



**FACULTY  
OF MEDICINE**  
Masaryk University

**Masaryk University School of Medicine  
and Brno University Hospital**  
Department of Obstetrics and Gynecology  
Head: Prof. Pavel Ventruba, DrSc.,MBA



# Endometriosis



**General Medicine Obstetrics and Gynecology  
Seminary 2017 – 2018 – Autumn Semester**

# Definition

- **Endometriosis is a disease in which endometrial glands and stroma implant and grow in areas outside the uterus**
- **Most commonly implants are found in the pelvis**
- **Lesions may occur at distant sites: pleural cavity, liver, kidney, gluteal muscles, bladder, etc**

# Features of Endometriosis

- **Prevalence 2-50% of women; 21-47% of infertility cases**
- **Exposure to ovarian hormones appears to be essential**
- **No known racial or socioeconomic predilection**
- **Severe disease may occur in families**

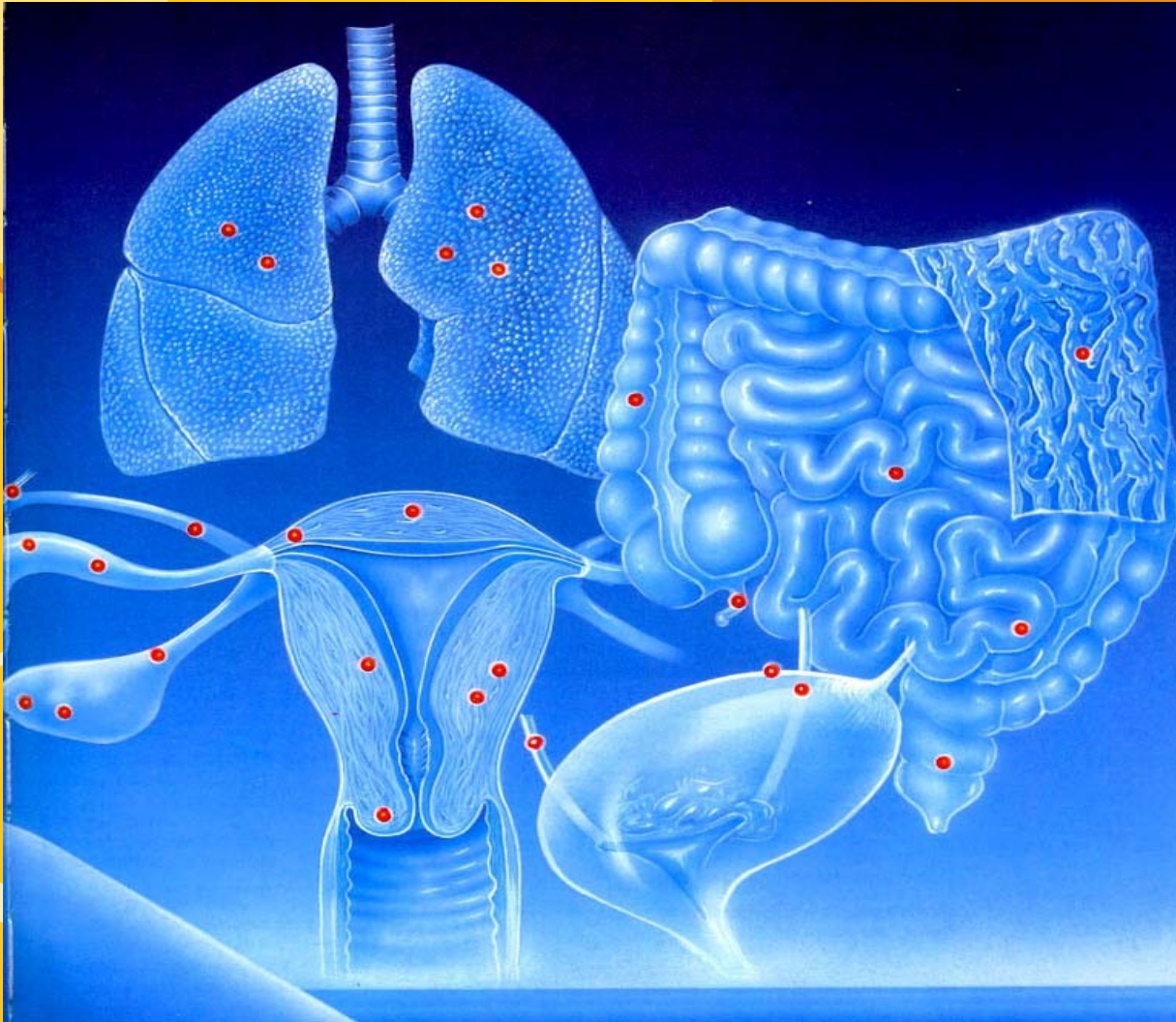
# Is Endometriosis Increasing?

- **1965-1984, endometriosis rose from 10 to 19% as primary indication for hysterectomy**
- **Simultaneously, a trend of more conservative therapies was occurring, which suggests a true increase in the incidence**
- **Theories include delay of childbearing, less use of OCs, and exposure to environmental toxins such as dioxin**

# Etiologies of Endometriosis

- **Sampson's theory: Retrograde menses and peritoneal implantation**
  - **Most women retrograde menstruate**
- **Meyer's theory: Coelomic metaplasia**
  - **Low incidence of pleural disease**
- **Halban's theory: Hematogenous or lymphatic spread to distant tissues**
  - **Does not explain gravity dependent disease sites**
- **Immunogenic defect**

# Localisation



Sakrouterinní vaz 63 %

Ovaria 56 %

Cavum Douglasi 25 %

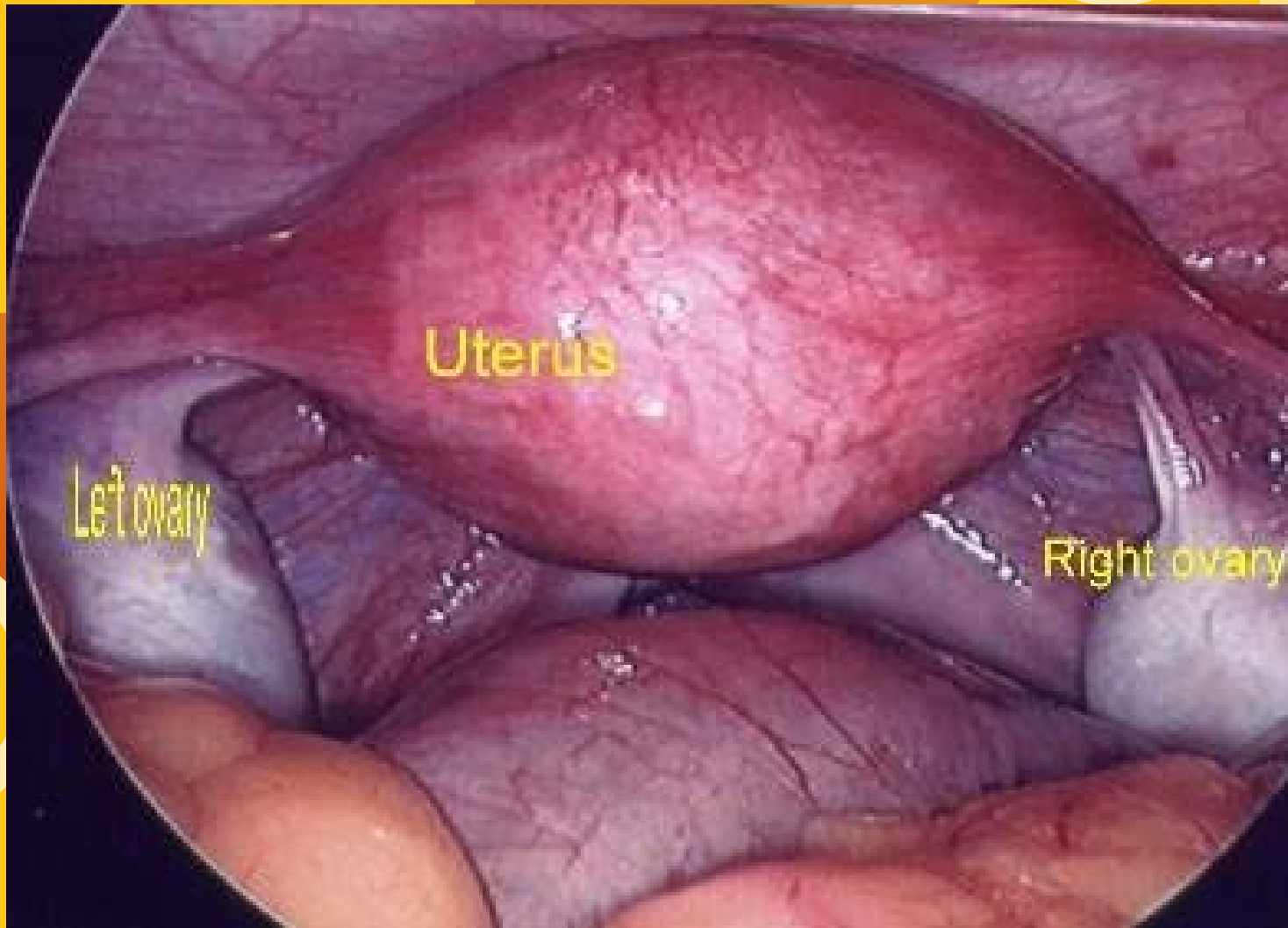
Měchýř 20 %

Samps. cysty 20 %

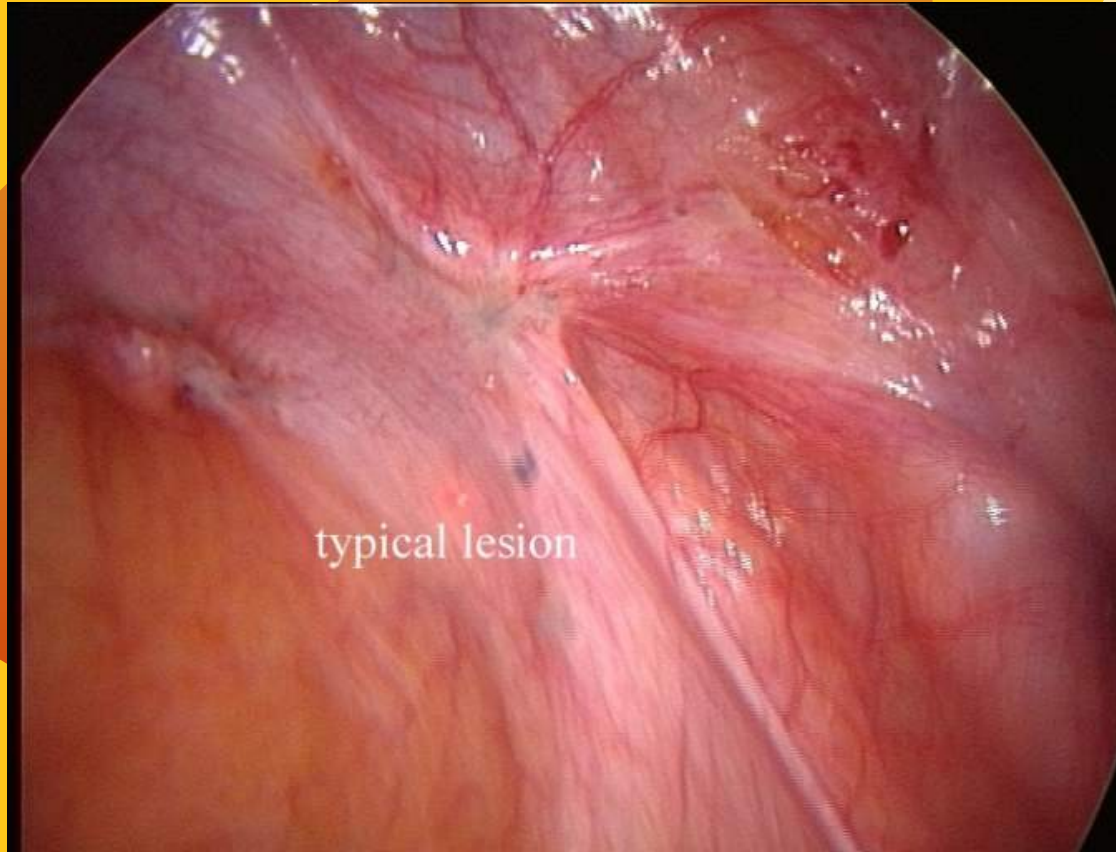
Lig. latum 8 %

Střevo 6 %

# Normal Pelvic Structures

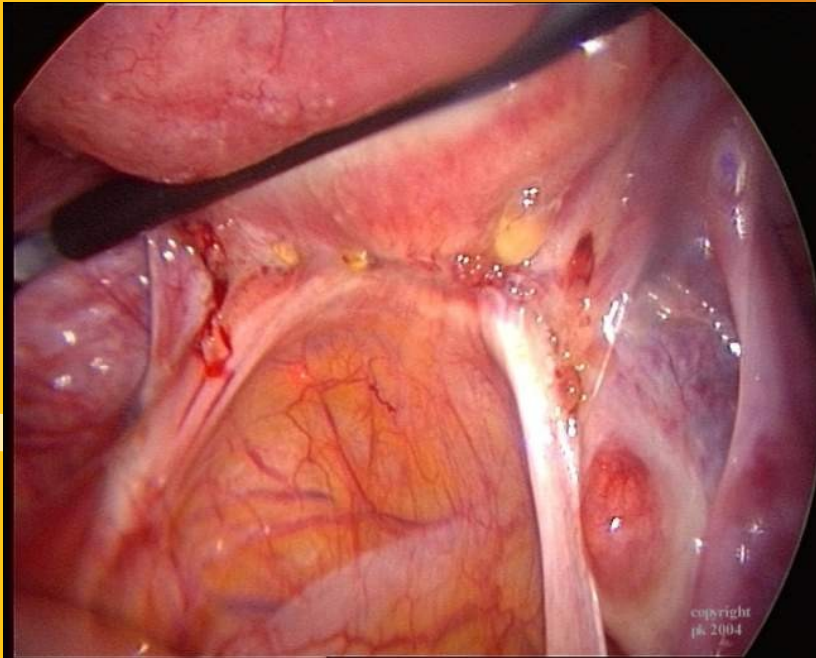


# Endometriosis

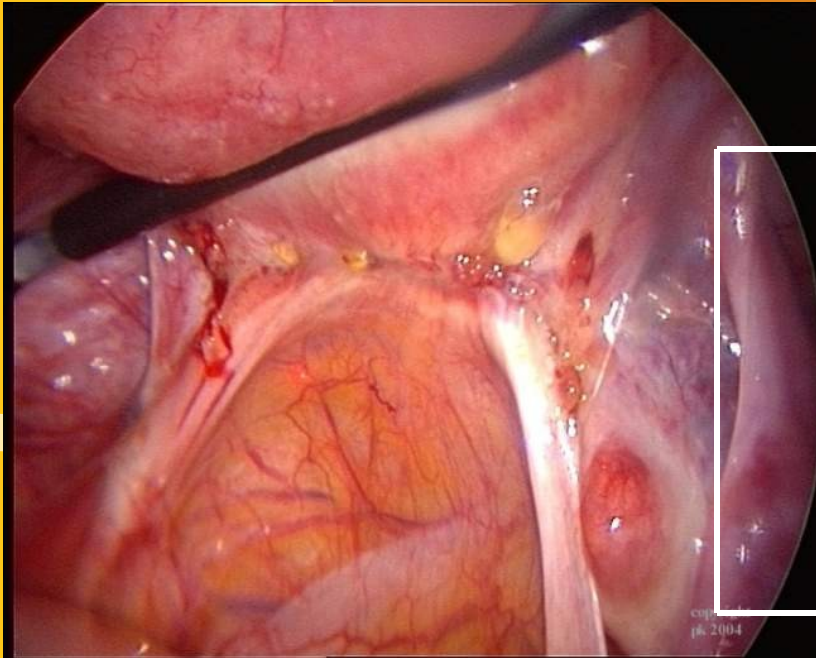




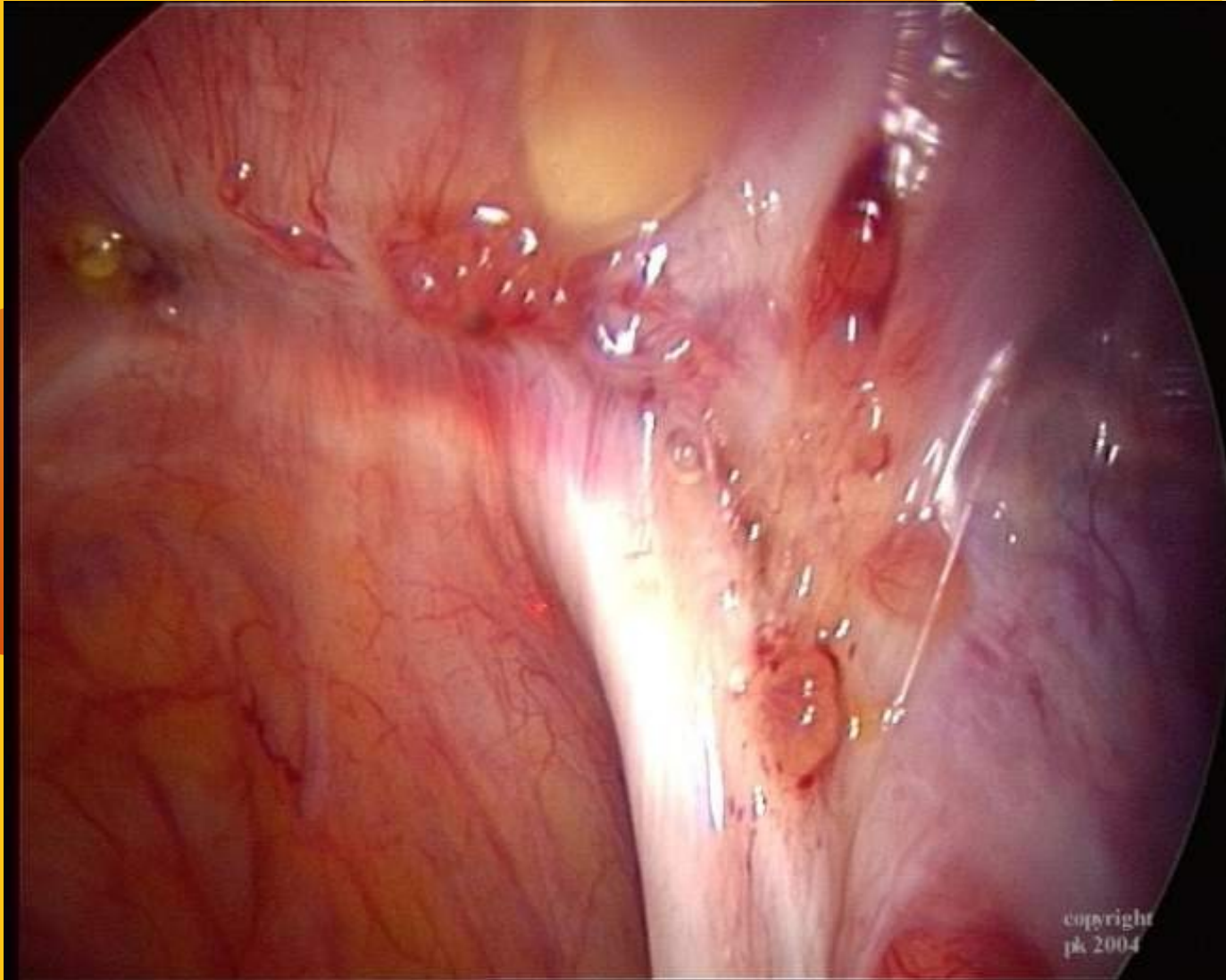
# Endometriosis



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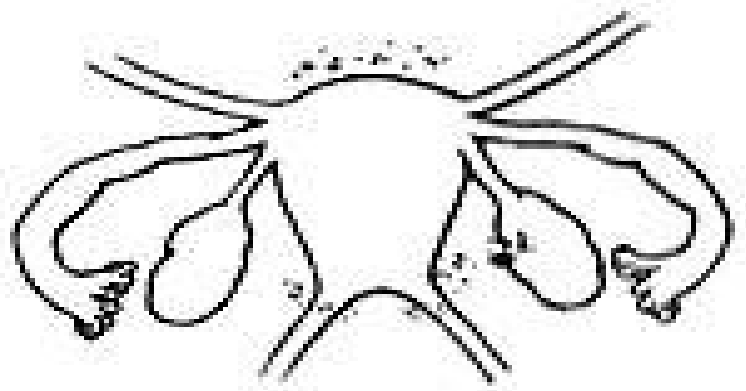


# Endometriosis



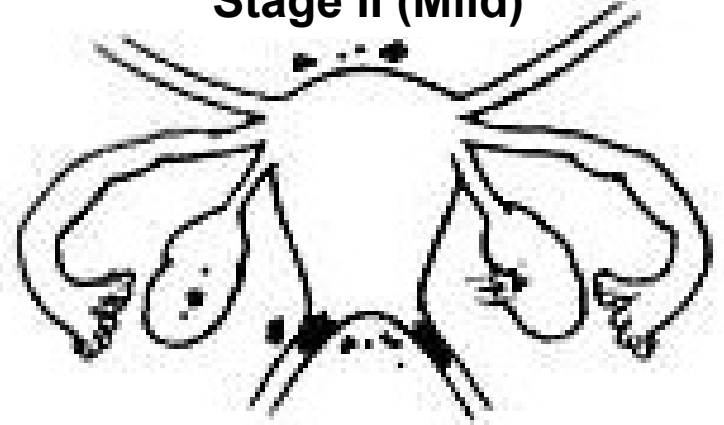
# Classification of Endometriosis

**Stage I (Minimal)**



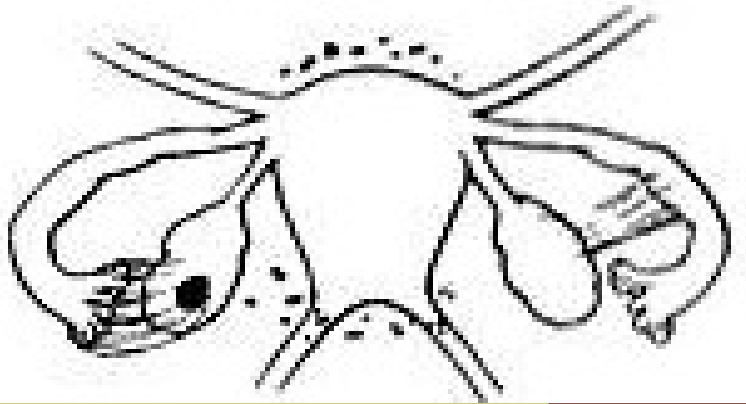
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**Stage II (Mild)**



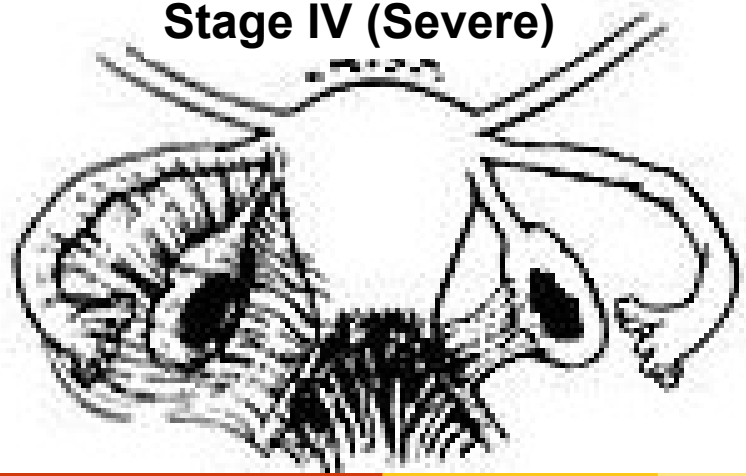
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**Stage III (Moderate)**



29

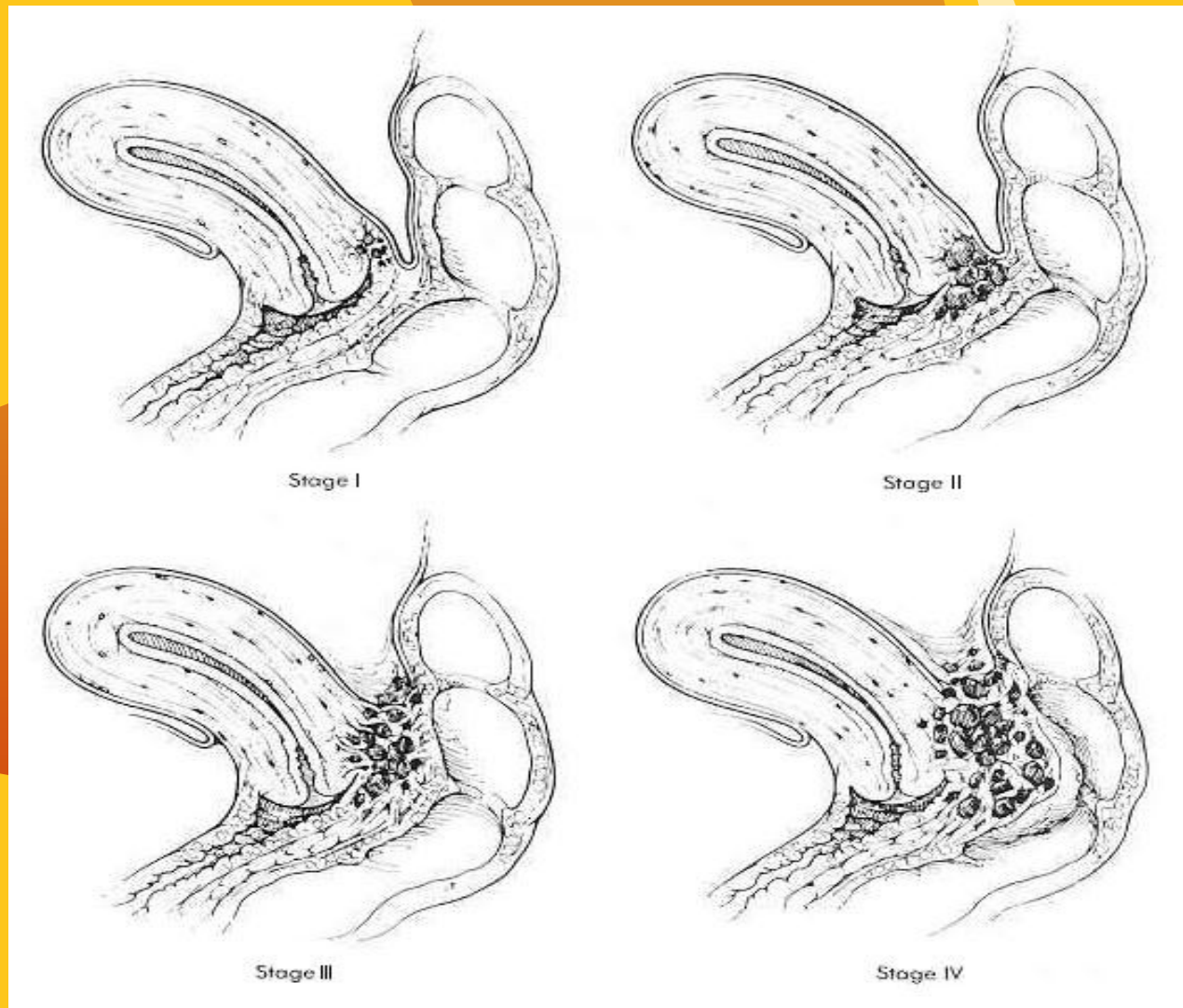
**Stage IV (Severe)**



114

\* Revised AFS Score

# Klasifikace endometriózy



# Clinical Presentation

- Pelvic pain
- Infertility
- Pelvic mass

## Biberoglu & Behrman Scale (1981)

# Klasifikace endometriózy – B & B skóre

Dysmenorrea	Chybí Mírná Středně Silná Nevstahuje se	0 Bez diskomfortu 1 Mírná ztráta pracovní efektivity 2 Část dne zůstává v posteli, občasná absence v práci 3 Jeden a více dní v posteli, pracovní neschopnost 4 Amenorrhoea
Dyspareunia	Chybí Mírná Středně silná Silná Nevstahuje se	0 Bez obtíží nebo bolestí 1 Tolerovaný diskomfort 2 Bolestivá soulož až přerušení soulože 3 Vyhýbání se souloži pro bolest 4 Sexuálně neaktivní, nebo preferuje neodpovídat
Pánevní bolest	Chybí Mírná Středně silná Silná	0 Bez diskomfortu 1 Občasný pánevní diskomfort 2 Patrný diskomfort pro větší část cyklu 3 Vyžaduje silná analgetika, perzistující počas cyklu
Pánevní citlivost	Chybí Mírná Středně silná Silná	0 Bez citlivosti 1 Minimální citlivost při palpaci 2 Výrazná citlivost při palpaci 3 Nemožnost palpatovat vzhledem k citlivosti
Indurace	Chybí Mírná Středně silná Silná	0 Bez indurace 1 Děloha volně mobilní, indurace v cul-de-sac 2 Zbytnělé a zatvrdlé adnexa a cul-de-sac, omezená hybnost 3 Nodulární adnexa a cul-de-sac, děloha imobilní (frozen)

# Pelvic Pain

## ○ Frequency

- Cyclic: Variable length prior to and after menses
- Acyclic: constant and unrelenting

## ○ Associated activities

- May include dyspareunia, dysuria, or dyspepsia

## ○ Other sites of pain

- Muscle regions
- Distant tissues



# Infertility

## ○ Moderate to severe disease

- Adhesions
- Distortion of normal anatomy
- Prevent sperm-egg interaction

## ○ Minimal to mild disease

- Mild infertility
- Mechanism(s) unknown

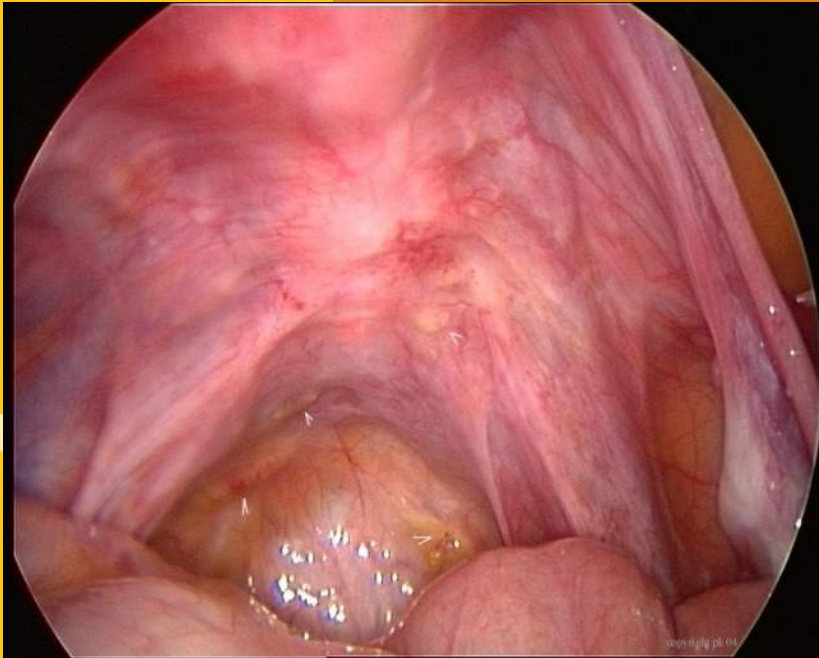
# Physical Findings

- **Tender nodules along the uterosacral ligaments or in the cul-de-sac, especially just before menses**
- **Pain or induration without nodules commonly in the cul-de-sac or rectovaginal septum**
- **Uterine or adnexal fixation, or an adnexal mass**

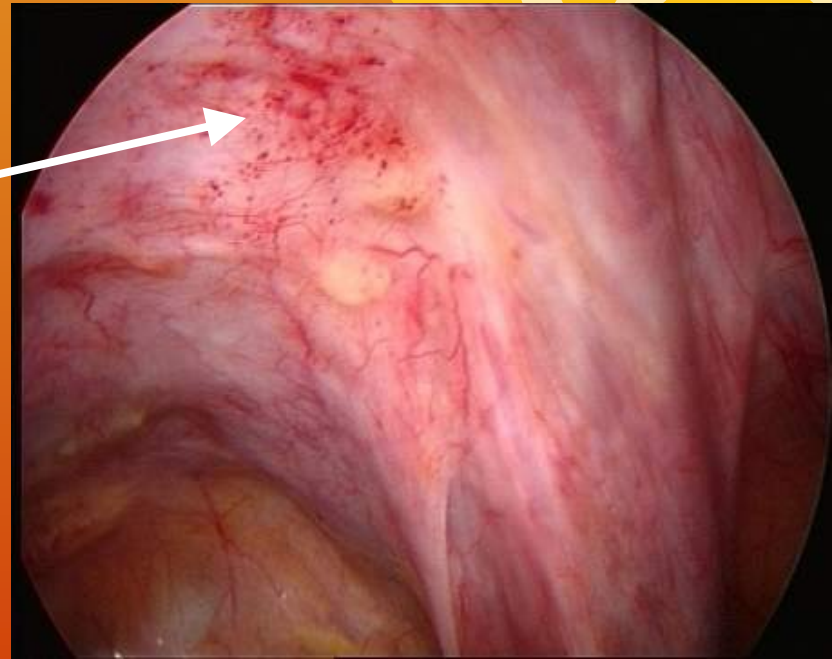
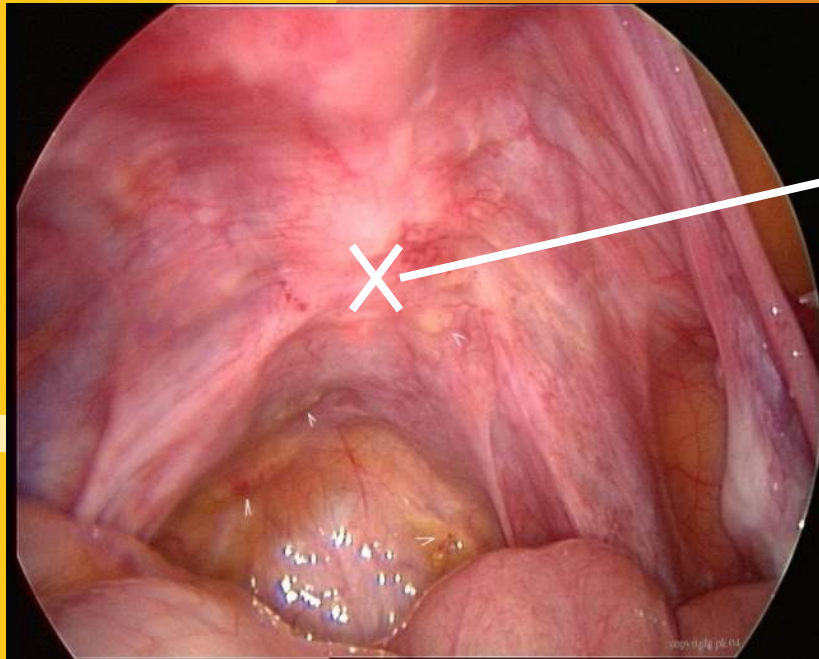
# Diagnosis of Endometriosis

- **Direct visualization of implants**
  - **Laparoscopically**
  - **Conscious pain mapping**
- **Imaging of endometriomas**
  - **MR appears to be best (3 mm implants)**
  - **Ultrasound helpful in office setting**
- **Biochemical markers**
  - **Lack specificity**

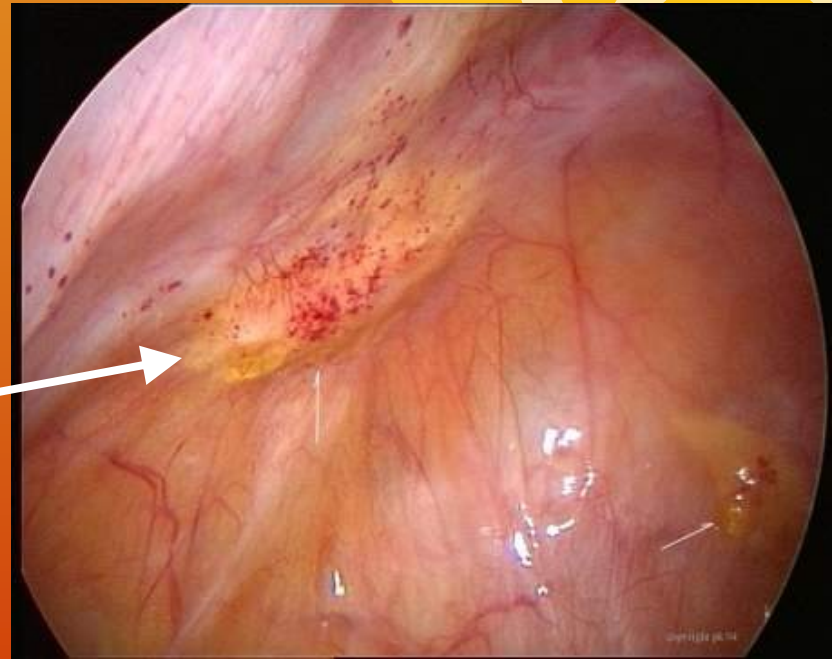
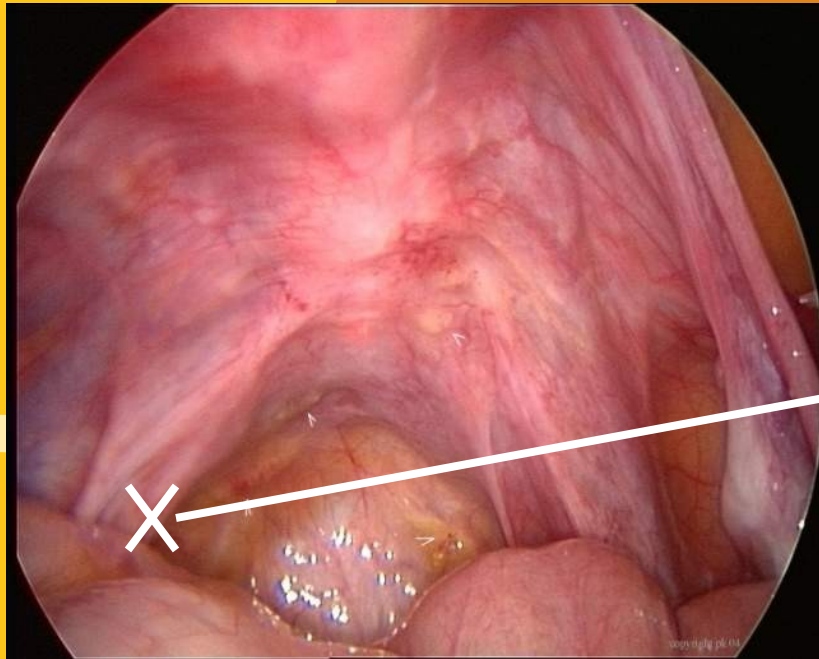
# Endometriosis



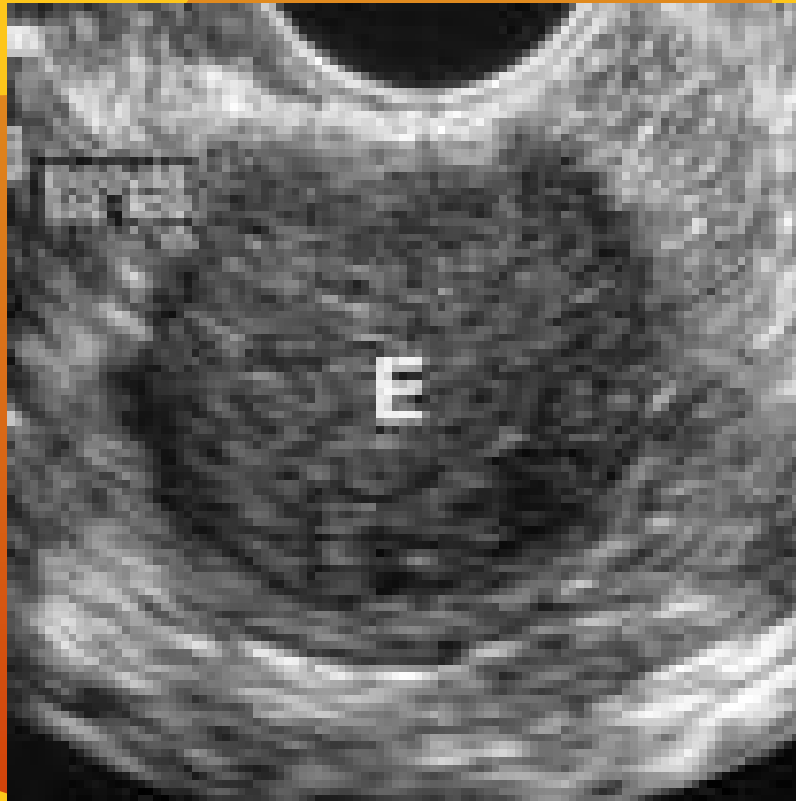
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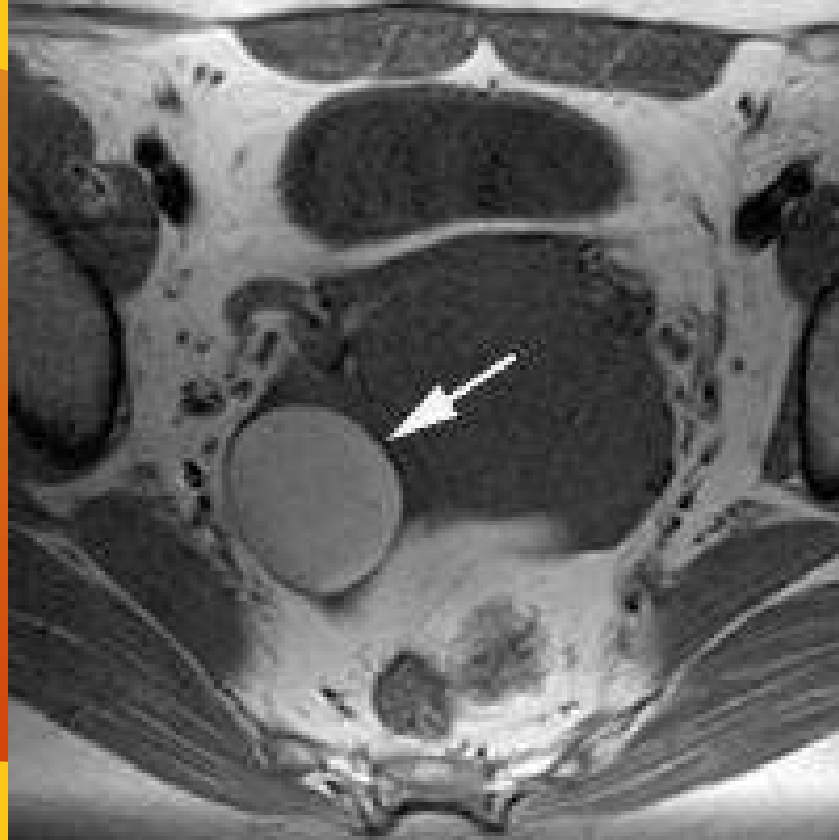
# Endometriosis



# Ultrasound of Endometrioma

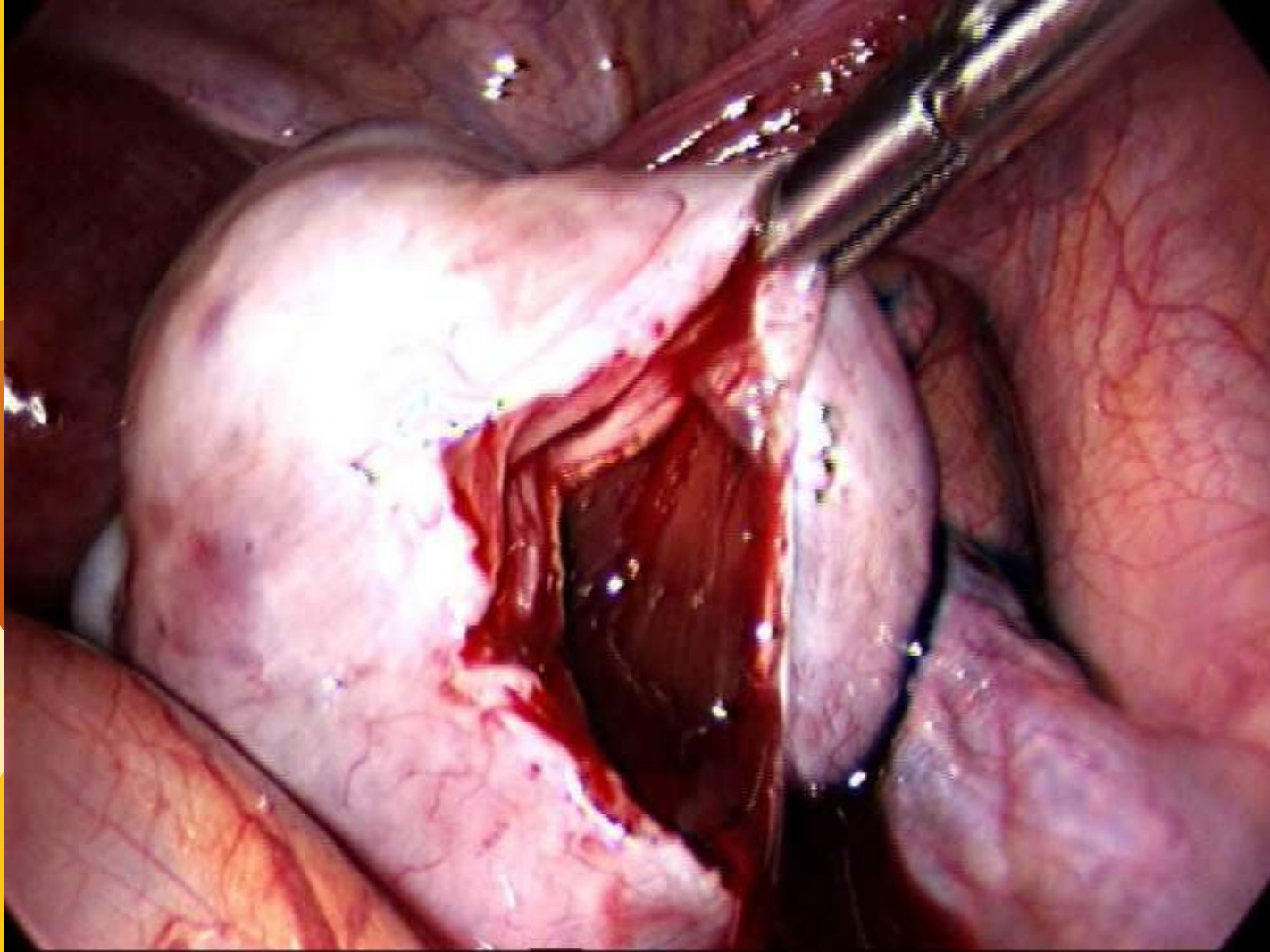


# MR of Endometrioma





# Endometrioma



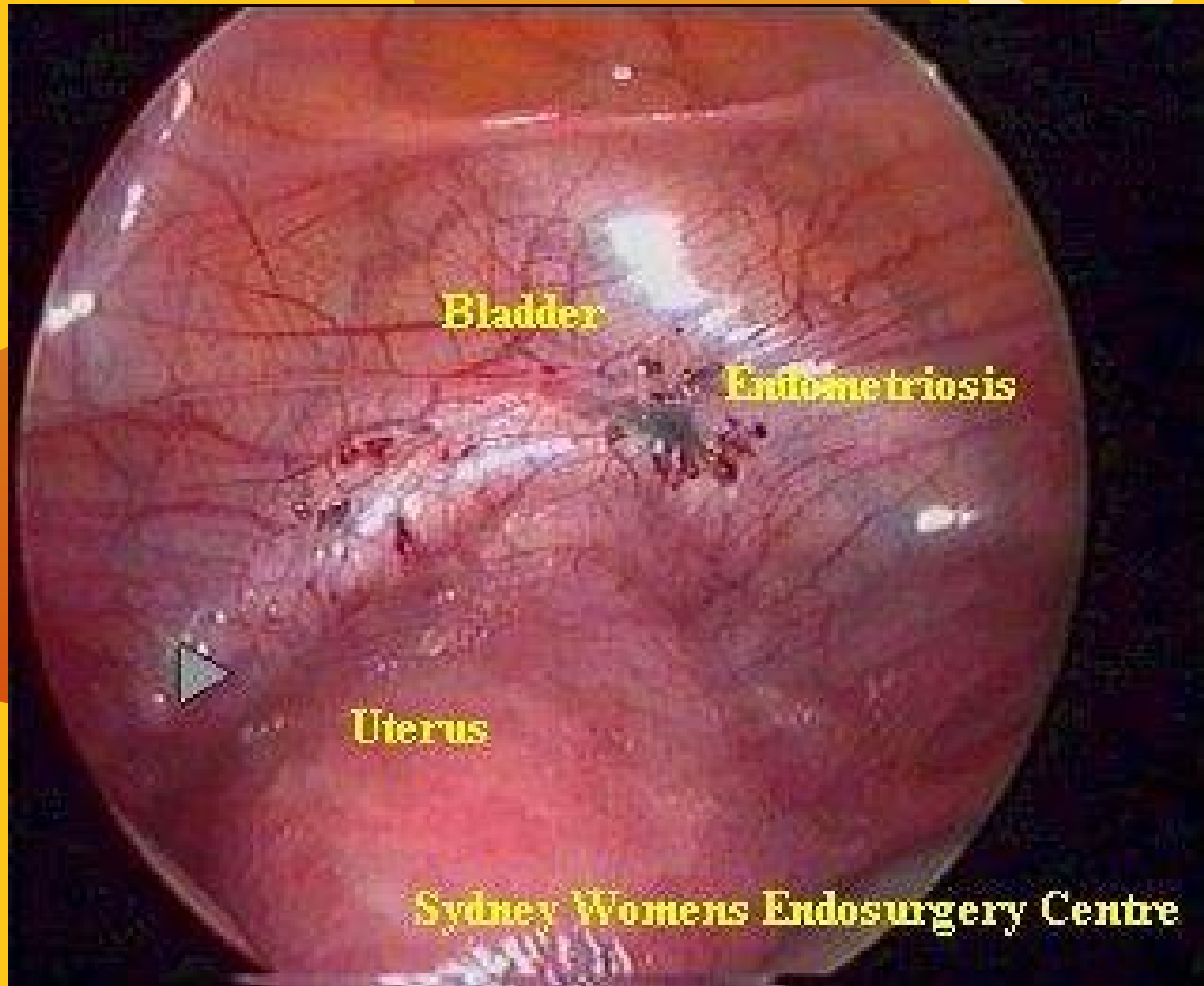
# Treatment of Endometriosis

- **Management of pain**
  - **Surgery**
  - **Medical therapy**
- **Treatment of infertility**
  - **Surgery**
  - **Ovulation induction**
  - **Assisted reproductive technology**

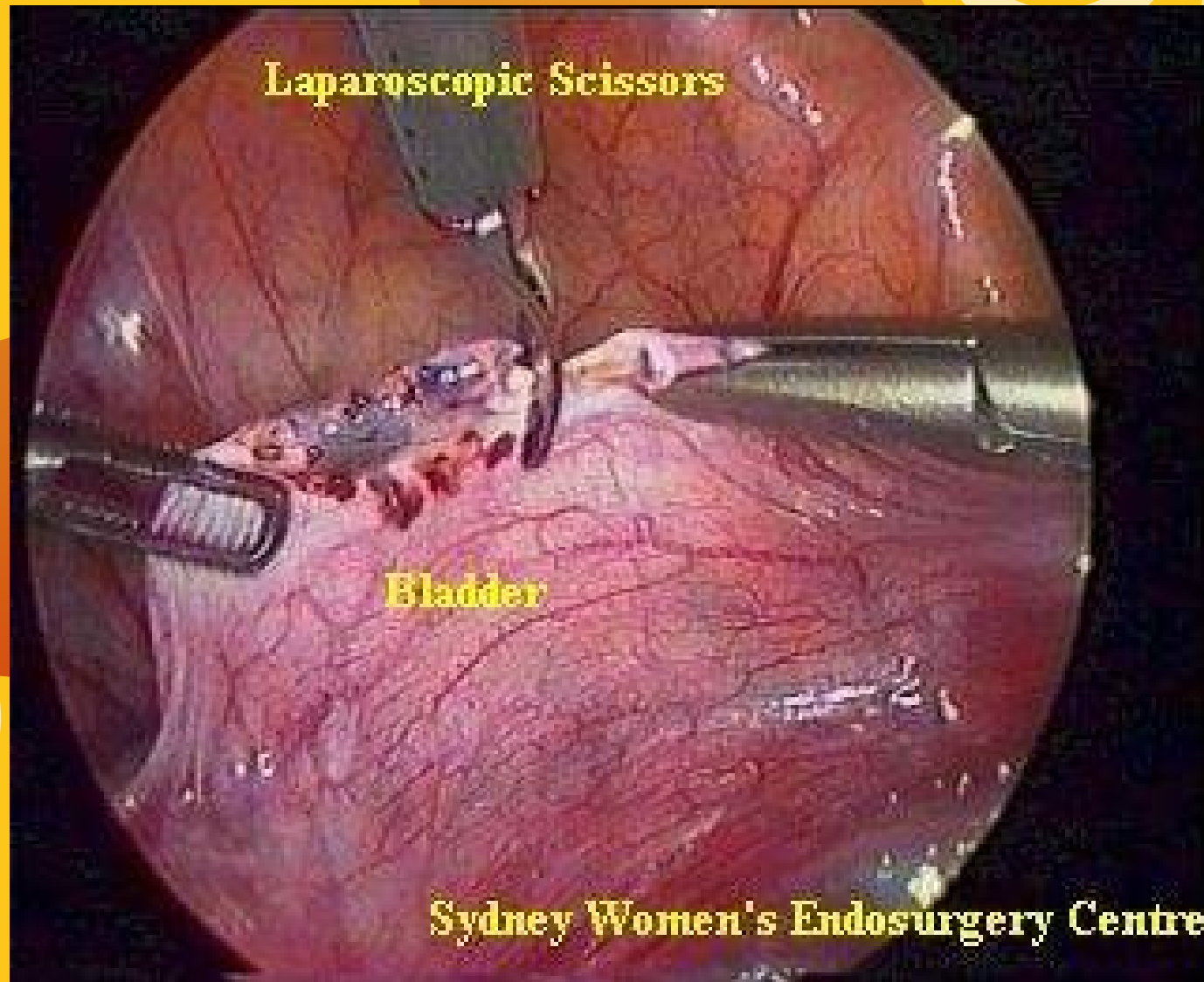
# Management of Pain

- **Surgical treatment**
  - **Ablation of endometrial implants**
  - **Lysis of adhesions**
  - **Ablation of uterosacral nerves**
  - **Resection of endometriomas**
- **Combined surgical and medical treatment**

# Endometriosis



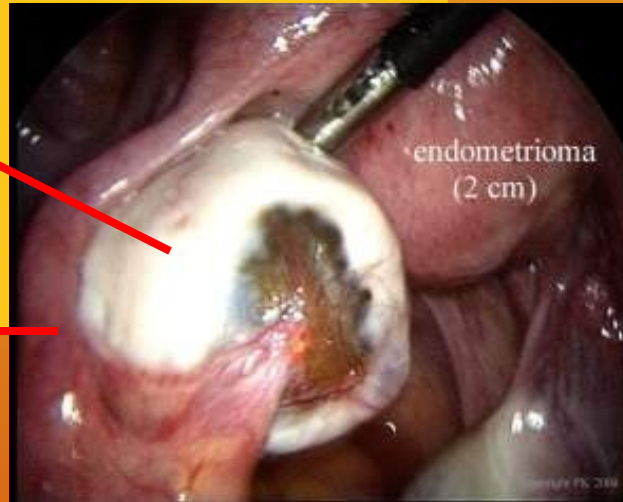
# Removal of Endometriosis



# Dissection of an Endometrioma

Ovary

Tube



Incision



Removal



Result

# Treatment of Pain

- **Medical management  
(ovarian suppression, removal of  
estrogen)**
  - **Oral contraceptives, progestin, danazol**
  - **GnRH agonist with add-back**
  - **Alternating GnRH agonist and OCs**
  - **Aromatase inhibitors**

# Medical Treatment





# Medical Treatment



**Estrogen**



Progestin



Endometriosis  
Tissue

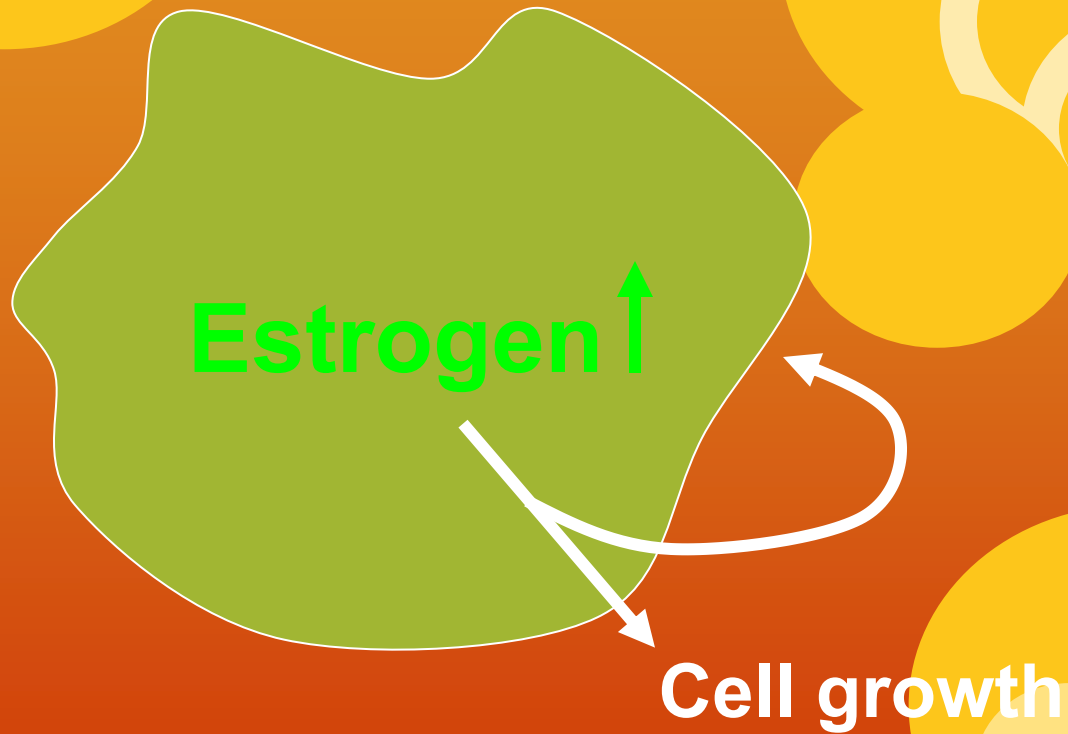
Oral contraceptives  
Danazol  
GnRH agonists

# Role of Estrogen in Endometriosis

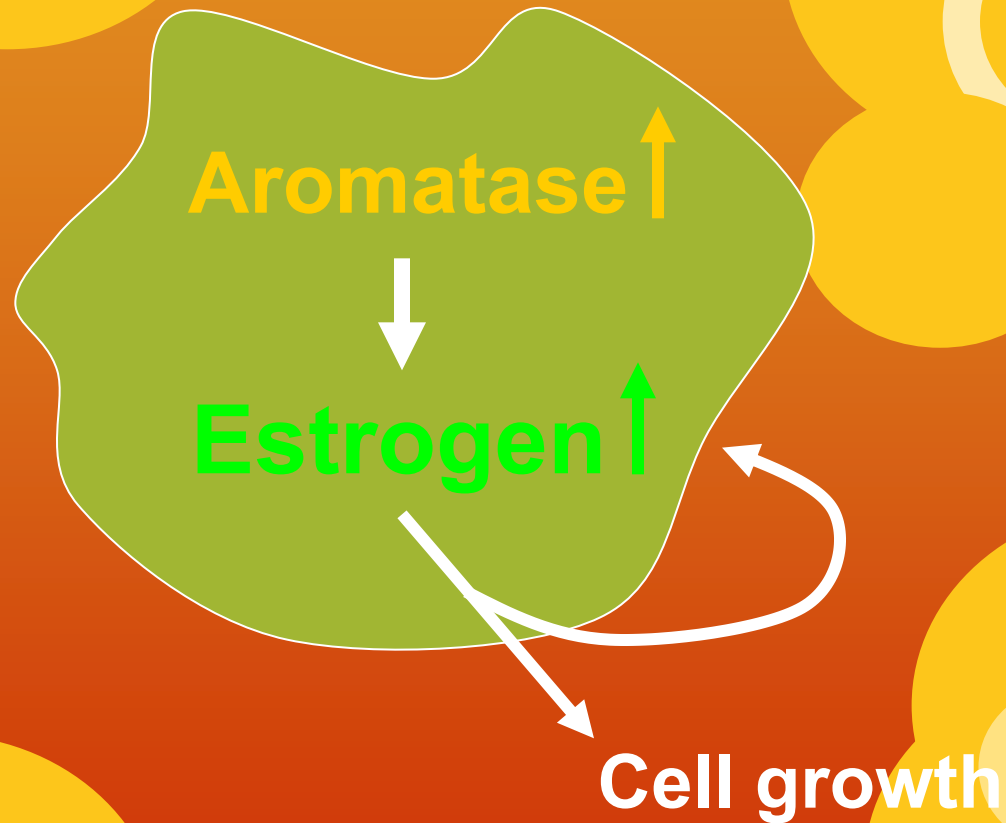
Estrogen ↑

A green, irregularly shaped bubble with a white outline, containing the text "Estrogen ↑" in a bright green font. The bubble is centered on the page, below the main title. The background of the entire slide is a warm orange-to-yellow gradient, decorated with various yellow and white circular and ring-like patterns of different sizes and orientations.

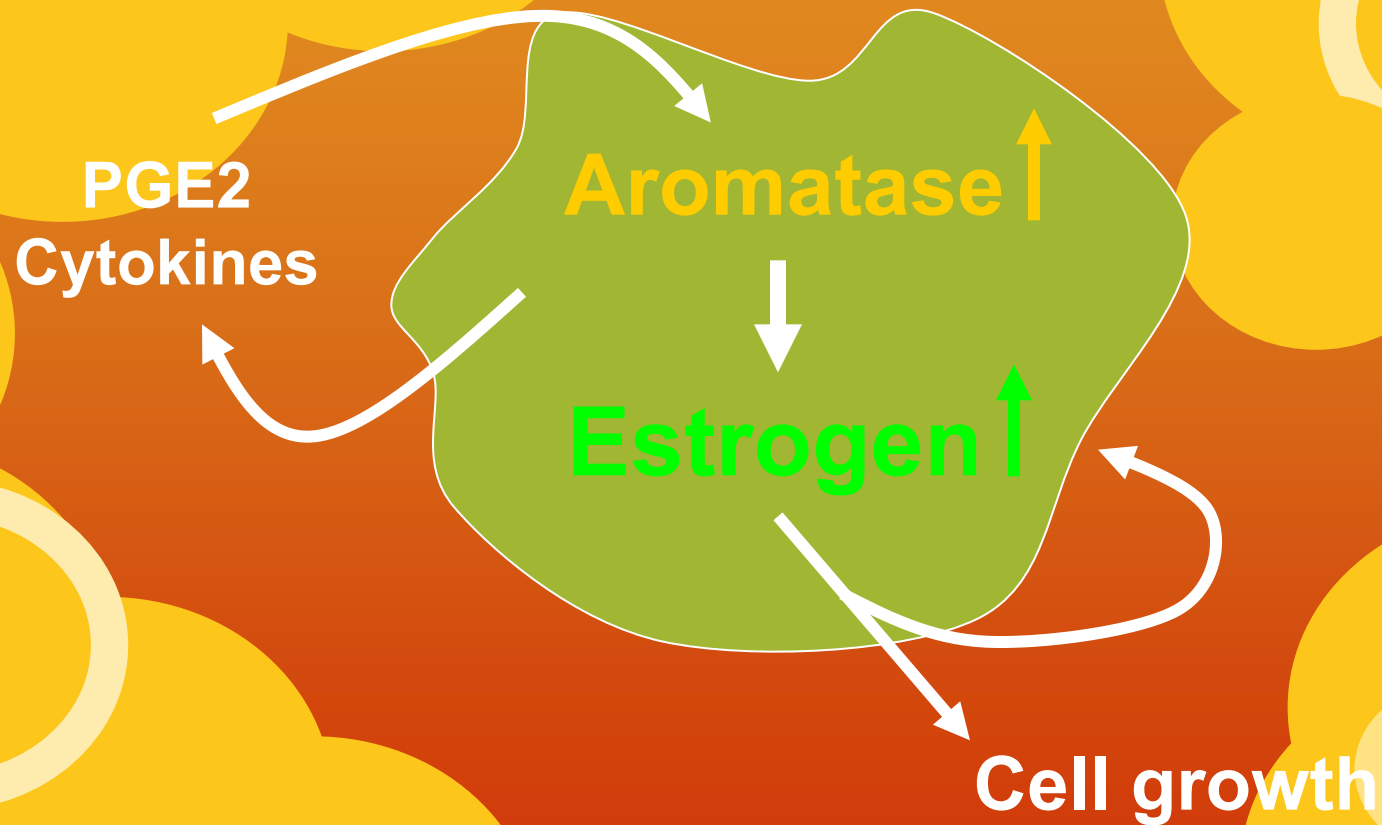
# Role of Estrogen in Endometriosis



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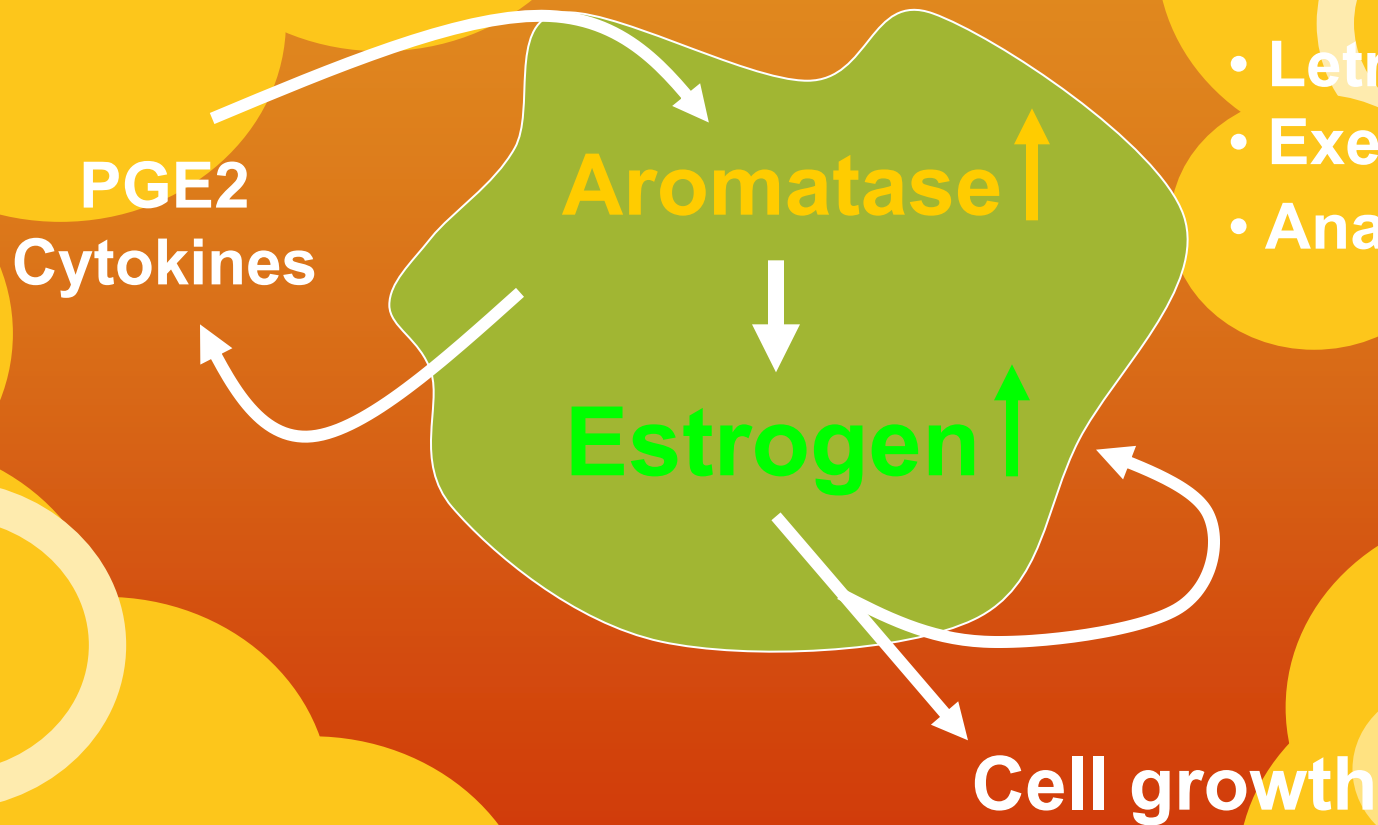
# Role of Estrogen in Endometriosis



# Aromatase In Endometriosis

- **Aromatase is key for the biosynthesis of estrogen**
- **In patients aromatase expression is higher in endometriosis tissue than in normal endometrium**
- **In endometriosis tissue aromatase activity is stimulated by prostaglandin**
- **Estrogen synthesized by endometriotic tissue stimulates growth of lesions**

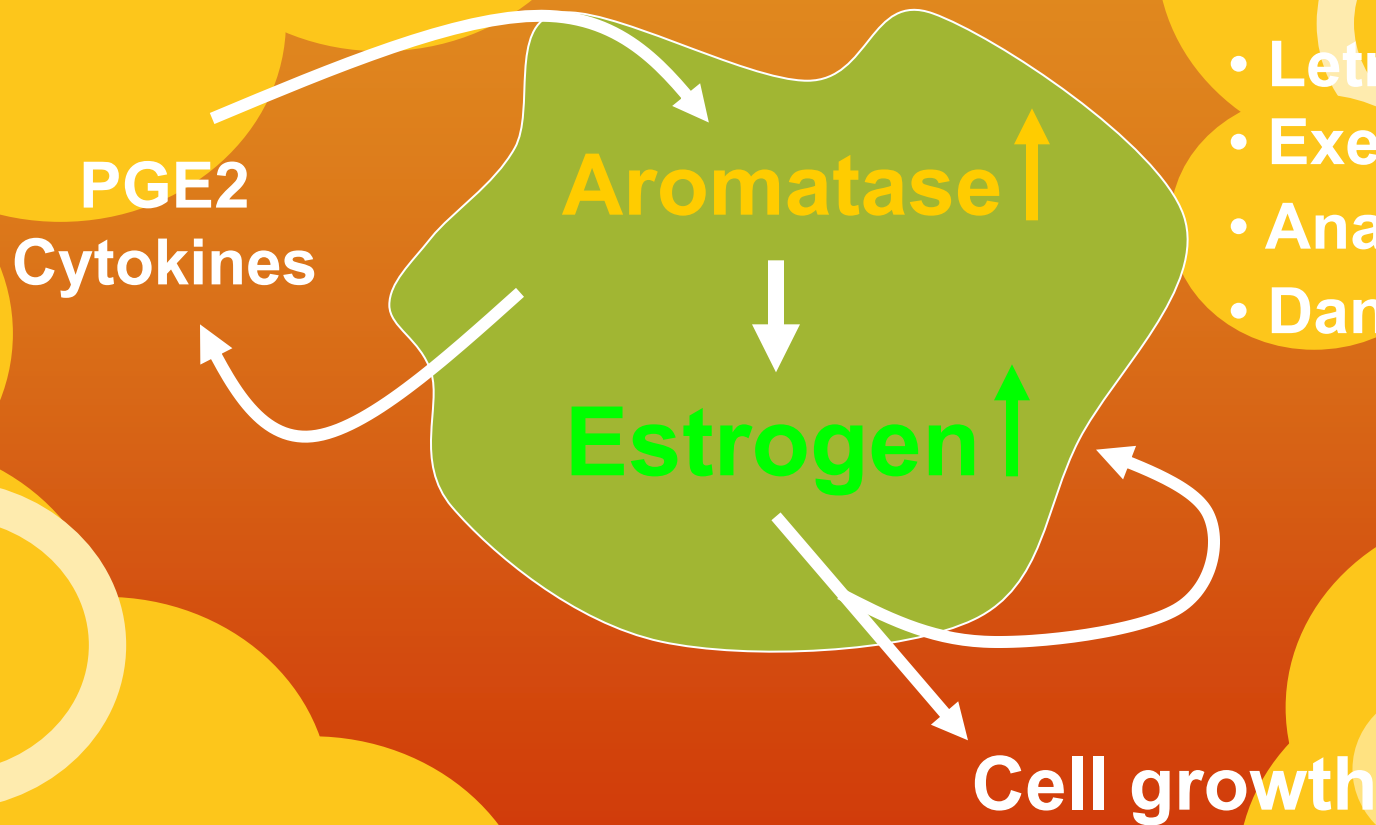
# Role of Estrogen in Endometriosis



## Aromatase Inhibitors

- Letrozole
- Exemestane
- Anastrozole

# Role of Estrogen in Endometriosis



## Aromatase Inhibitors

- Letrozole
- Exemestane
- Anastrozole
- Danazol



# Treatment of Infertility

- Removal of disease
  - **Surgery improve conception rates at all stages**
- Ovulation induction
  - **Gonadotropins with ovarian suppression**
  - **Insemination with either clomiphene or FSH**
- Medical suppression of ovarian function
  - **No benefit**
- Assisted reproductive technology