

Management of Cervical Cancer



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01

Stage-wise Management

I : Confined to the cervix

IA: Invasive carcinoma with maximum depth of invasion $\leq 5\text{mm}$

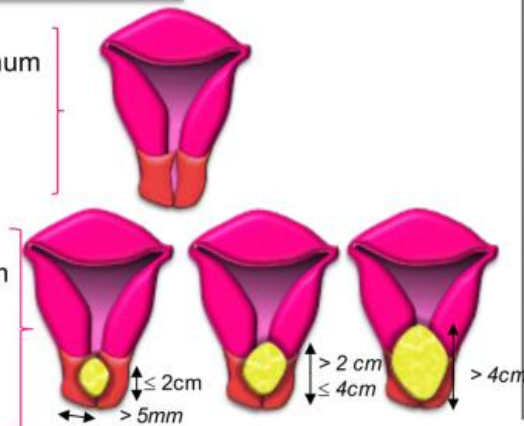
Not visible on MRI

IB: Invasive carcinoma with measured deepest invasion $> 5\text{mm}$

IB1: $\leq 2\text{cm}$

IB2: $> 2\text{cm}$ and $\leq 4\text{cm}$

IB3: $> 4\text{cm}$



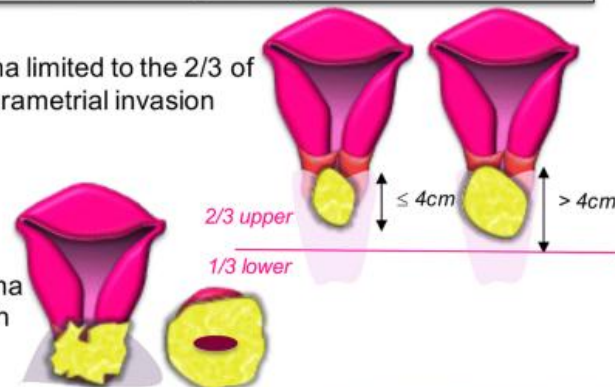
II : Invasion beyond the uterus, but not extended to the lower third of the vagina or pelvic wall

IIA: Invasive carcinoma limited to the 2/3 of the vaginal without parametrial invasion

IIA1: $\leq 4\text{cm}$

IIA2: $> 4\text{cm}$

IIB: Invasive carcinoma + parametrial invasion



III: Invasion of the lower 1/3 of the vagina/hydronephrosis/ nonfunctioning kidney / pelvic wall / pelvic-para-aortic nodes

IIIA: Lower 1/3 of the vagina, with no extension to the pelvic wall

IIIB: Extension to the pelvic wall and/or causes hydronephrosis or nonfunctioning kidney

IIIC: Involvement of pelvic and/or para-aortic lymph nodes

IIIC1: Pelvic node metastasis only

IIIC2: Para-aortic nodes metastasis

Hydronephrosis

2/3 upper

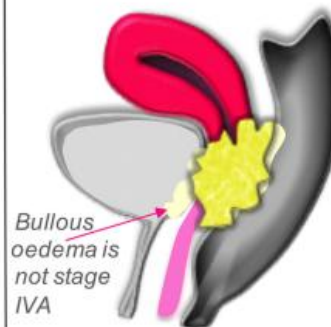
1/3 lower

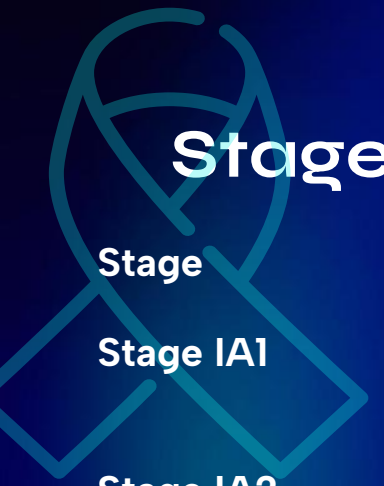
Pelvic Wall

IV: Extension beyond the true pelvis or has involved (biopsy proven) the mucosa of the bladder or rectum.

IVA: Spread to adjacent organs

IVB: Spread to distant organs





Stage-wise management

Stage

Stage IA1

Stage IA2

Stage IB1 & IB2

Stage IIA1

Stage IB3 & IIA2

Stage IIB onwards

Management

Conisation / **Type 1** simple hysterectomy

Type 2 modified radical hysterectomy
& pelvic lymphadenectomy

Type 3 radical hysterectomy
& pelvic lymphadenectomy

Type 3 radical hysterectomy
& pelvic lymphadenectomy

Primary chemoradiation

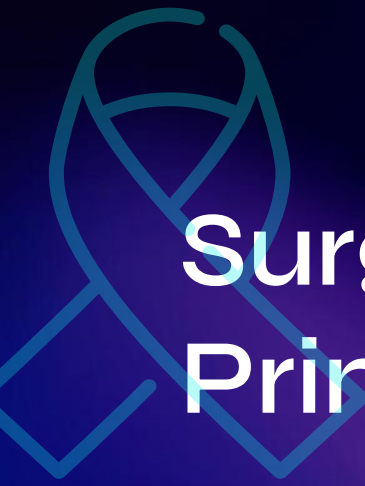
Primary chemoradiation

Primary chemoradiation (Primary exenteration
in some Stage IVA)



02

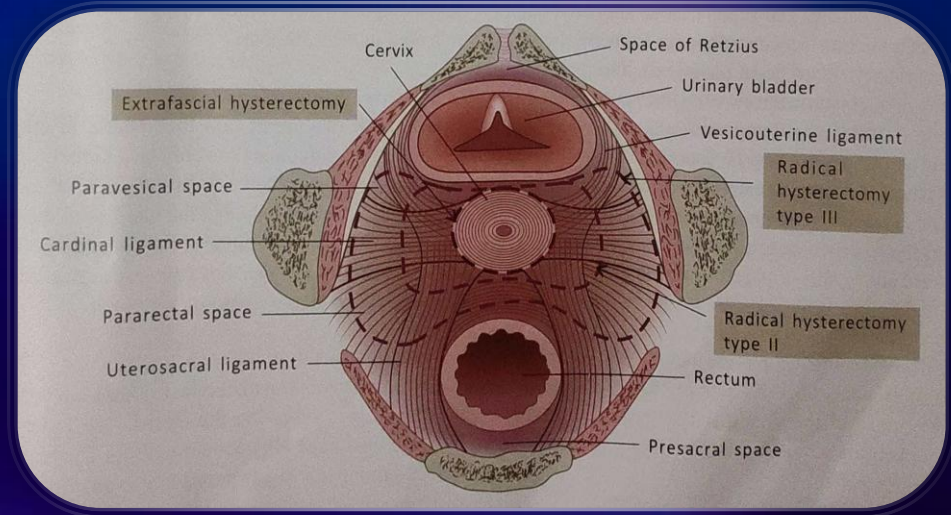
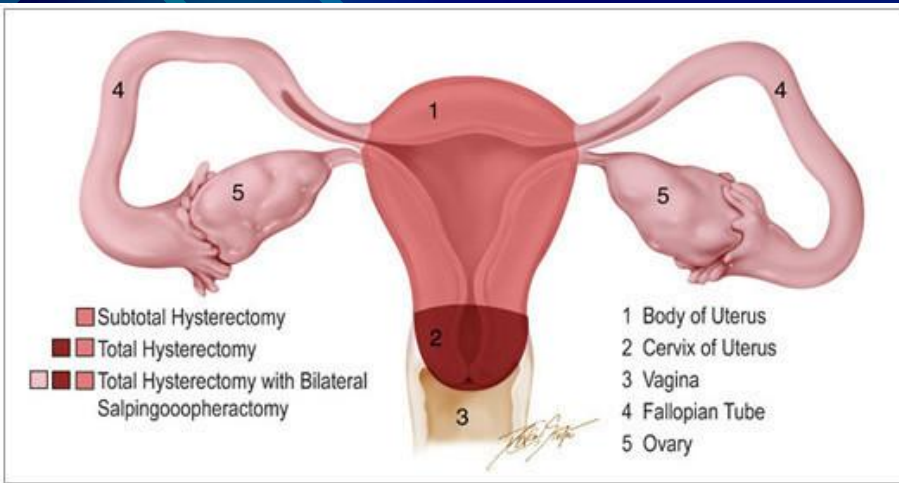
Surgical Management



Surgical Management Principles

- Primary surgical management is generally limited to disease of **Stages I and IIA**
- Surgery for pre-cancerous lesions (CIN 2/3) includes **Loop Electrosurgical Excision Procedure (LEEP)** and **laser ablation**

Types of Hysterectomy



Types of hysterectomies



Types of Hysterectomy

Total Hysterectomy: Removes the uterus and the cervix with minimal disruption to surrounding structures

Modified Radical Hysterectomy : Used for Stage IA2
Involves dissection of the ureters, removing all parametrial tissue medial to the ureters, and the proximal 1–2 cm of the vagina

Radical Hysterectomy: Used for Stages IB and IIA
Involves complete dissection of the ureters, extensive mobilization of the bladder and rectum, and excision of the upper one-third to one-half of the vagina.



Complications of Radical Hysterectomy

Immediate Complications

Hemorrhage

Injury to ureter, bladder, or bowel

Injury to obturator nerve or pelvic blood vessels

Prolonged paralytic ileus

Pulmonary embolism

Delayed Complications

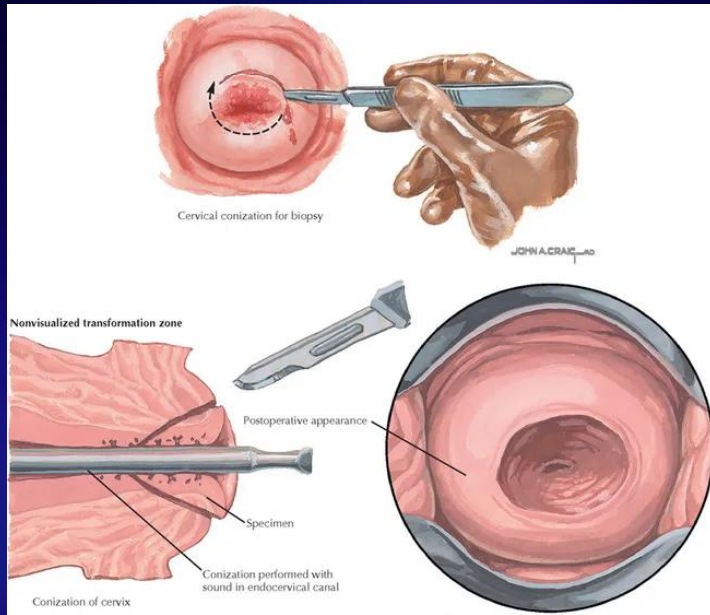
Bladder dysfunction due to denervation of bladder

Small intestine obstruction

Vesicovaginal fistulae

Uterovaginal fistulae due to avascular necrosis or urethral injury

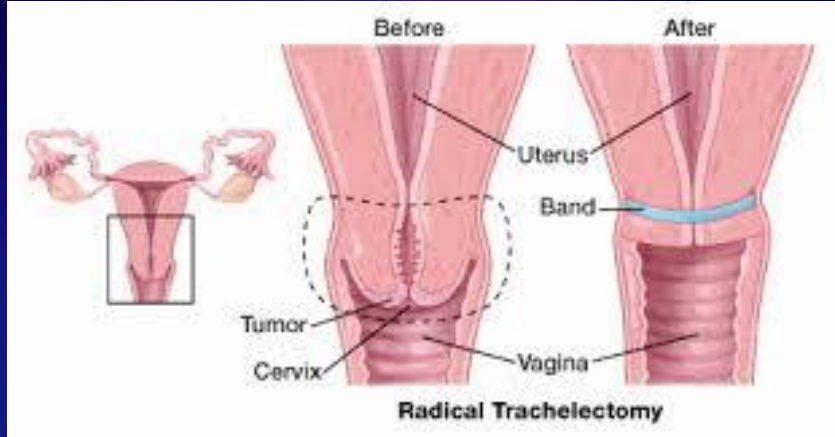
Lymphocyst formation



Fertility Sparing and Specialized Surgery

Cold Knife Conization

In early Stage IA1 disease without lymph vascular space invasion, conization may be used selectively if fertility preservation is desired, provided surgical margins are free of disease



Fertility Sparing and Specialized Surgery

Radical Trachelectomy (Radical Cervicectomy)

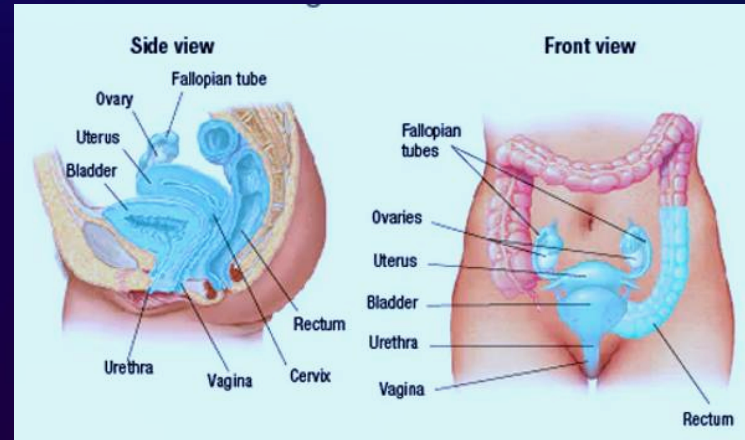
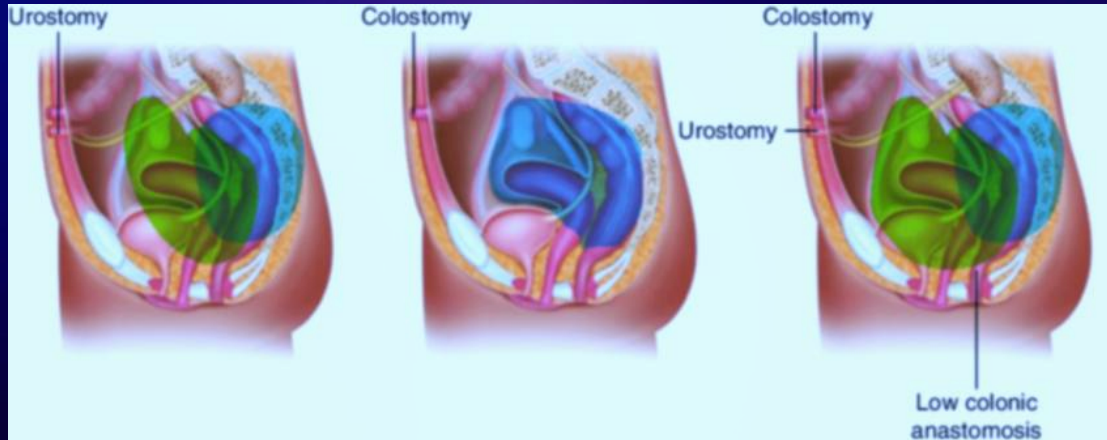
An alternative to radical hysterectomy for patients with Stage IA2 through IB disease who desire fertility preservation.

Bilateral Salpingo-oophorectomy

Removal of both ovaries and fallopian tubes done if cancer has spread to these organs

Pelvic Exenteration

- ◇ Pelvic exenteration is the procedure of choice for **centrally recurrent cervical cancer**.
- ◇ **Total Pelvic Exenteration**
- ◇ **Anterior Exenteration**





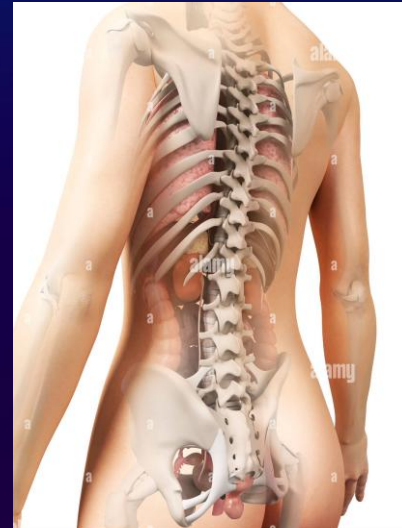
03

Radiation Therapy

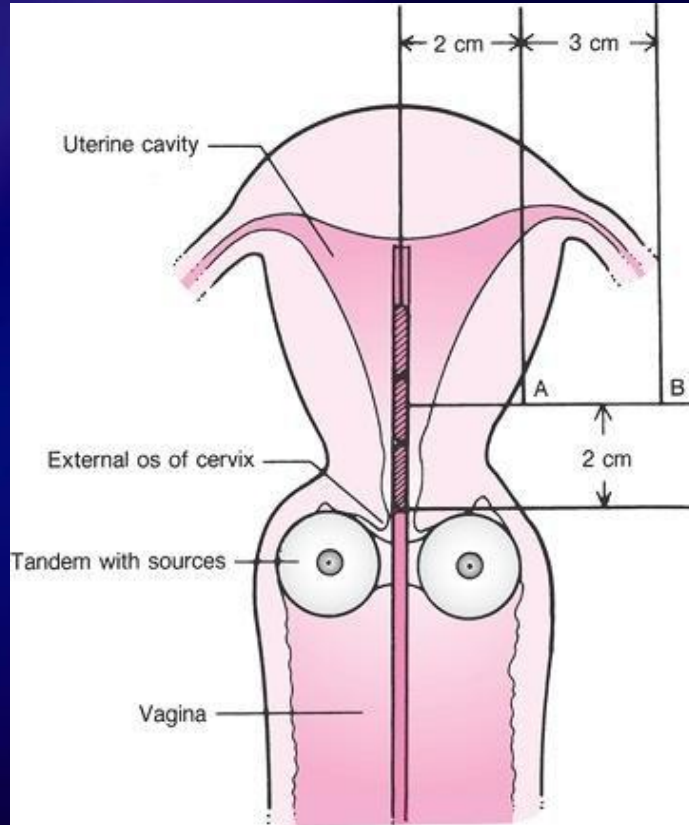
Radiation Therapy

External Beam Radiation Therapy (EBRT): Delivered by a machine outside the body outside the body

Intensity-Modulated Radiation Therapy (IMRT) is a type of 3-dimensional radiation used to focus beams and limit damage to healthy tissue



Radiation Therapy



Internal Radiation Therapy

(Brachytherapy): A radioactive substance is sealed in needles, seeds, wires, or catheters and placed directly into or near the cancer

This is typically delivered using an intrauterine tandem and vaginal colpostats.

Radiation Therapy

- Radiation doses are calculated to encompass the primary tumor and draining lymph nodes
- **Dose Requirements:**
 - 40 Gy for 20 cycles over 5 weeks
 - 45 Gy for 25 cycles over 5 weeks

Complications of Radiation Therapy

Immediate

- Perforation while insertion of uterine tube
- Diarrhoea, abdominal cramps , nausea , frequent urination
- Rarely hematuria and bleeding per rectum

Delayed

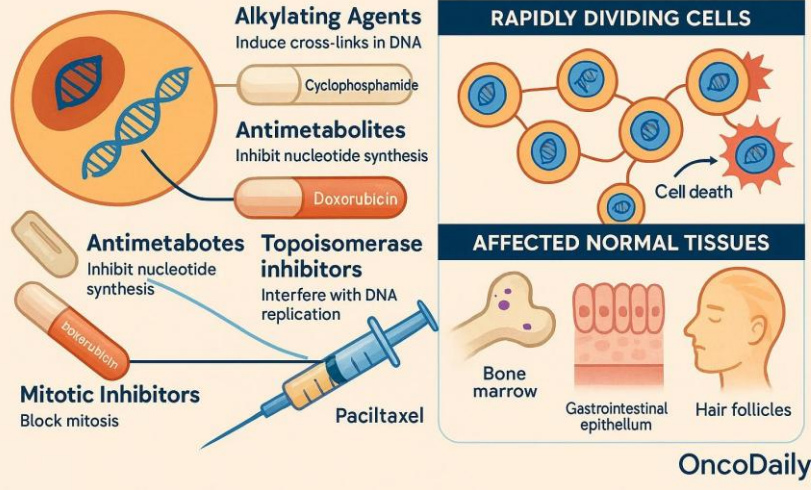
- Small bowel obstruction and small bowel fistulas
- Vesicovaginal fistulas
- Rectovaginal fistulas
- Proctosigmoiditis and bleeding per rectum



04

Chemotherapy

MECHANISMS OF CHEMOTHERAPY



Commonly Used Agents:
Cisplatin,
Carboplatin
Gemcitabine
Paclitaxel and
Vinorelbine

Chemotherapeutical Agents

Chemoradiation

Theory

The use of combined chemotherapy and radiation therapy (chemoradiation) is based on the theory of **synergistic cell kill** and is widely recognized as providing a survival benefit over radiation alone

Cisplatin

Cisplatin is typically Administered weekly concurrent with radiation therapy, acting as a **Radiosensitizer**
(Dose : $40\text{mg}/\text{m}^2$)

Complication

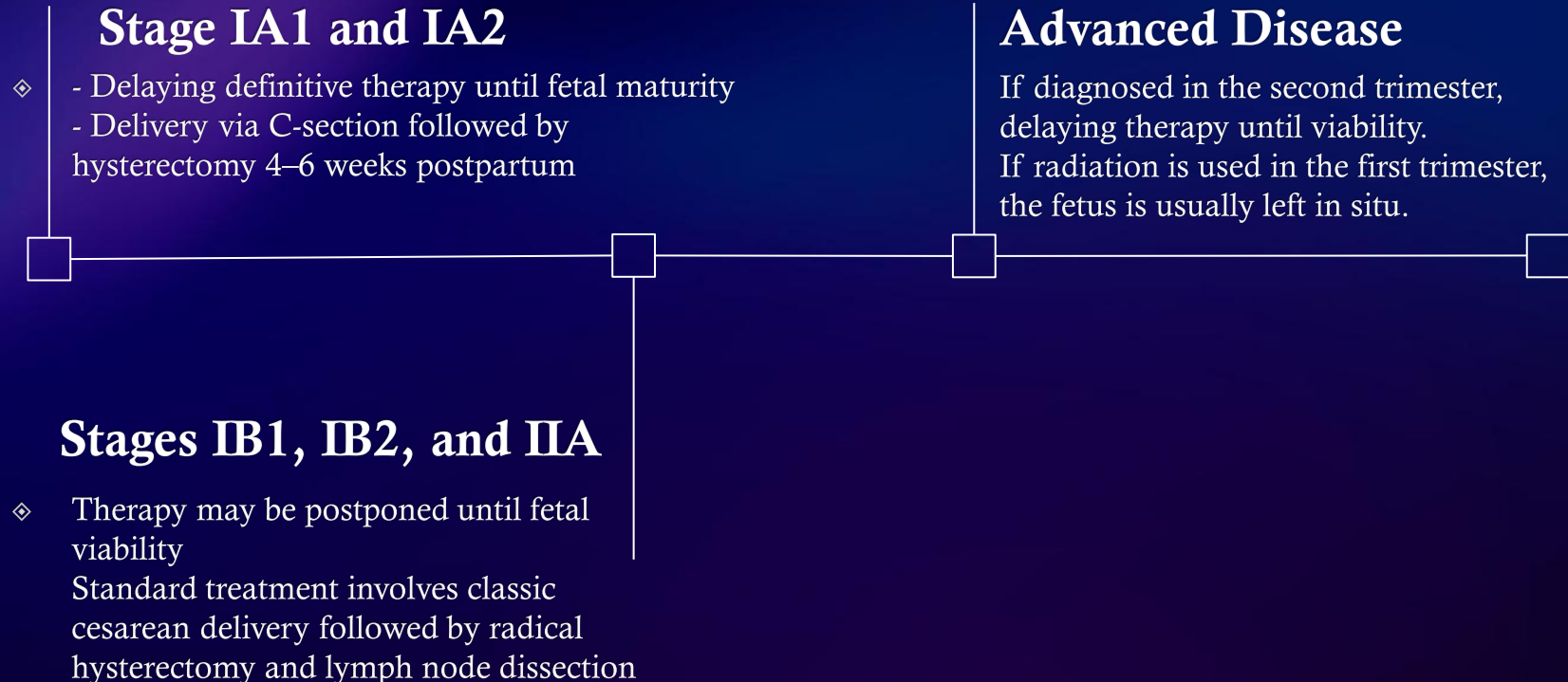
Myelotoxicity

- Anemia
- Thrombocytopenia
- Neutropenia

Treatment of Advanced Stage and poor prognosis

- ◆ For Stages IIB, III, IVA, and IVB, chemoradiation is the treatment of choice
- ◆ Patients with Stage IVB disease are usually treated with chemotherapy alone or in combination with local irradiation, and they have a uniformly poor prognosis
- ◆ Radiation therapy can be used as **palliative therapy** to relieve symptoms and improve quality of life in people with advanced cervical cancer

Management during Pregnancy



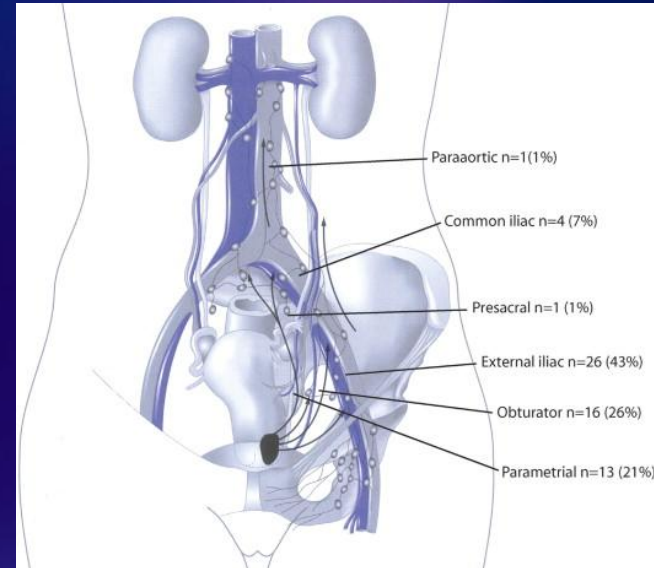
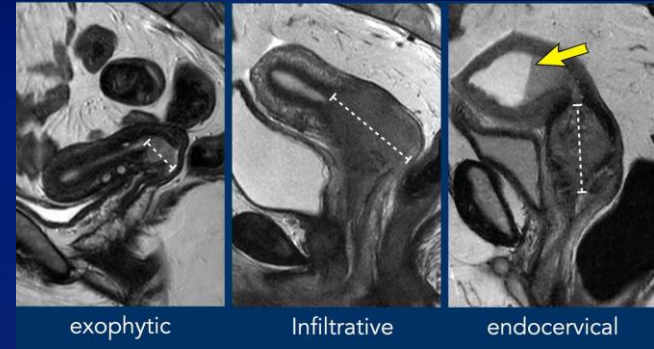


Follow-Up

- ◆ To identify recurrences early
- ◆ 3 monthly for first 2 years, 6 monthly for the next 3 years and thereafter annually
- ◆ Most recurrence are in first 2 years
- ◆ Supportive care is essential including counselling

Surveillance Investigations

- ◆ **Sentinel Lymph Node Biopsy**
- ◆ **Imaging for Staging/Recurrence: MRI** may be useful for pre-treatment evaluation, particularly in pregnant women
- ◆ **CT scans** of the abdomen and pelvis with contrast are utilized during surveillance if recurrence is suspected





05

Cause of Death

Causes of Death

◆ Uremia

- ◆ Obstruction of ureters due to tumor spread (parametrial involvement)
- ◆ Leads to hydroureter, hydronephrosis, and kidney failure
- ◆ Secondary infections worsen kidney function

◆ Hemorrhage

- ◆ Persistent or heavy vaginal bleeding from the tumor
- ◆ Causes severe anemia and general debilitation

◆ Sepsis

- ◆ Infection from localized pelvic involvement or peritonitis
- ◆ Can rapidly become life-threatening

Causes of Death

◆ Cachexia

- ◆ Progressive weight loss and muscle wasting
- ◆ Tumor-induced metabolic depression contributes

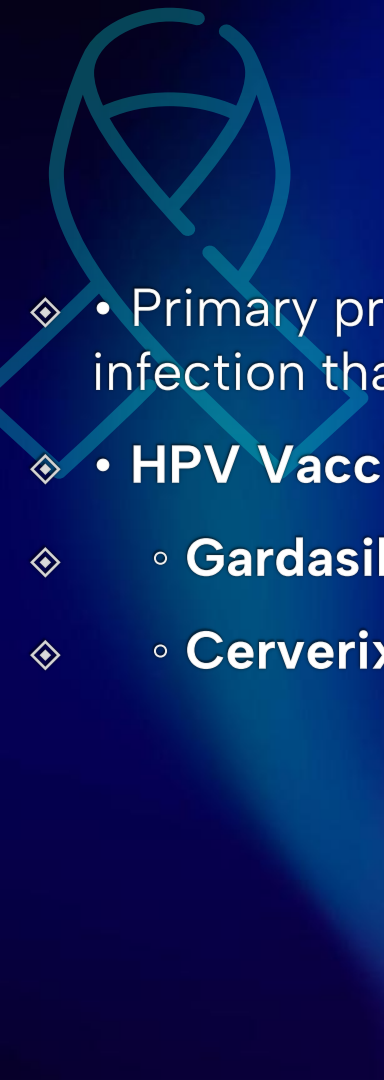
◆ Distant Metastases

- ◆ Common sites: lungs (36%), lymph nodes (30%), bone (16%), abdominal cavity (7%)
- ◆ Organ failure from metastases can be fatal



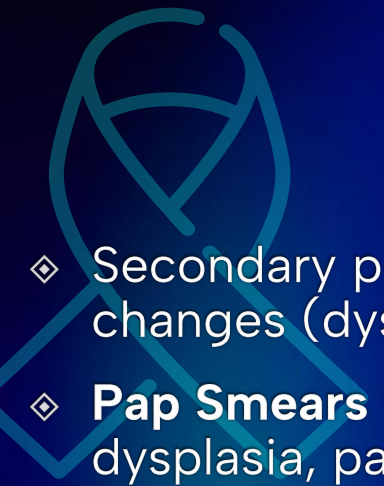
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Prevention



Primary Prevention

- ◆ • Primary prevention aims to stop the patient from acquiring the HPV infection that causes the cancer
- ◆ • **HPV Vaccination:** Vaccines are available against high-risk HPV types
 - ◆ ◦ **Gardasil** vaccinates against HPV types 6, 11, 16, and 18
 - ◆ ◦ **Cerverix** vaccinates against HPV types 16 and 18



Secondary Prevention

- ◆ Secondary prevention involves detecting and treating pre-cancerous changes (dysplasia)
- ◆ **Pap Smears** (cytologic screening) are essential for detecting precancerous dysplasia, particularly squamous cell changes
- ◆ **Treating Dysplasia:** Interventions target pre-cancerous lesions (CIN 2 and CIN 3) before they progress to invasive cancer
- ◆ . Treatment methods include
 - ◆ ◦ Loop Electrosurgical Excision Procedure (LEEP).
 - ◆ ◦ Cone biopsy (conization).
 - ◆ ◦ Cryosurgery.
 - ◆ ◦ Intravaginal 5-fluorouracil (5fu).

References

- Sheila Balakrishnan 3rd Edition
- John Hopkin's Manual of Obstetrics and Gynaec
- William's 3rd Edition
- DC Dutta's Textbook of Gynaecology
- <https://www.cancer.gov/types/cervical/treatment>
- <https://www.ncbi.nlm.nih.gov/books/NBK431093/>

Thanks!