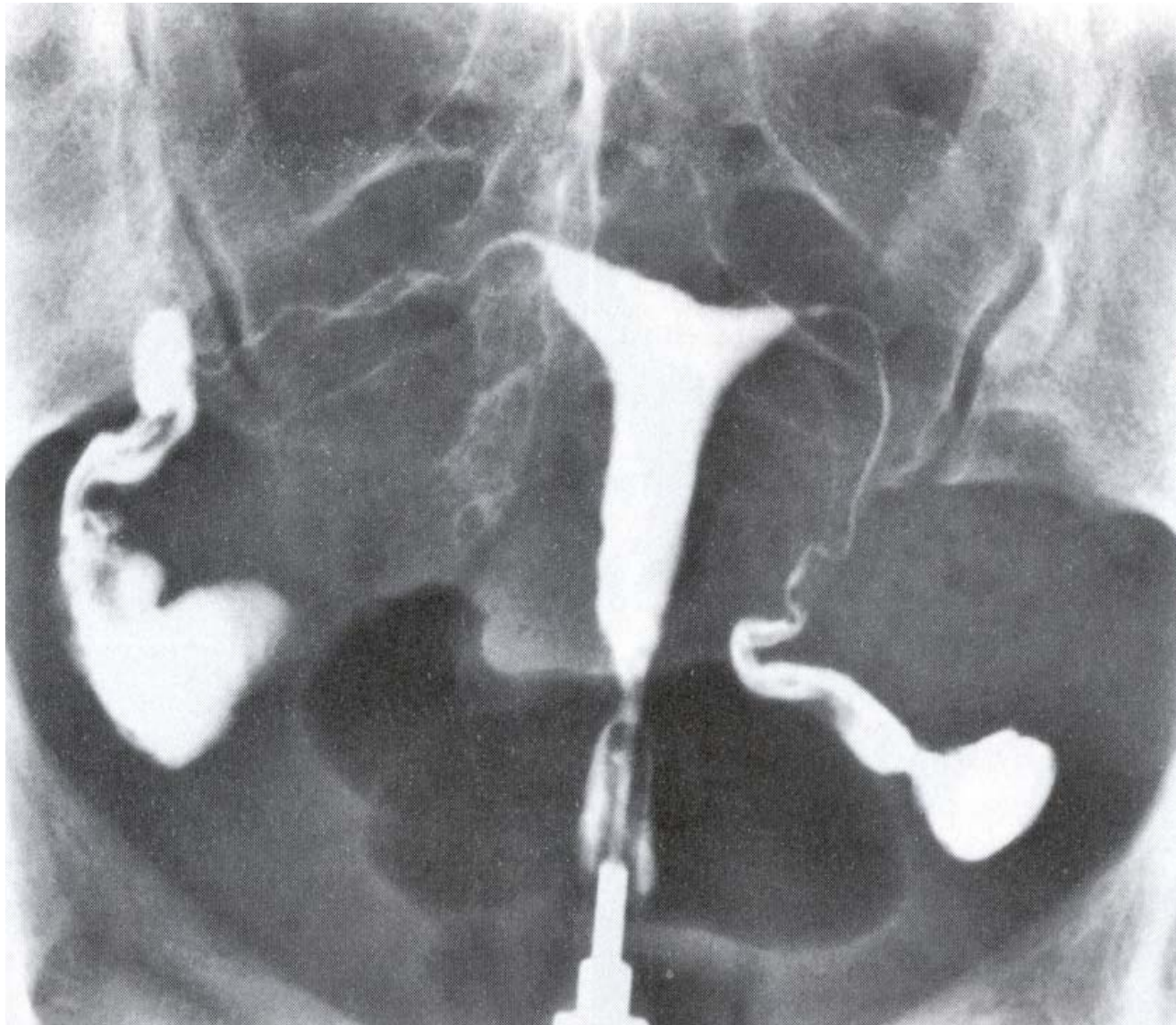


**Endometriosis**

**Adhesion**



**Hysterosalpingogram**



- **Anovulation**
- **Tubal Factor**
- **Male**
- **Unexplained**
- **Uterine/cervical (fibroid)**

# Male Factor Infertility

- Anatomic defects (hypospadias, Retrograde ejac.)
- Genetics Causes
- Trauma
- Infection
- Endocrine disorders
- Varicocele

# Male Factor Infertility

- Vol.  $> 2$  ml, Conc.  $> 20 \times 10^6$ , Mot.  $> 50\%$ , Morph.  $> 30\%$ .
- Total motile sperm per milliliter ( sperm per ml X percent motility)  $> 10 \times 10^6$

# Semen Analysis

## Sperm Morphology



Normal  
Oval Form



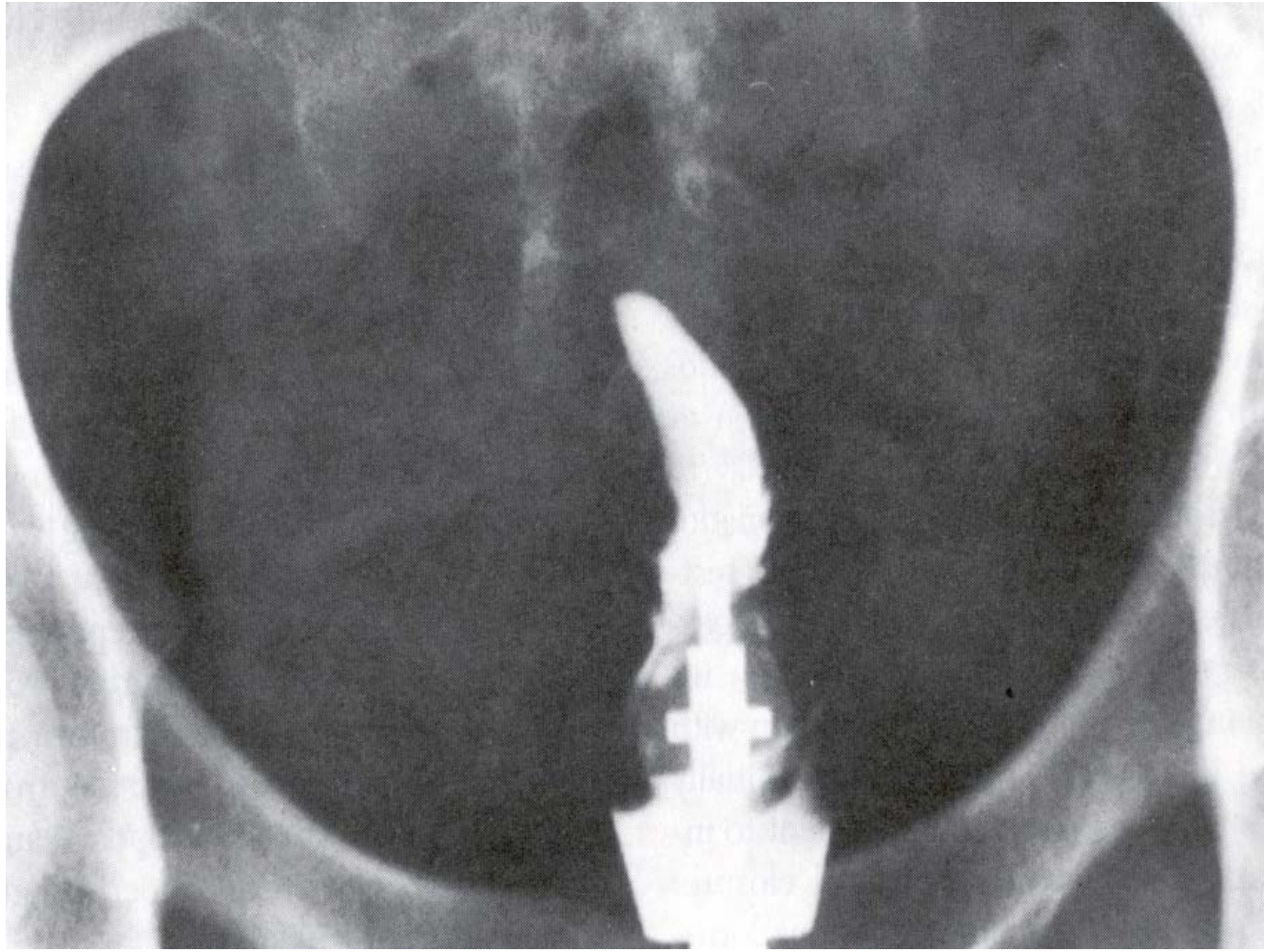
Abnormal Sperm

- Sperm count (number of sperm per cc)
- Motility (percentage of sperm moving)
- Sperm morphology

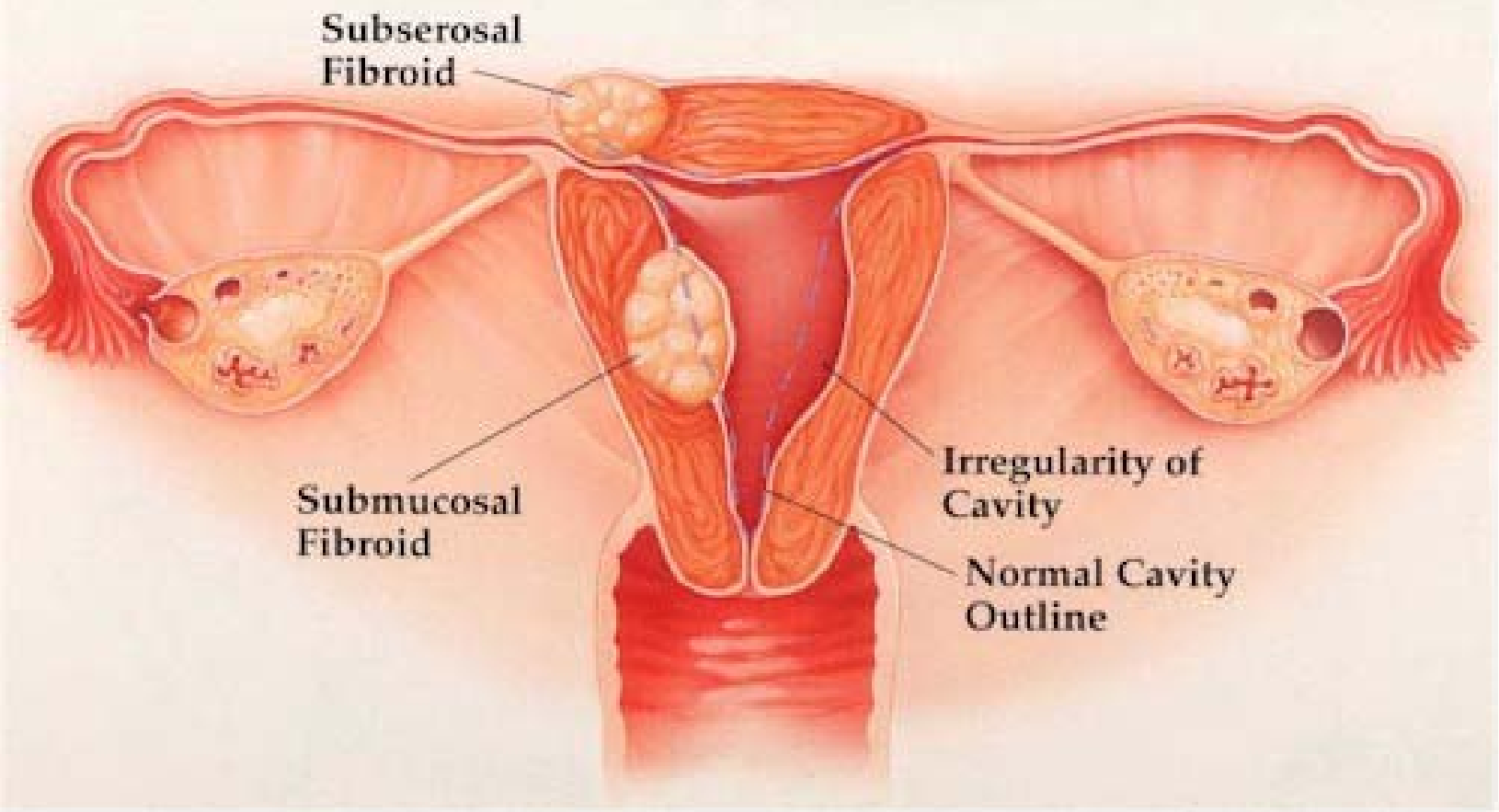
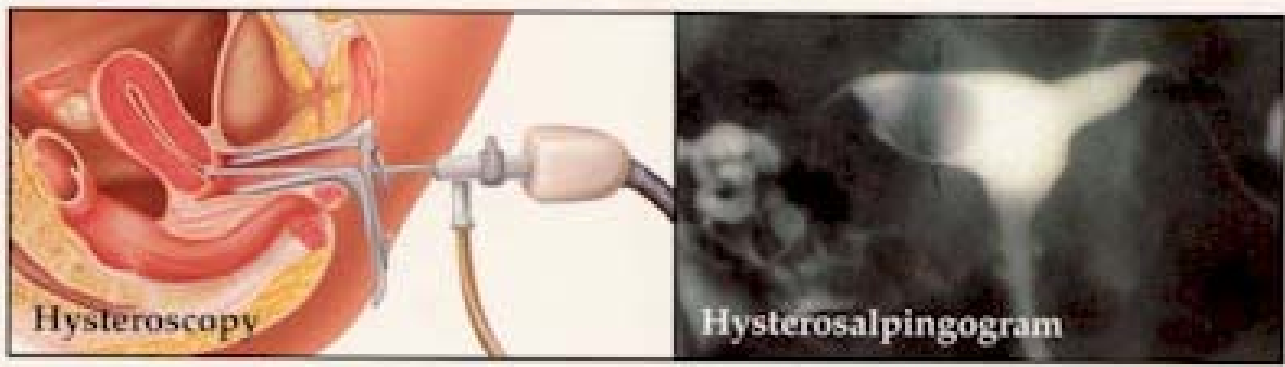
# Male Factor Infertility

- Screening for
  - \* Cystic fibrosis (Bilateral congenital absence of the vas) (1%-2% of infertile males)
  - \* Y chromosome microdeletion (7% - 10%)
  - \* Klinefelter's syndrome (XXY) (1 in 500)

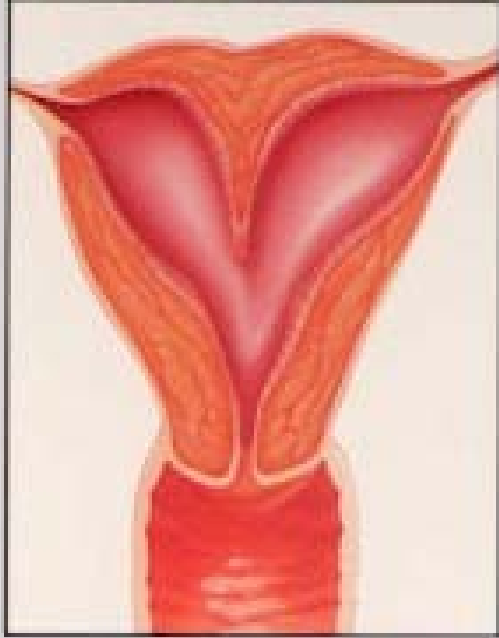
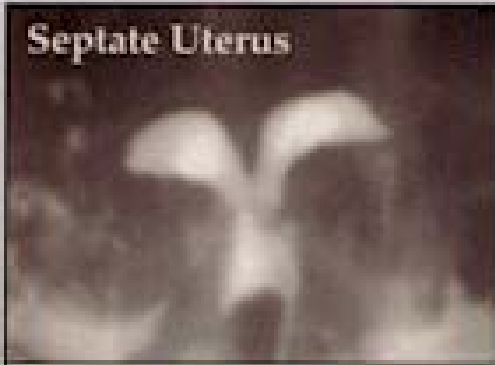
- **Anovulation**
- **Tubal Factor**
- **Male**
- **Uterine/cervical (fibroid)**
- **Unexplained**



# Submucosal Fibroids



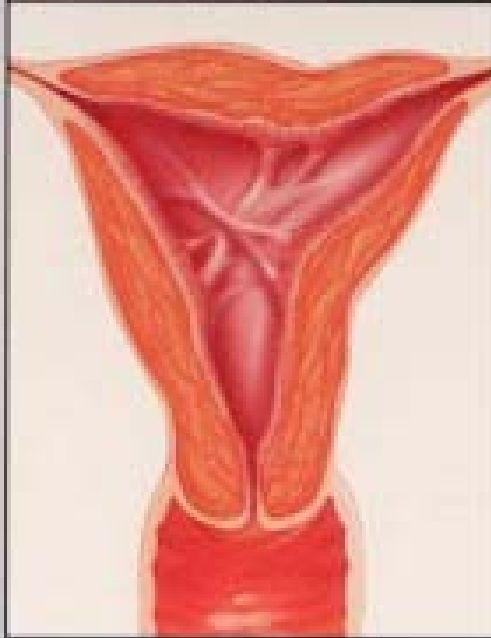
**Septate Uterus**



**Septate Uterus**

Wedge of fibrous tissue dividing uterine cavity.

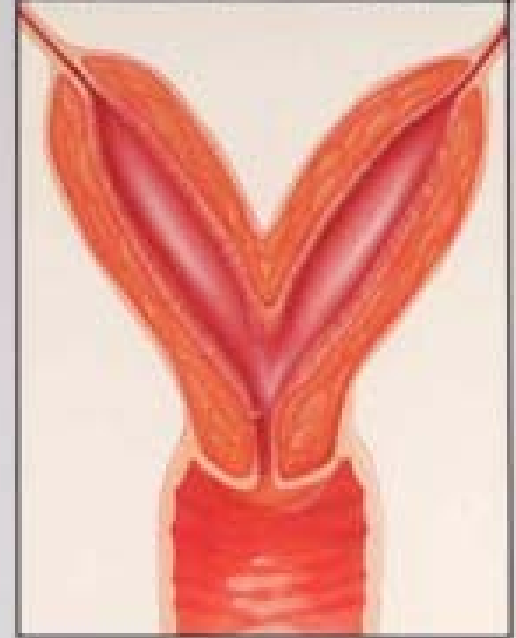
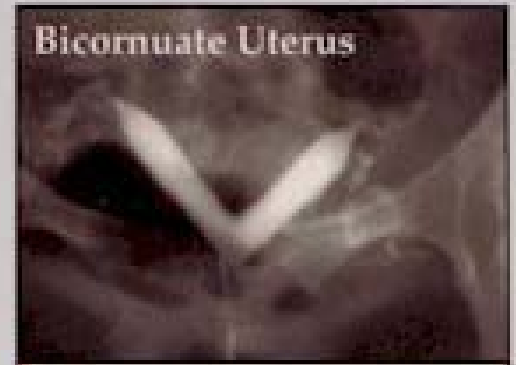
**Asherman's Syndrome**



**Asherman's Syndrome**

Adhesions (band-like formations) crossing the lining of the uterus.

**Bicornuate Uterus**



**Bicornuate Uterus**

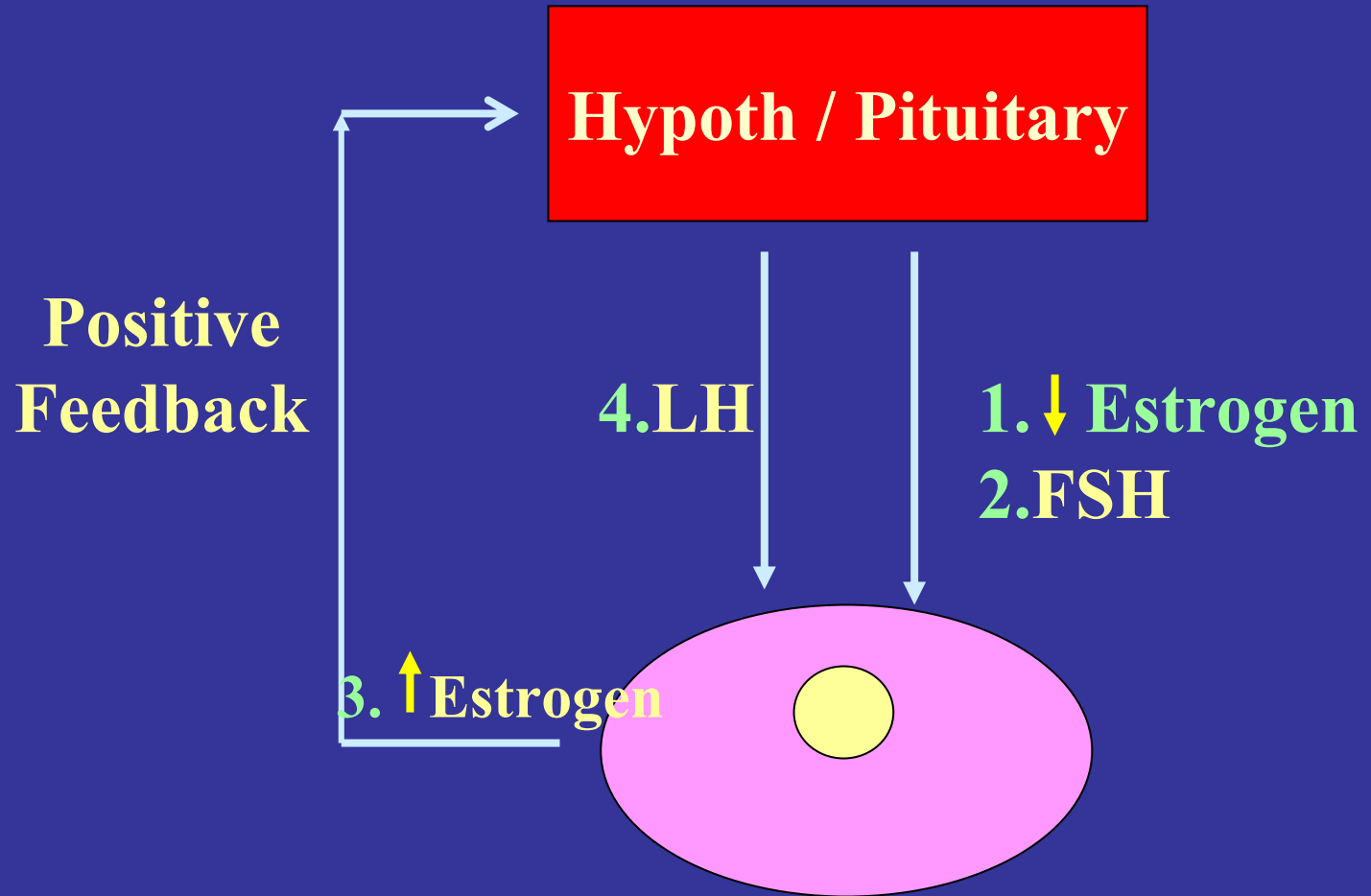
Incomplete uniting of uterus.

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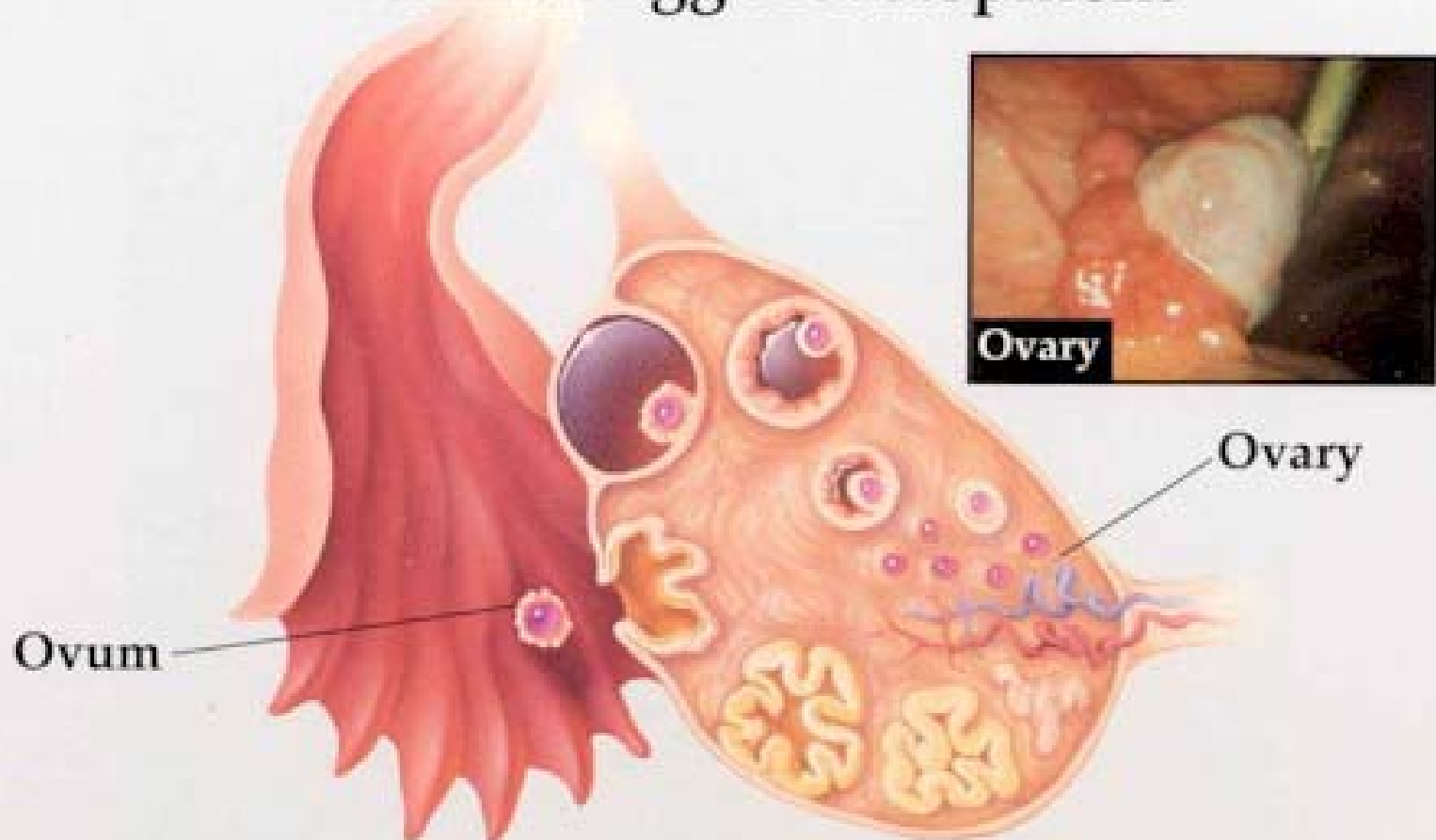
# Basic Work Up

- Anovulation
- Male
- Tubal Factor
- Uterine/cervical (fibroid)
- Unexplained
- Day 3 Labs (FSH, Inhibin B, Estradiol)
- Mid luteal phase Progesterone
- Semen analysis
- Hysterosalpingogram
- ??? Laparoscopy

- **Anovulation**
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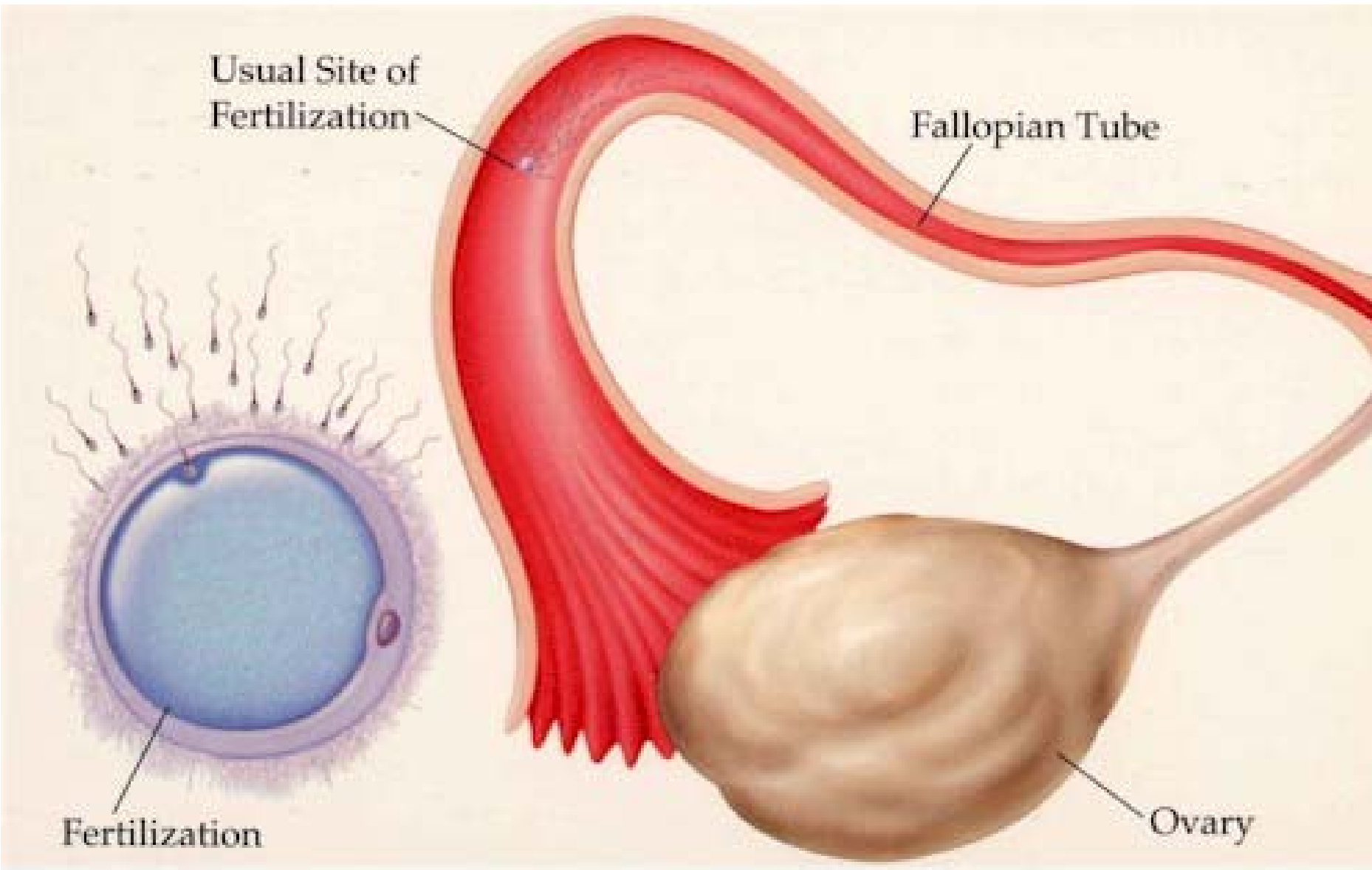


# Normal Egg Development



Each month the ovaries release one egg, or ovum.





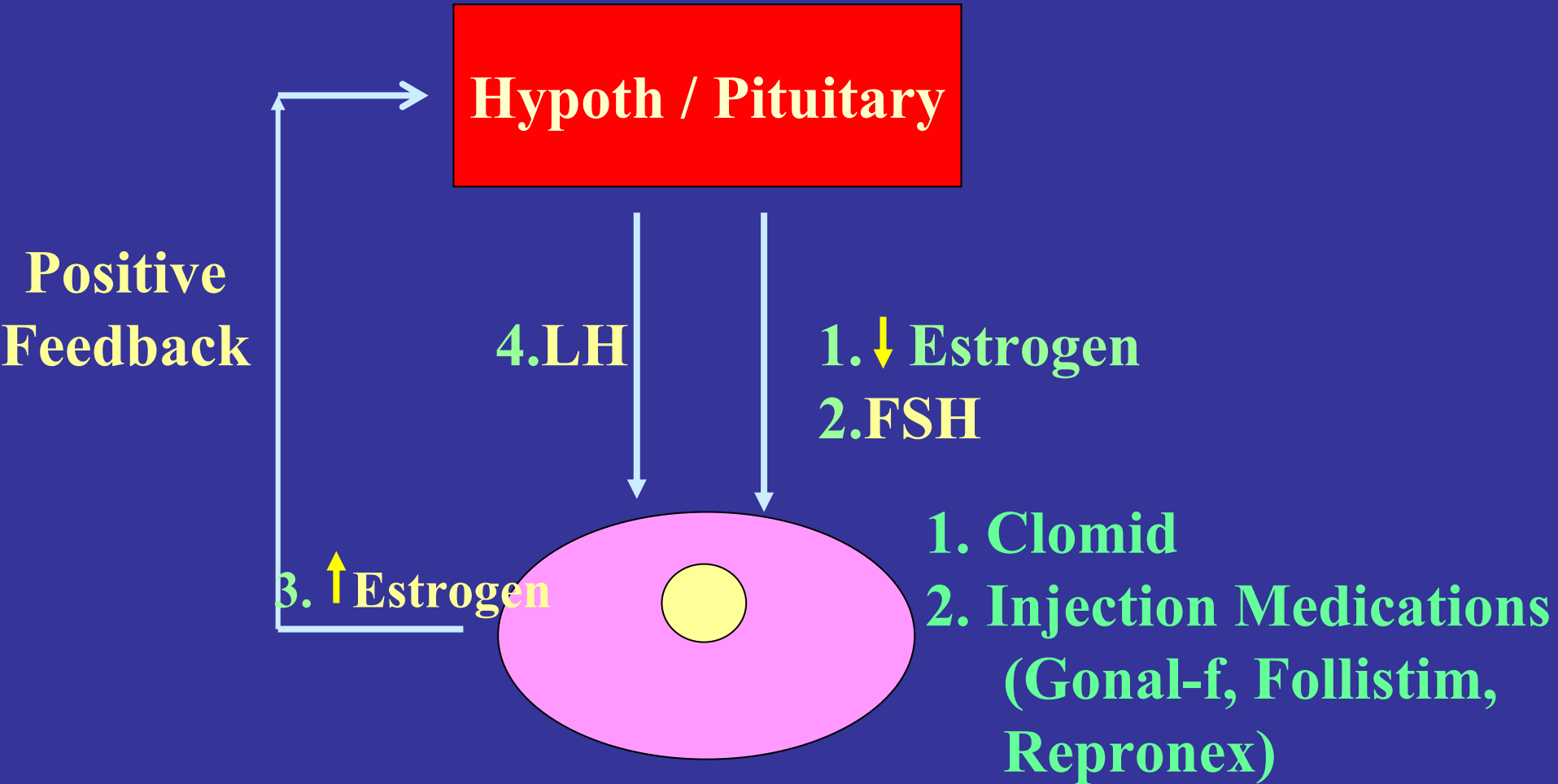
Usual Site of Fertilization

Fallopian Tube

Fertilization

Ovary

# Induction of Ovulation



# Induction of Ovulation

- **Clomid**

80% response, less invasive, cheap

Low incidence of multiple

- **Injectable**

Multiple gestation

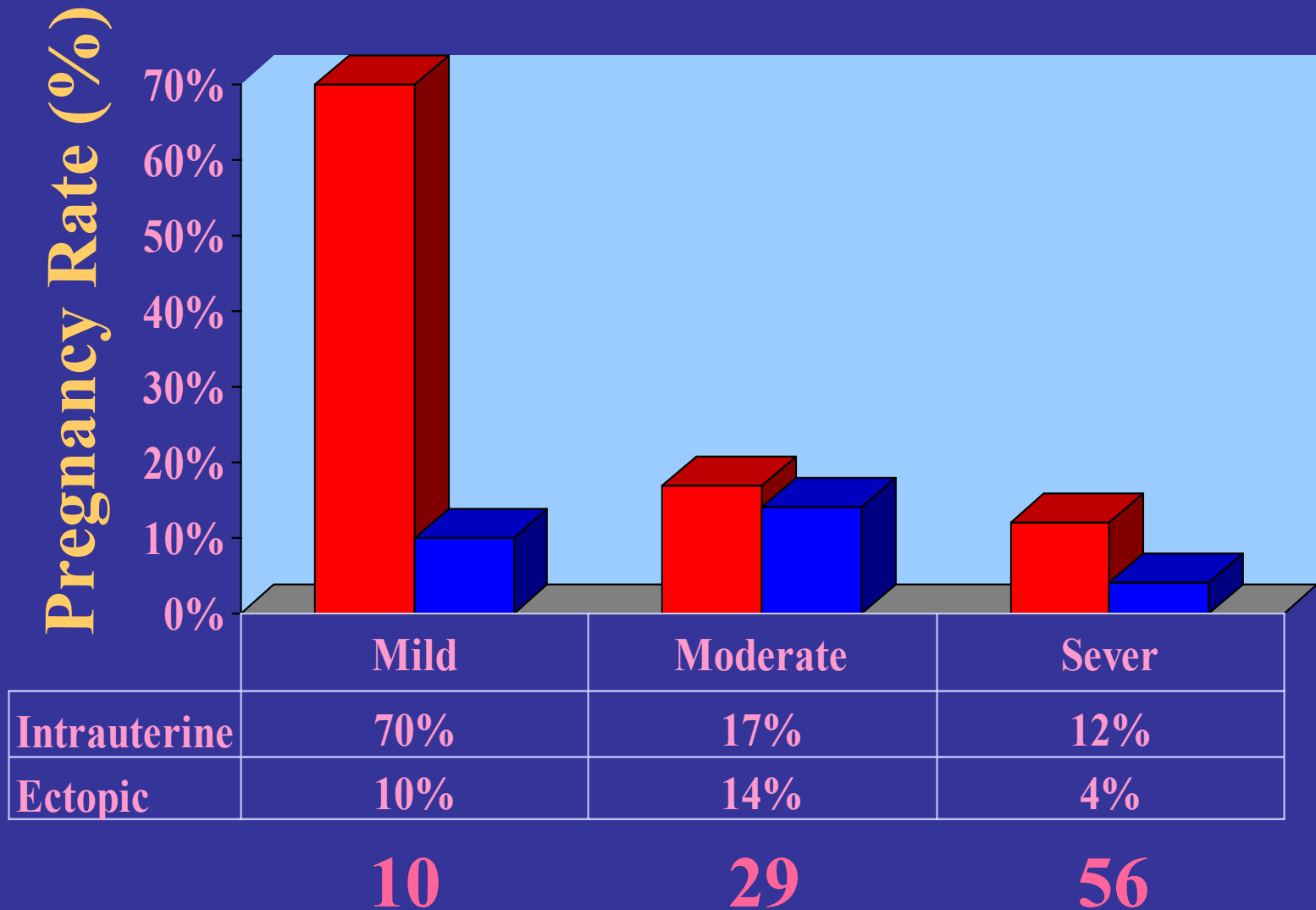
Expensive

- **Intrauterine Insemination**

- **Anovulation**
- **Tubal / Pelvic Factor**
- **Male**
- **Unexplained**
- **Uterine/cervical (fibroid)**

- Tubal Surgery
- **In vitro fertilization (IVF)**

# Pregnancy Outcome After Tubal Surgery

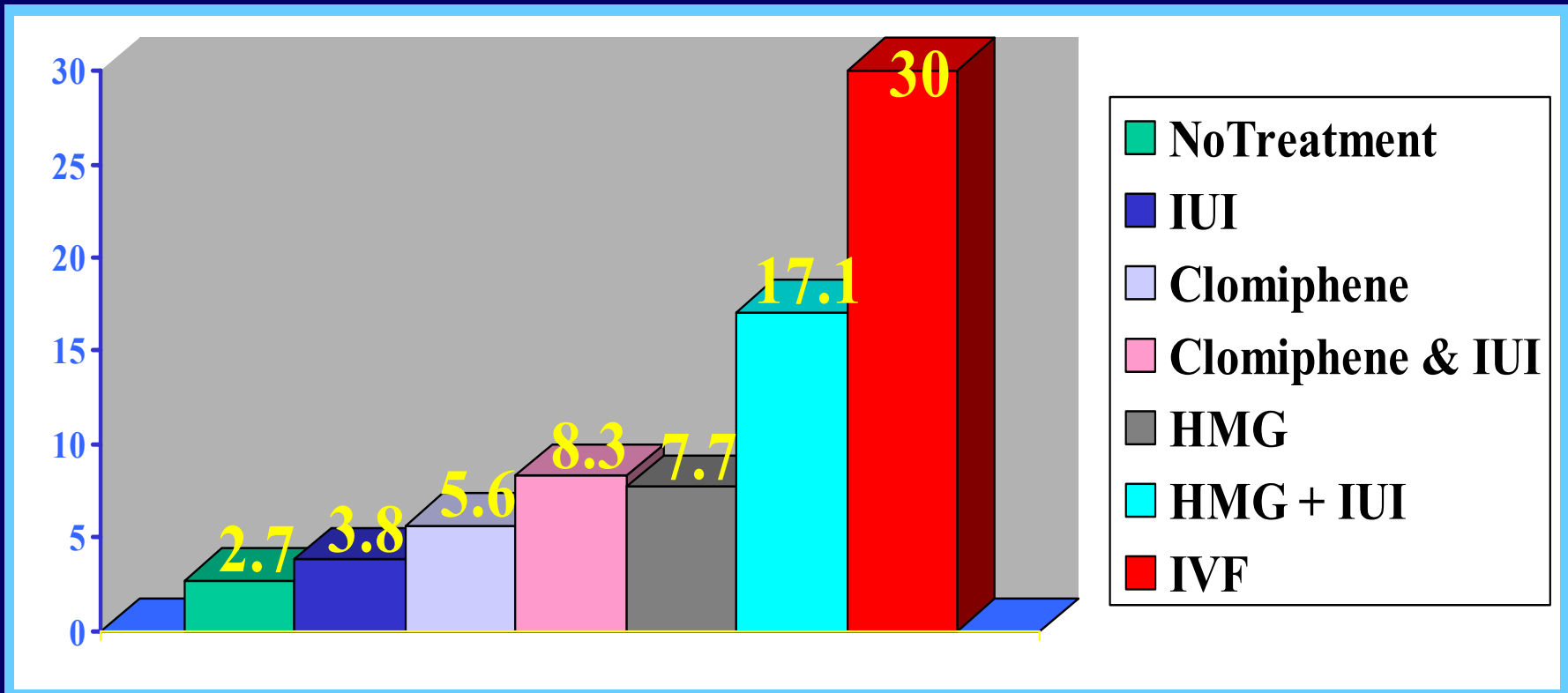


- **Anovulation**
- **Tubal Factor**
- **Male**
- **Unexplained**
- **Uterine/cervical (fibroid)**

- **Intrauterine Insemination**
- **In vitro fertilization (IVF)**
- **Intracytoplasmic Sperm Injection (ICSI)**

- **Anovulation**
- **Tubal Factor**
- **Male**
- **Unexplained**
- **Uterine/cervical (fibroid)**

# Pregnancy Rate per Cycle in Patients with Unexplained Infertility



- **Anovulation**
- **Tubal Factor**
- **Male**
- **Unexplained**
- **Uterine/cervical (fibroid)**

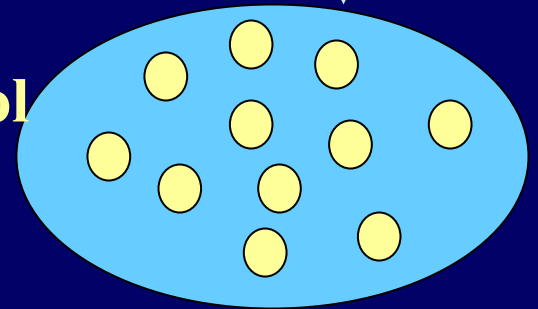


**Hypoth / Pituitary**

**LH**

**FSH**

**Follisitim  
Gonal-F  
Perganol  
Repronex**



**Positive  
Feedback**

**Estradiol**

**Start OC**

**Start  
Lupron**

**Start  
FSH**

**Retrieval**

**Transfer**

**D 1**

**3 wks**

**D 21**

**2wks**

**D 35**

**10-14 D**

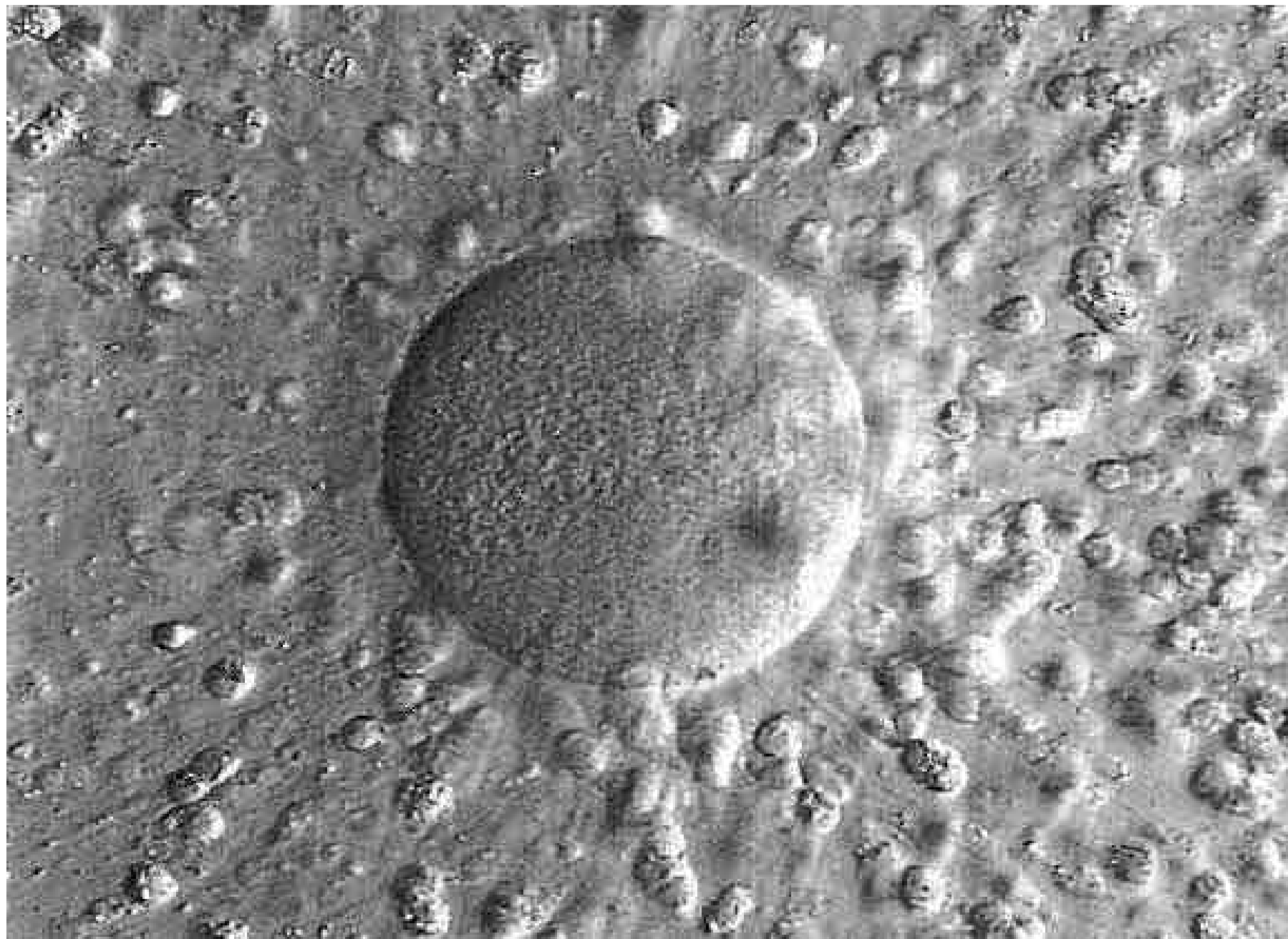
**S D**

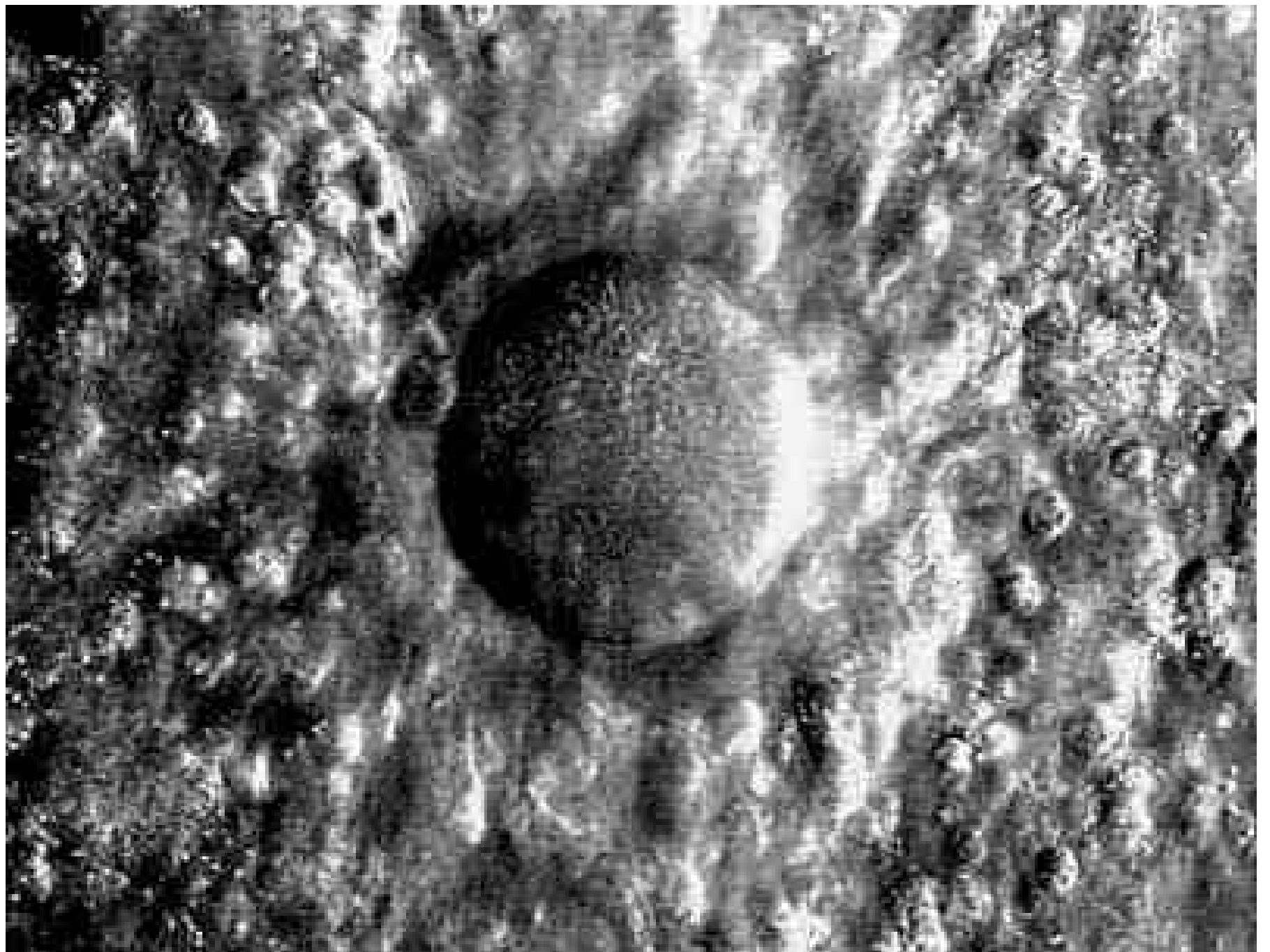
**3 D**

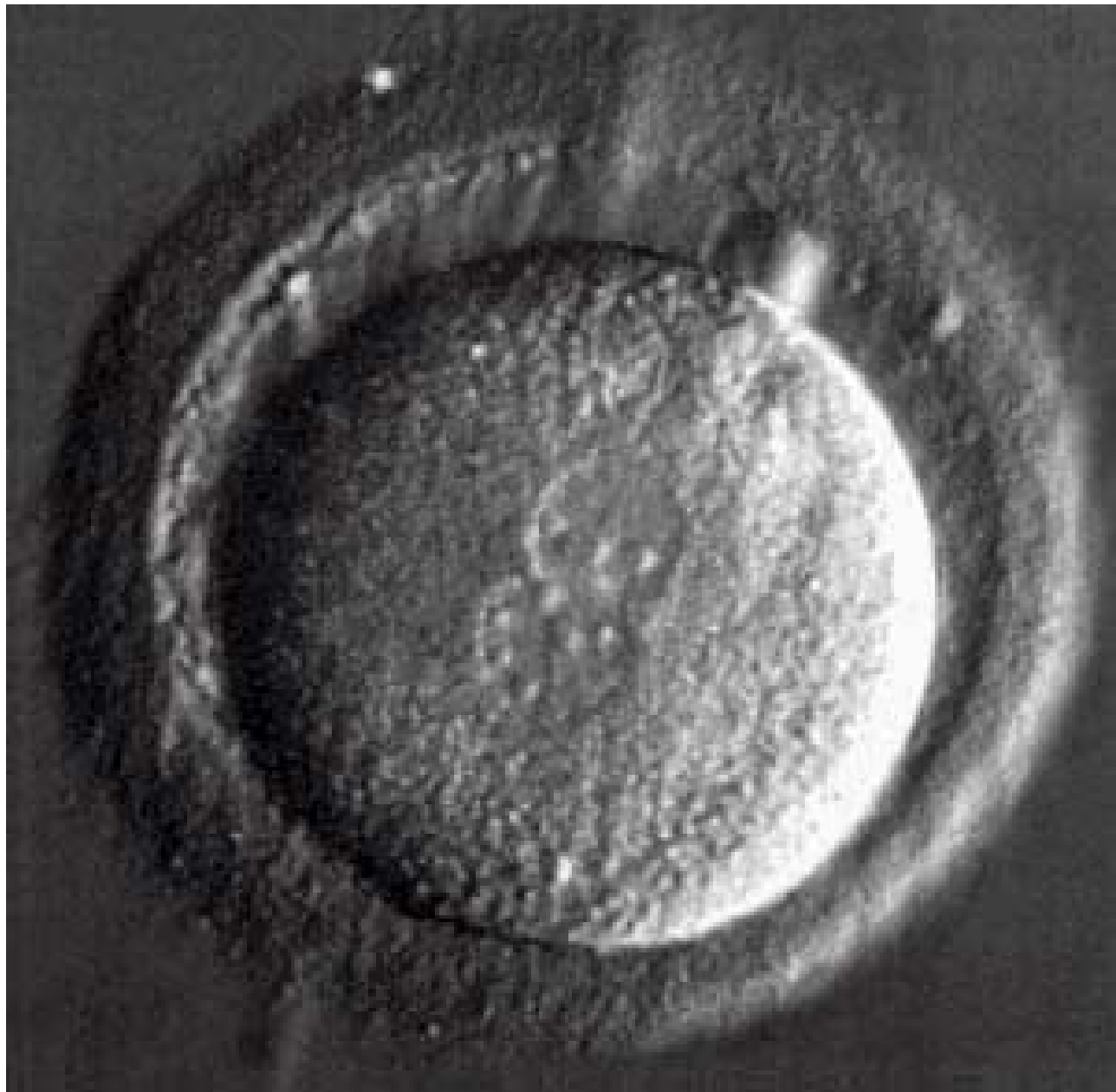
**2 D**

**SD 1**

**10-14**

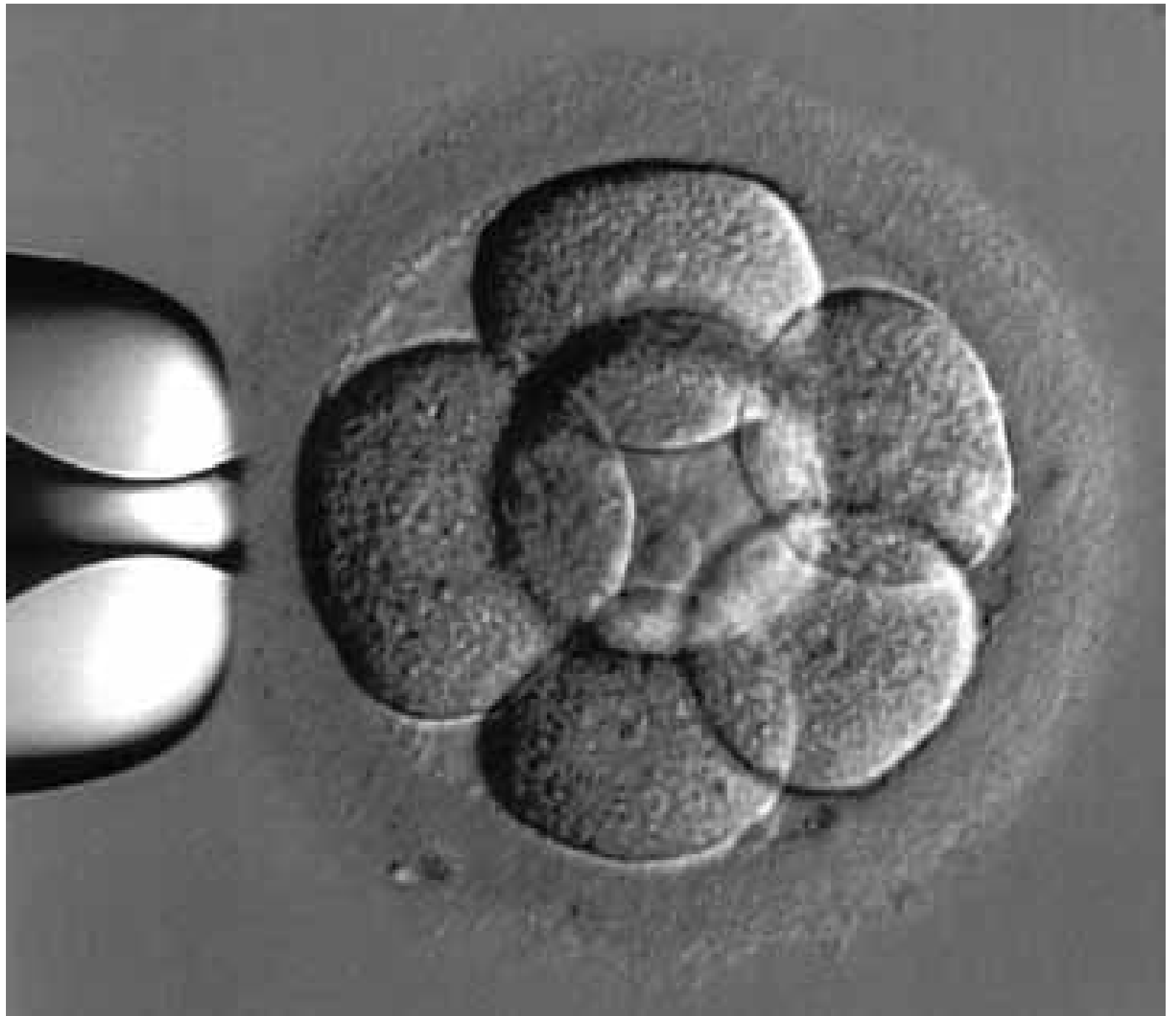




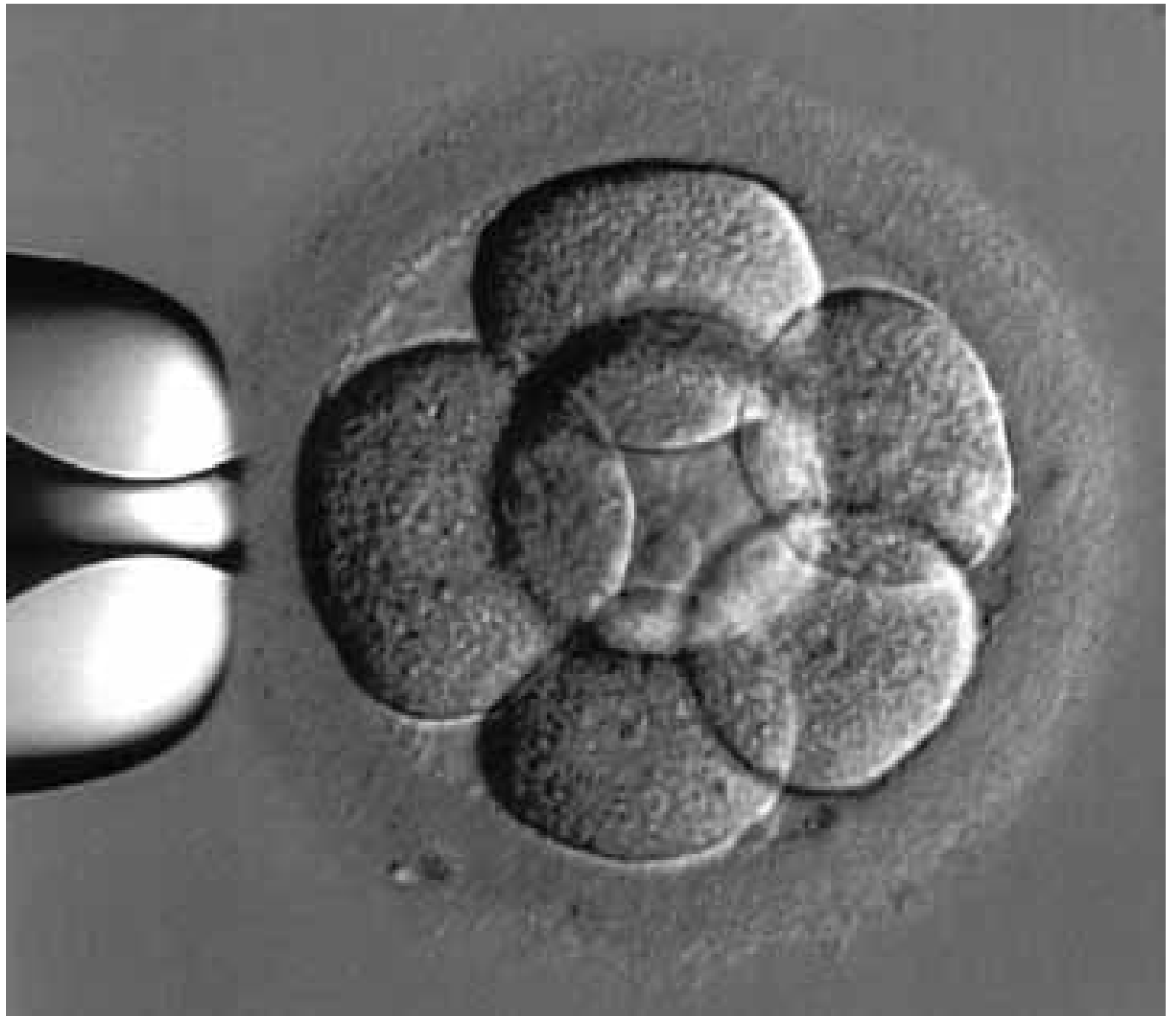




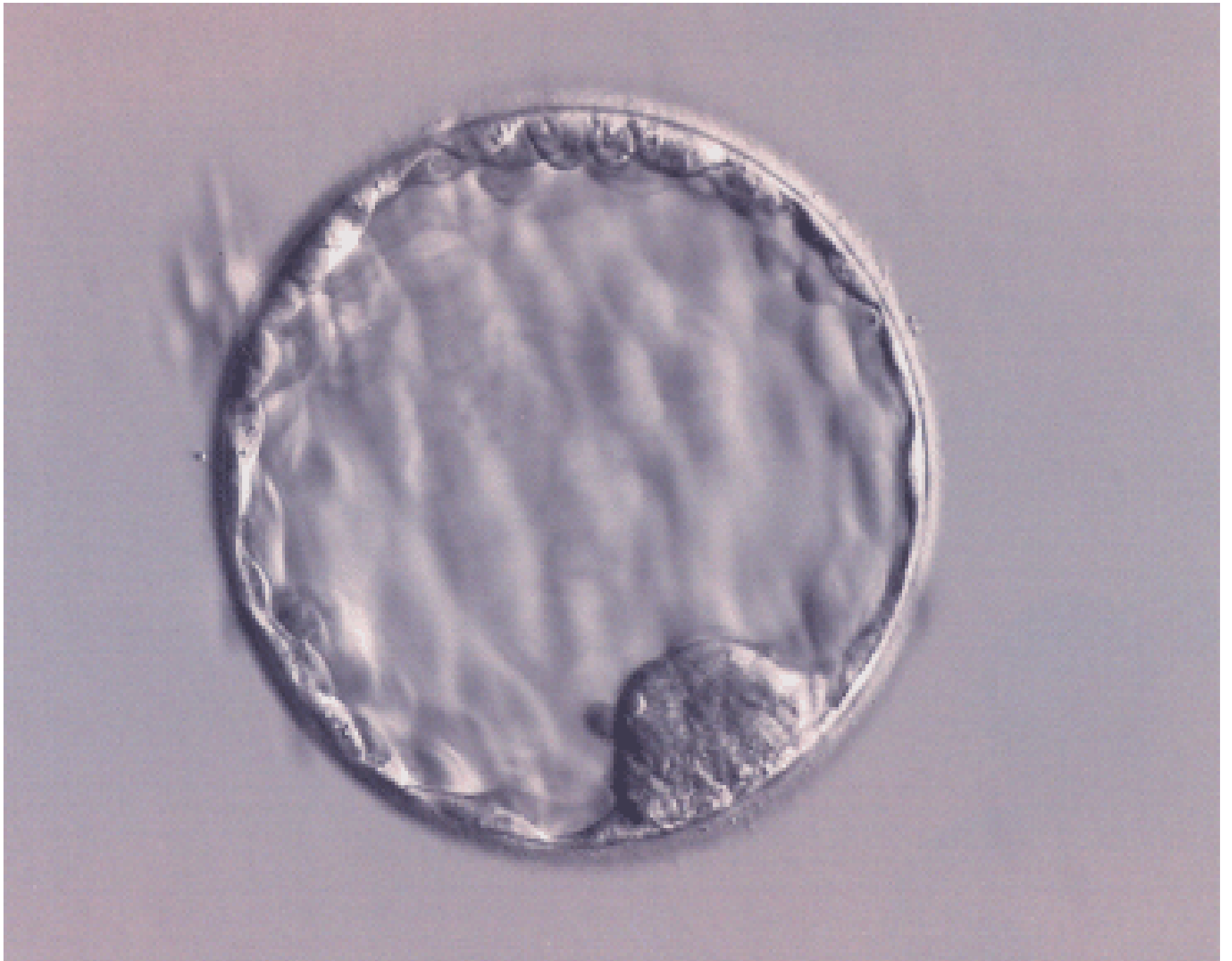










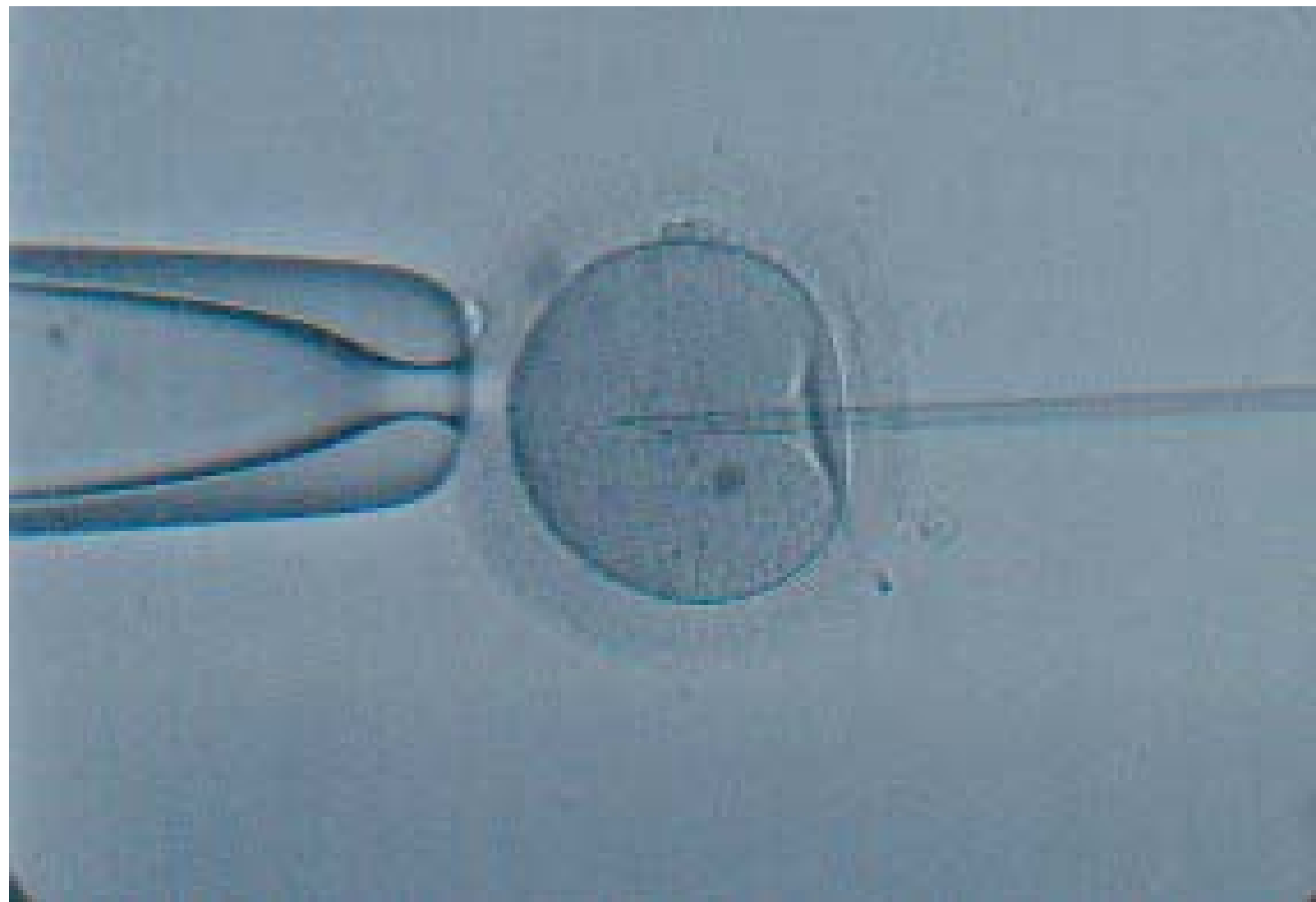


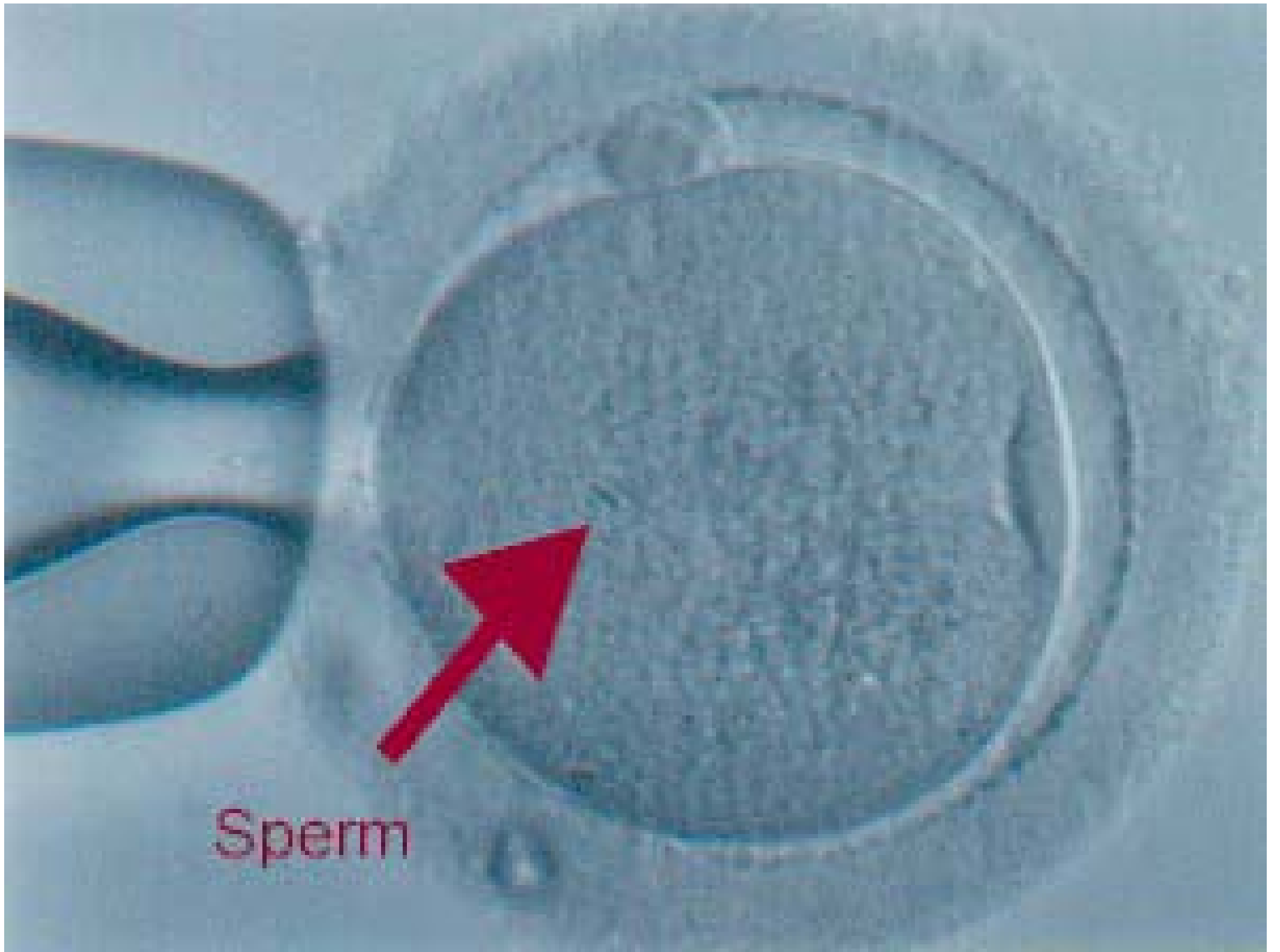
# IVF Success Rate

- Age
- Age
- Age
- 40 - 60%
- Cost \$5500 + Medications









Sperm



