Obstetrics & Gynaecology - Topic 34 - Benign and malignant diseases of uterus and ovaries.

Endometrial Hyperplasia and Cancer

Oestrogen-related Mechanisms and Risk Factors

- Endometrial cancer arises from the lining of the uterus and commonly presents with abnormal uterine bleeding.
- Prolonged oestrogen stimulation without adequate progesterone exposure contributes to many endometrioid cancers.
- Obesity, chronic anovulation, increasing age, diabetes and some hormone exposures are relevant risk factors, while Lynch syndrome can confer inherited risk.
- Tamoxifen can affect the endometrium, so new bleeding during treatment requires assessment.

Precursor Lesions and Histological Types

- Endometrial intraepithelial neoplasia or atypical hyperplasia is a precursor that can coexist with an already invasive cancer.
- Hyperplasia without atypia has a different risk profile and is often managed with progestogen treatment and histological surveillance.
- Endometrioid carcinoma is common, while serous, clear cell, carcinosarcoma and other aggressive types require particular attention to extrauterine disease.
- Carcinosarcoma is managed as an aggressive endometrial carcinoma rather than as an ordinary benign uterine fibroid.

Clinical Features and Differential Diagnosis

- Postmenopausal bleeding is an important presentation, while younger patients may have persistent irregular or heavy bleeding.
- Later disease can cause pelvic pain, discharge, anaemia or symptoms of distant spread.
- Atrophy, polyps, fibroids, hormonal bleeding and cervical disease are alternatives, but symptoms alone cannot exclude cancer.
- Evaluate the cervix and other possible bleeding sites as well as the endometrium.

Tissue Diagnosis, Imaging and Fitness

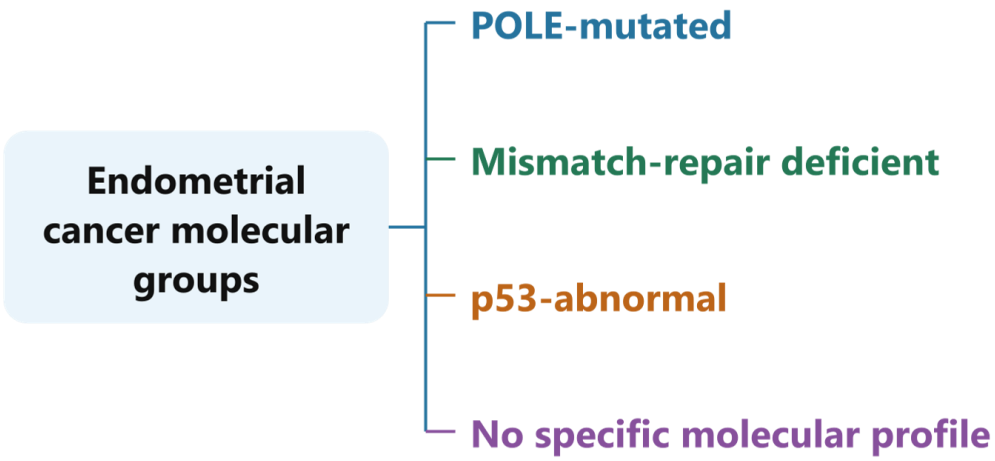
- Endometrial tissue sampling establishes the diagnosis, and hysteroscopy with directed sampling is useful for focal lesions or an inadequate blind sample.
- The 2026 ACOG guidance recommends both ultrasound and tissue assessment for most patients with postmenopausal bleeding; a thin endometrium is not a universal exemption from biopsy.

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- Pelvic ultrasound and MRI help define uterine anatomy and local invasion, while other imaging is selected according to tumour risk and suspected spread.
- Assess haemoglobin, renal and liver function, comorbidity, nutritional status and fitness for treatment.

Pathological and Molecular Assessment

- Pathology reports should describe histological type, grade, myometrial invasion, cervical involvement and lymphovascular space invasion.



- Molecular assessment identifies POLE-mutated, mismatch-repair-deficient, p53-abnormal and no-specific-molecular-profile groups, which influence prognosis and treatment.
- Abnormal mismatch-repair findings may require further testing and genetic counselling for Lynch syndrome.

Current Staging Principles

- Endometrial cancer is usually surgically and pathologically staged, with imaging contributing to preoperative planning.
- The 2023 FIGO system combines anatomical spread with tumour type and selected biological features, so it is more detailed than the older depth-only scheme.

FIGO 2023 group	Main concept
IA1	Non-aggressive histology is limited to a polyp or the endometrium.
IA2	Non-aggressive histology invades less than half of the myometrium, with no or focal lymphovascular invasion.
IA3	Selected low-grade endometrioid cancers involve the uterus and one ovary under the favourable criteria below.
IB	Non-aggressive histology invades at least half of the myometrium, with no or focal lymphovascular invasion.

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FIGO 2023 group	Main concept
IC	Aggressive histology is confined to a polyp or endometrium without myometrial invasion.
IIA / IIB / IIC	Non-aggressive tumour involves cervical stroma / has substantial lymphovascular invasion / aggressive histology has myometrial invasion.
IIIA / IIIB / IIIC	Spread involves serosa or adnexa / vagina, parametrium or pelvic peritoneum / regional nodes.
IVA / IVB / IVC	Spread reaches bladder or bowel mucosa / peritoneum beyond the pelvis / distant sites.

- Selected low-grade endometrioid tumours involving the uterus and one intact ovary can meet the special IA3 criteria; ordinary ovarian metastasis remains advanced disease.
- The IA3 exception requires superficial myometrial invasion, no substantial lymphovascular invasion, no additional metastasis and a unilateral ovarian tumour confined within an intact capsule.
- Molecular findings can modify early-stage assignment, particularly pathogenic POLE mutation or p53 abnormality, so the complete pathology report must be used.

Hyperplasia and Fertility Preservation

- Progestogen treatment, often using a levonorgestrel intrauterine system, is appropriate for many cases of hyperplasia without atypia, with repeat tissue assessment.
- Hysterectomy is definitive treatment for atypical hyperplasia when appropriate because concurrent cancer and progression are important concerns.
- A patient seeking fertility preservation needs expert review, exclusion of invasive or extrauterine disease and a strict surveillance plan before conservative treatment is considered.
- Endometrial ablation is not appropriate treatment for atypical hyperplasia or suspected cancer because it can leave disease and obscure later assessment.

Surgery and Adjuvant Treatment

Operation, Nodal Assessment and Surgical Route

- Standard surgery for many operable cancers is total hysterectomy with removal of both tubes and ovaries, with nodal assessment according to risk.
- Sentinel-node mapping with appropriate pathological assessment can reduce the need for extensive lymph-node dissection in selected settings.
- A minimally invasive approach is often suitable for uterine-confined disease, while extensive tumour or other factors may require open surgery.

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- Inspect the abdomen and pelvis and obtain indicated samples; high-risk histological types may require omental assessment.

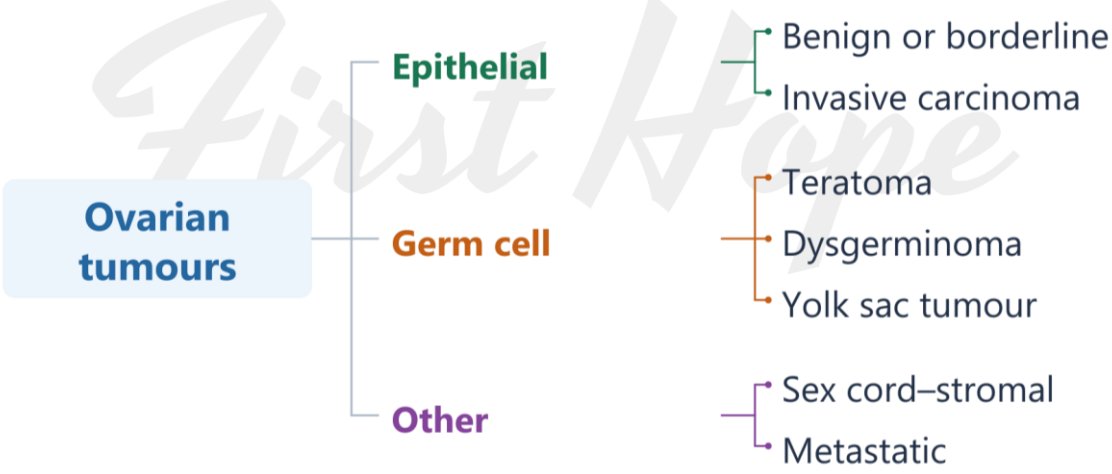
Adjuvant, Advanced-disease and Supportive Treatment

- Postoperative radiotherapy, chemotherapy or both are selected according to stage, histology, molecular group and recurrence risk rather than given to every patient.
- Advanced or recurrent disease may require systemic chemotherapy, immunotherapy, targeted treatment or hormonal therapy in selected hormone-sensitive tumours.
- Provide symptom control, genetic counselling when relevant and survivorship support alongside tumour treatment.

Benign and Malignant Ovarian Tumours

- Ovarian tumours are neoplasms arising from ovarian tissues and include benign, borderline and malignant forms.
- Classification by tissue of origin helps explain their clinical behaviour and management.

Major Families of Primary Ovarian Tumours



1. Epithelial Tumours

- Epithelial tumours include serous, mucinous, endometrioid, clear cell and other histological types, with benign, borderline or invasive behaviour.
- A borderline tumour has epithelial proliferation and atypia without the destructive stromal invasion of an invasive carcinoma.
- Many high-grade serous cancers originate from the distal fallopian tube rather than the ovarian surface itself.
- Low-grade and high-grade serous carcinomas differ biologically and should not be treated as interchangeable grades of one simple disease pathway.

2. Germ-Cell Tumours

- Germ-cell tumours include mature teratoma and malignant types such as dysgerminoma, yolk sac tumour and immature teratoma.

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- They are particularly relevant in younger patients, in whom preservation of fertility and ovarian function is an important treatment goal.
- Tumour markers depend on the suspected subtype, so a normal CA-125 does not exclude a germ-cell malignancy.

3. Sex Cord–Stromal Tumours

- Granulosa-cell tumours may produce oestrogen and cause abnormal bleeding or endometrial hyperplasia.
- Sertoli–Leydig and other androgen-producing tumours can cause rapid hirsutism or virilisation.

Secondary Tumours Involving the Ovary

- The ovary may also contain metastases from gastrointestinal, breast or other primary cancers; a Krukenberg tumour classically contains metastatic signet-ring cells.

Tumour Markers and Their Interpretation

Tumour context	Useful marker or association
Epithelial ovarian cancer	CA-125 is useful in the appropriate clinical setting but is not specific.
Yolk sac tumour	AFP is commonly raised.
Dysgerminoma	LDH may rise; selected tumours with syncytiotrophoblastic cells can raise hCG.
Choriocarcinoma or some mixed germ-cell tumours	hCG can be raised.
Granulosa-cell tumour	Inhibin and sometimes AMH support diagnosis or surveillance.

- Markers complement imaging and histology and do not independently establish every tumour type.

Common Benign Ovarian Lesions

- A functional follicular or corpus-luteal cyst is related to the menstrual cycle and may resolve during observation in an appropriately selected patient.
- A mature cystic teratoma contains differentiated tissues, often including fat or hair, and may cause torsion.
- Benign serous and mucinous cystadenomas arise from epithelial tumour groups and are distinguished from borderline or invasive lesions by pathology.

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