Algorithms for management of cervical cancer are based on existing protocols and guidelines within the ESGO community and prepared by ESGO Educational Committee as a teaching tool for trainees in gynecological oncology and related specialties.
## FIGO staging system, 2009

### Stage I

The carcinoma is strictly confined to the cervix (extension to the corpus would be disregarded)

- **Stage IA:** Invasive carcinoma which can be diagnosed only by microscopy, with deepest invasion ≤5 mm and largest extension ≤7 mm
  - **Stage IA1:** Measured stromal invasion of ≤3.0 mm in depth and extension of ≤7.0 mm.
  - **Stage IA2:** Measured stromal invasion of >3.0 mm and ≤5.0 mm with an extension of not >7.0 mm
- **Stage IB:** Clinically visible lesions limited to the cervix uteri or pre-clinical cancers greater than stage IA
  - **Stage IB1:** Clinically visible lesion ≤4.0 cm in greatest dimension
  - **Stage IB2:** Clinically visible lesion >4.0 cm in greatest dimension

### Stage II

Cervical carcinoma invades beyond the uterus, but not to the pelvic wall or to the lower third of the vagina

- **Stage IIA:** Without parametrial invasion
  - **Stage IIA1:** Clinically visible lesion ≤4.0 cm in greatest dimension
  - **Stage IIA2:** Clinically visible lesion >4 cm in greatest dimension
- **Stage IIB:** With obvious parametrial invasion

### Stage III

The tumor extends to the pelvic wall and/or involves lower third of the vagina and or causes hydronephrosis or non-functioning kidney

- **Stage IIIA:** Tumor involves lower third of the vagina, with no extension to the pelvic wall
- **Stage IIIB:** Extension to the pelvic wall and/or hydronephrosis or non-functioning kidney

### Stage IV

The carcinoma has extended beyond the true pelvis or has involved (biopsy proven) the mucosa of the bladder or rectum.

- **Stage IVA:** Spread of the growth to adjacent organs.
- **Stage IVB:** Spread to distant organs.

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*All macroscopically visible lesions—even with superficial invasion—are allotted to stage IB carcinomas. Invasion is limited to a measured stromal invasion with a maximal depth of 5.00 mm and a horizontal extension of not >7.00 mm. Depth of invasion should not be >5.00 mm taken from the base of the epithelium of the original tissue—superficial or glandular. The depth of invasion should always be reported in mm, even in those cases with “early (minimal) stromal invasion” (~1 mm). The involvement of vascular/lymphatic spaces should not change the stage allotment.

** On rectal examination, there is no cancer-free space between the tumor and the pelvic wall. All cases with hydronephrosis or non-functioning kidney are included, unless they are known to be due to another cause.
1. **FIGO staging of invasive cervical cancer**

2. **Necessary histopathologic (HP) parameters for microinvasive cancer**
   - Depth of invasion
   - Width of the tumor
   - Tumor differentiation
   - Lympho-vascular space invasion (LVSI)
   - Resection margins

3. **Necessary histopathologic (HP) parameters for invasive cervical cancer**
   - Dimensions of the tumor
   - Stromal invasion / depth of the wall involved
   - Tumor differentiation
   - Lympho-vascular space invasion (LVSI)
   - Length and status of parametria
   - Length of vaginal cuff
   - Status of resection margins (vagina, parametria)
   - Minimal distance between the tumor and resection margin
   - Number and status of lymphnodes

4. **Prognostic factors for invasive Cervical cancer**
   - **For adjuvant radiation**
     - High risk node negative patients
     - Positive nodes (1-3)
     - Poorly differentiated or undifferentiated tumor (G3)
     - Lympho-vascular space invasion (LVSI)
     - Primary tumor (tumor-cervix volume) >3 cm
     - Endocervical invasion (barrel shaped cervix)
     - Inadequate surgery
     - Insufficient HP report (i.e. report of all necessary parts is missing)
   - **For adjuvant chemo-radiation**
     - Positive resection margins
     - Involvement of parametria
     - Residual tumor
     - Multiple positive lymph nodes (>3)

5. **GOG scoring system**

6. **Classification of radical hysterectomy**
Cervical cancer
FIGO Stage Ia
Microinvasive carcinoma (invasion ≤ 5 mm)

**Recommended work-up**
- Vaginal and rectal examination, exfoliative cytology (Papanicolaou smear), colposcopy, biopsy and/or endocervical curettage (ECC), conization or Loop electrosurgical procedure (LEEP)
- Histopathological finding with all standard tumor parameters
- Laboratory analyses: WBC, biochemical analyses
- Imaging: Chest X-ray, pelvic and abdominal ultrasound

**Diagnosis is based on conization!**

- **Conization**
  - Margins clear
  - ECC negative
  - Stage Ia1
  - LVSI negative
  - Conization if preservation of fertility is desired
  - Simple (extrafascial, type A6) hysterectomy with or without salpingoophorectomy

  - **Stage Ia1 with extensive LVSI**
    - Stage Ia2
    - Conization or radical trachelectomy if preservation of fertility is desired
    - or
    - Modified radical hysterectomy (type B6)
    - and
    - Pelvic lymphadenectomy

  - Margins and/or
  - ECC positive for dysplasia
  - • Repeated conisation
  - • Modified radical hysterectomy (type B6) if re-conisation is not possible
  ± pelvic lymphadenectomy
Cervical cancer
FIGO Stage Ib - IIa
Squamocellular, Adenocarcinoma, Adenosquamous

Recommended work-up

Necessary investigations:
- Vaginal and rectal examination, colposcopy, biopsy and/or endocervical curettage (ECC); conization or loop electrosurgical procedure (LEEP) if needed for definitive diagnosis
- Histopathological finding with all standard tumor parameters
- Laboratory analyses: WBC, biochemical analyses including check for renal function and Hb
- Imaging: Chest X-ray, abdominal and pelvic ultrasound (size and position of the tumor and tumor volume/cervix ratio)

Optional investigations:
Pelvic NMR, CT of the abdomen (PET/CT if possible), cystoscopy, rectoscopy, IVU or sonographic renal examination. Involvement of the bladder or rectum should be confirmed histologically

Radical surgery

- Uterus with paracervical tissues and upper part of vagina (radical, type C6 hysterectomy) + pelvic lymphadenectomy
- Entire cervix with paracervical tissues (radical trachelectomy) if fertility is desired + pelvic lymphadenectomy
- Upper part of vaginal cuff, paracervical tissues + pelvic lymph nodes in case of previous simple hysterectomy
  * At least 2 cm distance from the resection margins is desirable
  ** In premenopausal women ovaries can be retained; if so transposition is advised.
  *** For the decision of further management, all necessary histopathologic parameters should be requested

Chemo-radiation

- Neoadjuvant chemotherapy followed by radiation or surgery is an option for locally advanced tumors (Ib2 and IIa2) but awaits confirmatory evidence from controlled clinical trials.
- Medical contra-indications for surgery
  - Ib2/IIa2 tumors in selected cases
  - Anterior vaginal extension
  - Invasive cancer after simple hysterectomy
  - Choice of the patient

GOG score*

*consider using GOG score as a guide for adjuvant treatment

Low risk (GOG score < 120)
- Follow up

Low risk (GOG score < 120)
- Radiation ± Chemotherapy

Positive nodes (1-3)
- Poorly differentiated or undifferentiated tumor (G3)
- Primary tumor (tumor-cervix volume) >3 cm
- Endocervical invasion (barrel shaped cervix)
- Inadequate surgery
- Insufficient HP (if report of all necessary parts is missing)

Positive resection margins
- Involvement of parametria
- Residual tumor
- Multiple positive nodes (>3)

Concomitant Chemo-radiation

Follow up

Every 3 months after completed therapy during the first year; every 6 months up to 5 years. Annually afterwards. Investigations in addition to gynaecological examination should be performed depending on symptoms, local findings and general condition of the patient.
**Recommended work-up**
- Vaginal and rectal examination, biopsy or endocervical curettage (ECC)
- Histopathological finding with all standard tumor parameters
- Laboratory analyses: WBC, biochemical analyses including check for renal function and Hb
- Imaging: Chest X-ray, abdominal and pelvic ultrasound
- Pelvic NMR, CT of the abdomen (PET/CT if possible), cystoscopy, rectoscopy, IVU or sonographic renal examination. Involvement of the bladder or rectum should be confirmed histologically

**Pelvic MRI and Abdominal CT**

- **Paraaortic nodes (PALN) negative (=not enlarged)**
  - Pelvic (± paraaortic) radiation
  - + brachytherapy
  - + concomitant chemotherapy

- **Pelvic or paraaortic nodes (PALN) positive (enlarged ≥2 cm))**
  - CT of the lungs & mediastinum
  - CT negative
    - Pelvic radiation (with paraaortic if PALN are positive) + brachytherapy + concomitant chemotherapy
    - * Consider:
      - resection of adnexal mass and/or extraperitoneal resection of enlarged nodes
      - Sequential chemoth and Concomitant ChemoRadioTherapy /External Beam RadioTherapy (CCRT/EBRT)
  - CT positive
    - Palliative pelvic RT ± Palliative chemotherapy

**Stage IVa**
- with vesicovaginal fistula: if pelvic, abdominal and chest imaging exclude distant metastases primary pelvic exenteration can be considered
- NACT may be offered to large bulky tumors to downsize tumor prior to CCRT

**Recommended follow-up**
Every 3 months after completed therapy; every 6 months up to 5 years. Annually afterwards. Investigations in addition to gynaecological examination should be performed depending on symptoms, local findings and general condition of the patient
Cervical cancer - recurrence -

Recommended work-up
- Vaginal and rectal examination, biopsy - histopathological confirmation of recurrence
- Laboratory analyses: WBC, biochemical analyses including check for renal function and Hb
- Imaging: Chest X-ray, pelvic and abdominal ultrasound, pelvic NMR and CT of the lungs and abdomen; (PET/CT if possible)
- Cystoscopy, rectoscopy, IVU or sonographic renal examination

Lungs & abdominal CT

Pelvic recurrence
- No previous radiation
  - Options include: Chemo-radiation, Neoadjuvant chemotherapy (NACT), Supportive care
- Previous radiation
  - Central pelvic recurrence
  - Sidewall pelvic recurrence

Extrapelvic recurrence
- Options include:
  - Palliative radiotherapy or chemo-radiation
  - Systemic therapy
  - Supportive care
  - Resection in selected cases (in particular paraaortic nodes) may be considered

Central pelvic recurrence
- Options include:
  - Radical hysterectomy in tumor <2 cm
  - Pelvic exenteration
  - Neoadjuvant chemotherapy (NACT) + surgery
  - Other options if surgery is not possible: Re-irradiation, Neoadjuvant chemotherapy (NACT) + radiation
  - Systemic therapy
  - Supportive care

Sidewall pelvic recurrence
- Options include:
  - Resection of isolated disease
  - Systemic therapy
  - Supportive care

Recommended follow-up
Every 3 months for two years or more often if clinically indicated. Every 4-6 months thereafter. Annually afterwards. Investigations in addition to gynaecological examination should be performed depending on symptoms, local findings and general condition of the patient.
Cervical cancer
Squamocellular, Adenocarcinoma, Adenosquamous

Recommended work-up
Necessary investigations:
• Vaginal and rectal examination, colposcopy, biopsy and/or endocervical curettage (ECC); conization or loop electrosurgical procedure (LEEP) if needed for definitive diagnosis
• Histopathological finding with all standard tumor parameters
• Laboratory analyses: WBC, biochemical analyses including including check for renal function and Hb
• Imaging: Chest X-ray, abdominal and pelvic ultrasound (size and position of the tumor and tumor volume/cervix ratio)

Optional investigations:
• Pelvic NMR, CT of the abdomen (PET/CT if possible), cystoscopy, rectoscopy, IVU or sonographic renal examination. Involvement of the bladder or rectum should be confirmed histologically

*Stage of the disease is determined using FIGO classification

Recommended follow-up
Every 3 months after completed therapy during the first year; every 6 months up to 5 years. Annually afterwards. Investigations in addition to gynaecological examination should be performed depending on symptoms, local findings and general condition of the patient.

FIGO la
• Diagnosis is based on conization; resection margins should be clear
• Further decision depends on the presence of poor histologic prognostic factors

FIGO la1
LVSI negative
• Conization
• Simple hysterectomy (type A)

Follow-up

FIGO la1
LVSI positive
• Conization/radical trachelectomy
• Modified radical hysterectomy (type B)
and
• Pelvic Lymphadenectomy

FIGO Ib-Ila
Surgery
• Medical contra-indications for surgery
• Ib2/Ila tumors
• Anterior vaginal extension
• Invasive cancer after simple hysterectomy
• Choice of the patient

Or

Chemo-radiation

FIGO IIb-IV
Concomitant chemoradiation
or
Radical radiation only if unfit for chemotherapy
* Stage IV1 with vesicovaginal fistula: if pelvic, abdominal and chest CT exclude distant metastases, primary pelvic exenteration can be considered

Neoadjuvant chemotherapy followed by radiation or surgery is an option for locally advanced tumors, but awaits confirmatory evidence from controlled clinical trials.

No adverse prognostic factors
Adjuvant therapy (Radiation ± Chemotherapy)

Adverse prognostic factors present
Algorithms for management of cervical cancer prepared by ESGO Educational Committee:
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