# ENDOMETRIOMA AND CANCER

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# OVARIAN ENDOMETRIOMA

- cystic mass arising from ectopic endometrial tissue within the ovary
- It contains thick, brown, tar-like fluid, "chocolate cyst.“
- Often densely adherent to surrounding structures
  - peritoneum, fallopian tubes, bowel

# PREVALENCE

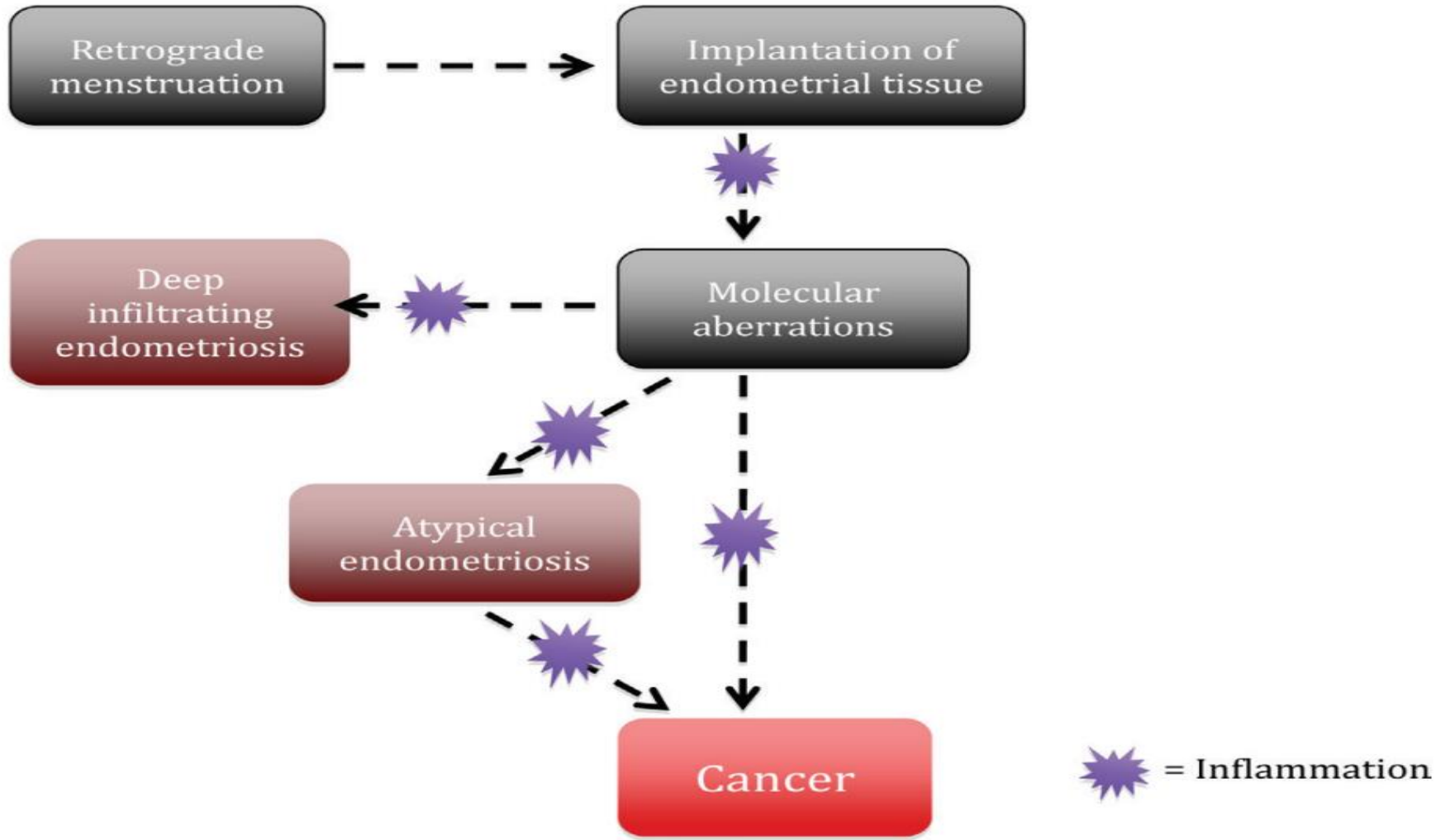
- Endometriosis is a common and complex disease
- 6–10% of women of reproductive age.
- one-third of women with infertility
- two-thirds of women with chronic pelvic pain
- some cases may represent risk factors for gyn-ca

# MANAGEMENT

- The goals of endometrioma tr are to
  - Relieve symptoms (eg, pain or mass),
  - Prevent complications (eg, rupture or torsion),
  - Exclude malignancy,
  - Improve subfertility,
  - preserve ovarian function.

# TRANSFORMATION OF ENDOMETRIOMA TO CA

- The risk of malignant transformation of endometriosis estimated:
  - %1 for premenopausal women
  - 1 - 2.5 % for postmenopausal women
- Study:
  - women with postmenopausal endometriosis,
  - 35% (20-57) had different grades of
    - metaplasia, hyperplasia, atypia, endometrioid ca
    - arising in ovarian endometriosis




**Potential process of the establishment and evolution of endometriosis lesions to EAOCs.**

# TRANSFORMATION OF ENDOMETRIOMA TO CA

- Over the last 10 yrs, sequencing and IHC studies:
  - mutations in E-R ca, adjacent endometriosis
    - Mutations in TP53, KRAS, PTEN, PIK3CA , ARID1A gene region.
  - A high degree of inflammation, in endometriosis
    - is a RF for the development of other ca
- Study 2015, Edwards:
  - 85% of atypical endometriosis demonstrated a ca-like immunological gene signature, compared to 30% of typical endometriosis lesions

# TRANSFORMATION OF ENDOMETRIOMA TO CA

- The mechanisms suggested how endometrioma transform to ca
  - Activation of oncogenic *KRAS* and *PI3K* pathways
  - Inactivation of tumor suppressor genes *PTEN* and *ARID1A*

# EXCLUSION OF CA IN ENDOMETRIOMA

- Small increased risk of development of or transformation to OC
  - most common histologies: clear cell and endometrioid
- Endometriomas should be removed if they have
    - an atypical appearance on imaging studies
    - other concerning features (eg, enlarging size)
- Endometrioma appears to be associated with some EOC
  - risk for other types of ca is unclear
  - but the overall risk appears to be low

# LINK TO CANCER 1

- In a meta-analysis of 13 case-control studies
- 8000 women with EOC women with a self-reported Hx of endox:
  - x3 the risk of clear cell EOC,
  - x2 the risk of endometrioid and LG serous EOC
  - No change in risk of HG serous or mucinous EOC

# LINK TO CANCER 2

- population-based study of 50,000 Finnish women with endox
  - Overall increased risk of OC ca
    - (endometrioid, clear cell, serous types)
  - If ovarian endometrioma
    - incidence ratio=2.56, 95% CI 1.98-3.27
  - If peritoneal endox or DIE
    - Nothing

# PARACLINIC DX E-RO CA VS ENDOMETRIOMA

- Imaging
  - case-control study:
    - A solid component in imaging independent **OR= 23.7** for ca
    - Tumor size was larger (14 vs 7.5 cm)
    - Age ≥49 yrs: high sensitivity (80.6%), specificity (82.9%) for E-ROC
- TMs
  - E-R O ca: lower CA125 levels than typical OC.
- Study: Shinmura 2020
  - CA19–9, CEA, SLX, LDH levels may be a useful

# PARACLINIC DX E-RO CA VS ENDOMETRIOMA

- E-RO ca gp vs endometrioma:
  - Older age, larger size,  mural nodule
  - higher CA125, CA19–9, CEA, sialyl Lewis-x antigen (SLX), LDH

- Serum CA125 + TVS
  - commonly used
  - According to the IOTA studies
    - TVS could be useful in the preop
    - serum CA125 may not be very useful

**Table 1** Values of serum tumor markers and tumor characteristics

| Variables | Endometriosis-related ovarian neoplasms<br>Median (range) | Ovarian endometrioma<br>Median (range) | P-value* |
|---|---|---|---|
| CA125 level, U/mL | 43 (7–2065)<br>(n=21) | 47.5 (6–1951)<br>(n=244) | 0.358 |
| CA19-9 level, U/mL | 42 (5–2222)<br>(n=19) | 19 (5–664)<br>(n=225) | 0.013 |
| CEA level, ng/mL | 1.3 (0.6–5.2)<br>(n=13) | 0.840 (0.5–8.4)<br>(n=166) | 0.007 |
| SLX level, U/mL | 41 (24–530)<br>(n=17) | 33 (23–75)<br>(n=34) | 0.050 |
| LDH level, U/mL | 189 (134–331)<br>(n=21) | 166 (110–299)<br>(n=262) | <0.001 |
| Age | 48 (26–81)<br>(n=21) | 39 (22–68)<br>(n=262) | <0.001 |
| Maximum tumor diameter, mm | 79 (27–159)<br>(n=21) | 55 (20–150)<br>(n=262) | 0.001 |
| With mural nodule, n (%) | 18 (85.7)<br>(n=21) | 12 (4.5)<br>(n=262) | <0.001 |

# E-RO BORDERLINE TUMOR

- Tr of ov borderline tumor usually requires oophorectomy.
- It would be of value to Dx preop
- No study on TMs used for the Dx of E-R O borderline tumor

# KEY POINTS: ENDOMETRIOMA AND CA

- Apparently: an association between endometriosis and EOC
- Endometriosis is not considered a premalignant lesion
- Screening is not recommended.
- If prophylactic removal of endometriosis lesions reduces the risk of EOC?
  - No data

# KEY POINTS: ENDOMETRIOMA AND CA

- OCP decreases the risk of EOC in all users
- E-R EOC appears to develop in younger women
- Has a better prognosis than most cases of EOC
- To identifying those at risk of developing E-R ca
  - combination of molecular, pathological, inheritance markers

# KEY POINTS: ENDOMETRIOMA AND CA

- If surgery for endometriomas, close to menopause
  - USO suggested to prevent EAOC arise from endometriomas.
- If looking for permanent contraception
  - TL an important consideration
  - BS to reduce risk of serous OC
- Further research: role of risk-reducing BSO to prevent EAOCs.
  - Study:  BSO could be used if overall lifetime risk of OC> 4%


Thank
you