Borderline Ovarian tumours

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An ovarian surface epithelial tumor in which the growth pattern is intermediate between benign and malignant;

Cellular proliferation

Nuclear Atypia

No infiltrative growth pattern

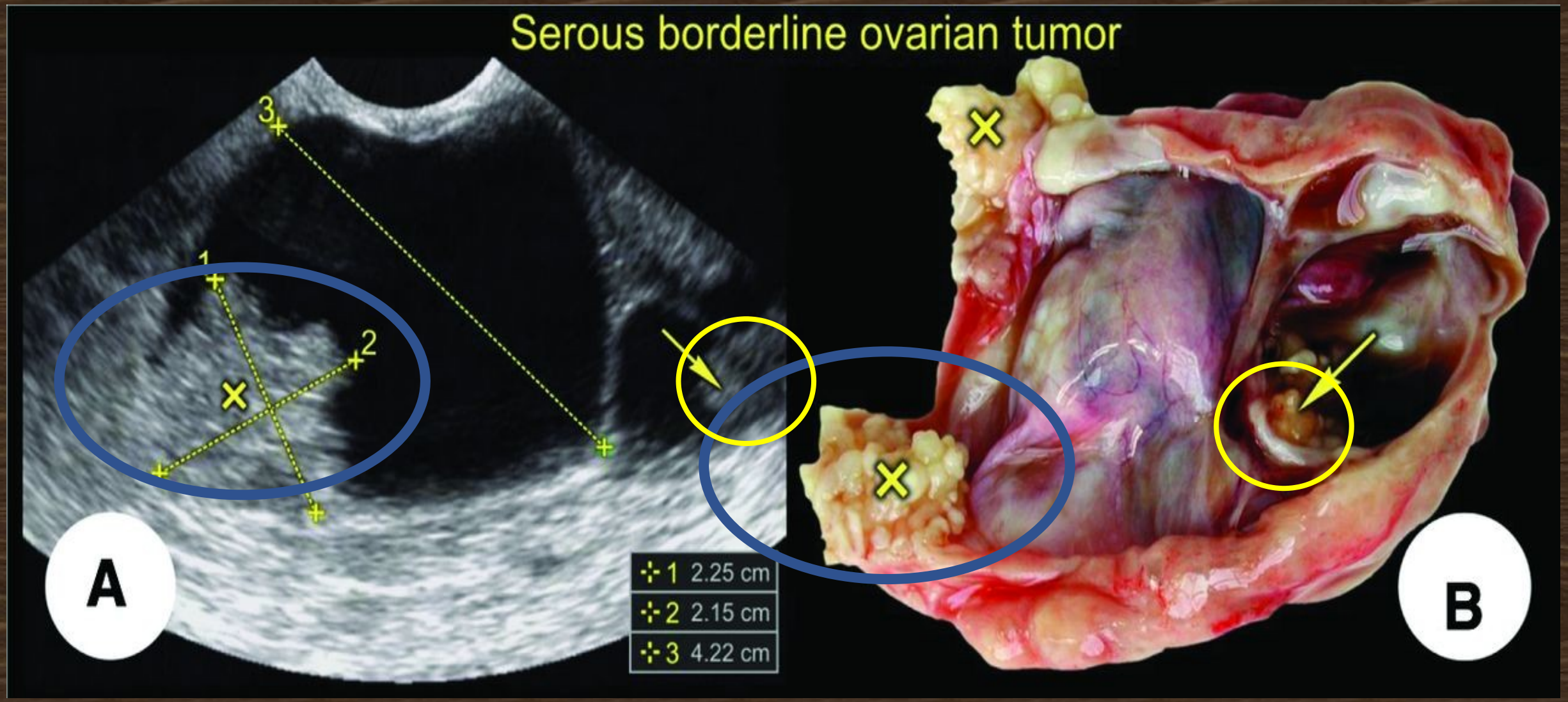
Mucinous, serous, endometrioid, and Brenner tumors of the ovary

Highly curable

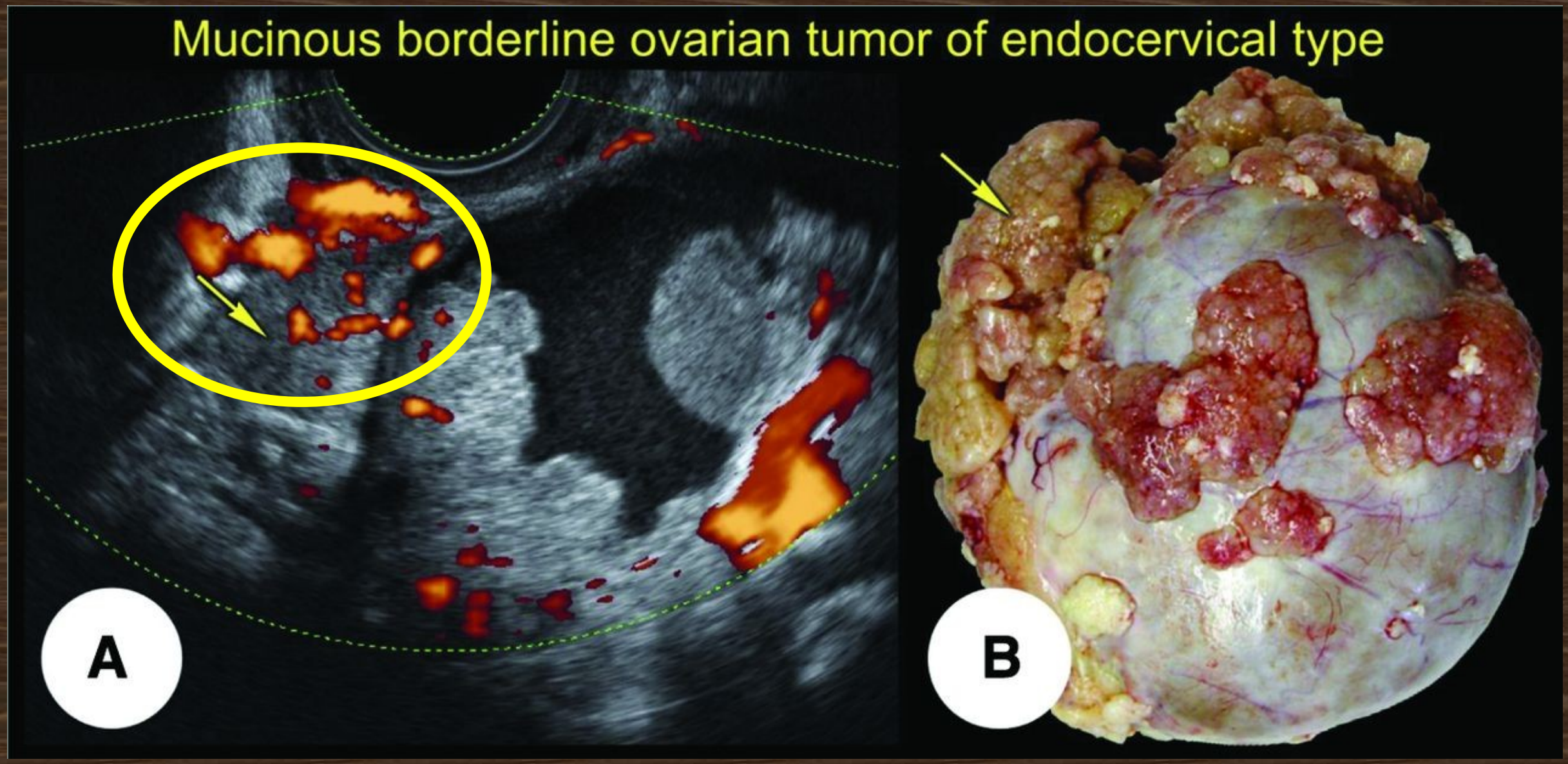
May recur after surgical removal

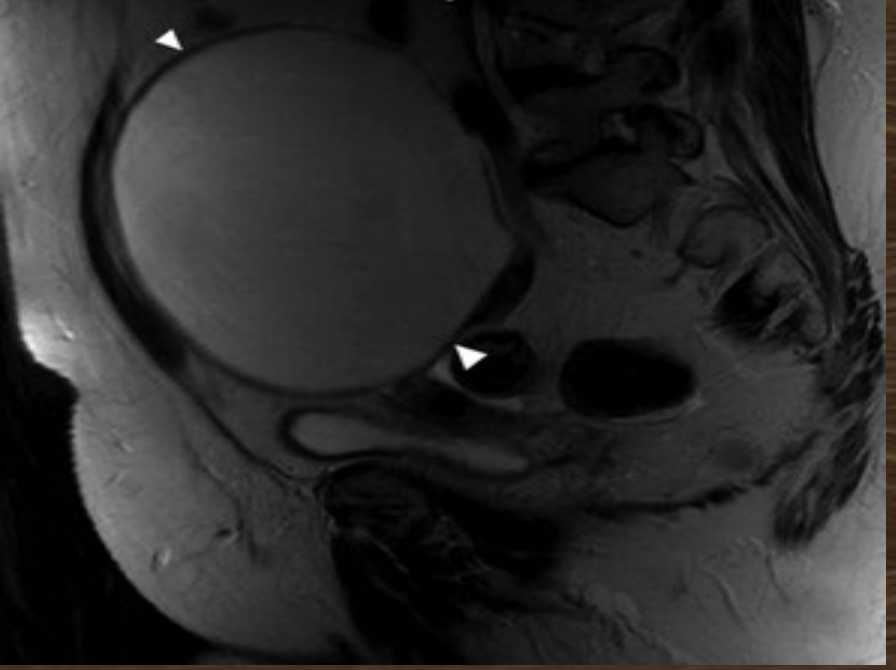
Medical Dictionary for the Health Professions and Nursing © Farlex 2012

Incidence of 1.5–2.5 per 100,000 people per year.

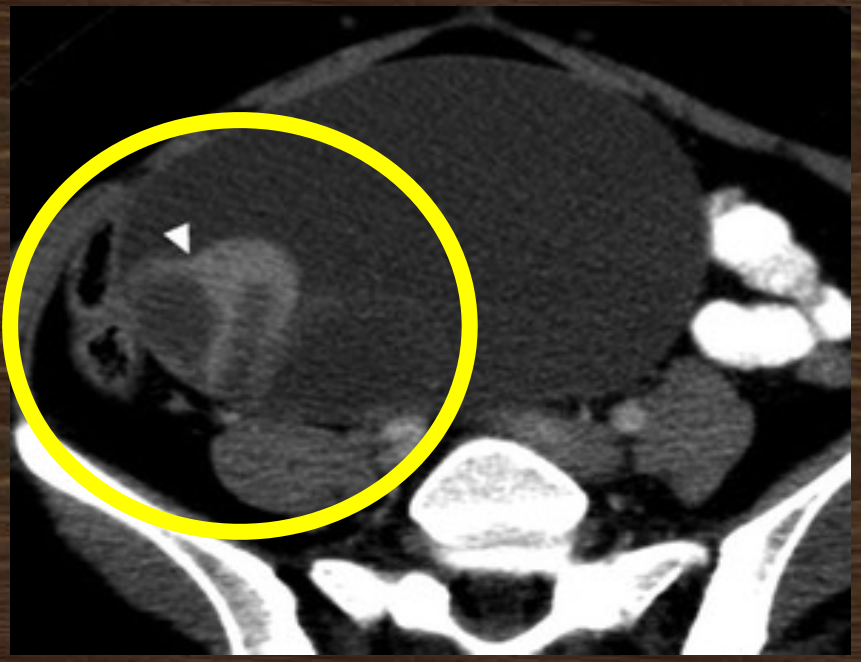

Serous borderline ovarian tumor
3
1
2
1 2.25 cm
2 2.15 cm
3 4.22 cm
A
B

Mucinous borderline ovarian tumor of endocervical type

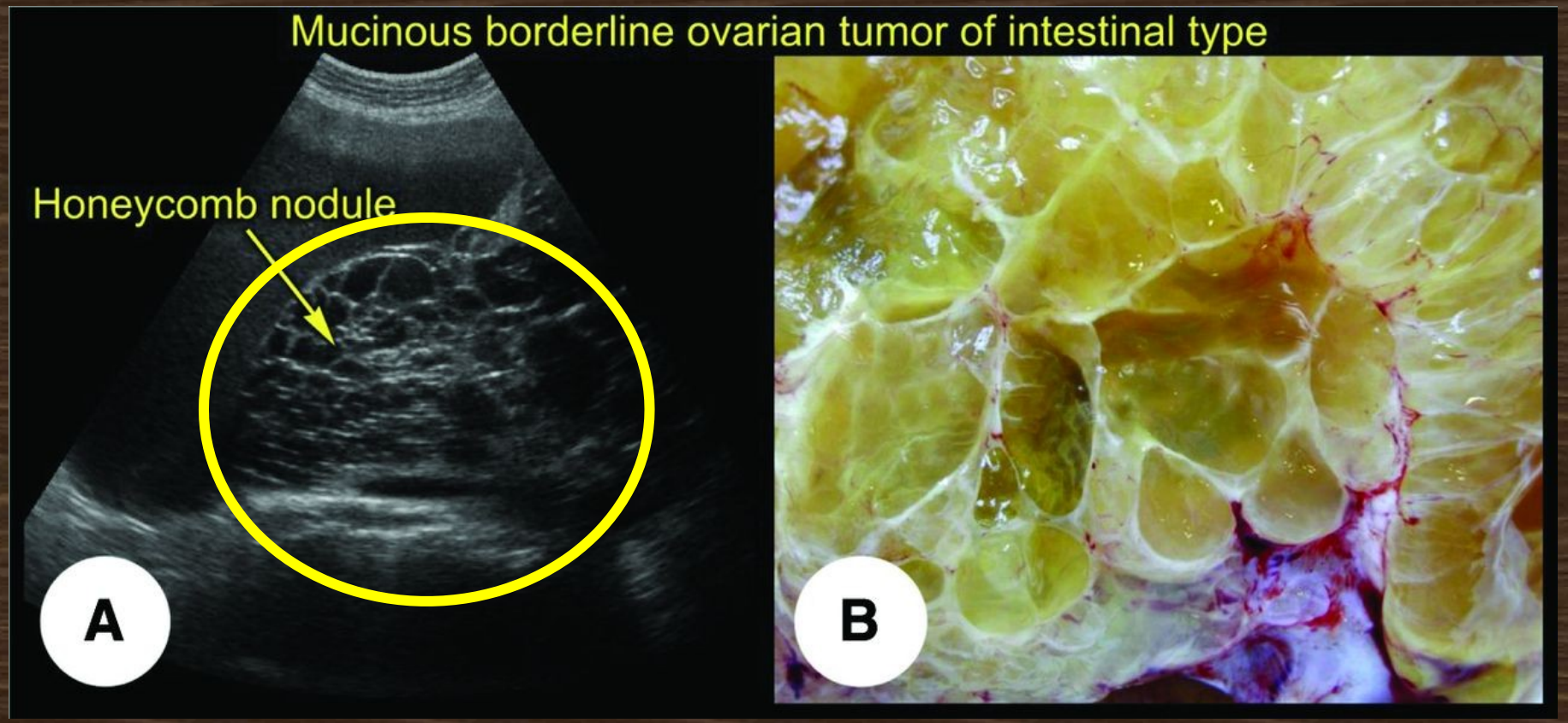




48-year-old woman with unilocular mucinous borderline tumor. Sagittal T2-weighted MR image through pelvis shows large unilocular cystic mass (*arrowheads*) without internal septations or mural nodules.



44-year-old woman with mucinous borderline tumor. Axial contrast-enhanced CT image through pelvis shows large cystic mass (*arrowhead*) with thick septations and mural nodules along periphery.


Mucinous borderline ovarian tumor of intestinal type
Honeycomb nodule
A
B

Because women with extraovarian spread of disease have a very good prognosis, the peritoneal lesions are classified as implants instead of metastases.

22 year old Unmarried girl comes with uniilateral

6cm Ovarian cyst with solid components.

CA 125- 65 IU

Minimal ascites

Abdominal Koch’s

Table 3. Gross appearances of primary ovarian borderline tumors [26]

Histotype	Subtype	Characteristic macroscopic features
Serous	Typical	Typical serous BOTs can be bilateral in ~30% of patients and are associated with extraovarian lesions involving the peritoneum (so-called implants) in 35% [32].
	Micropapillary	Bilaterality (75%), exophytic growth (54%), and peritoneal implants (50%) are more common with micropapillary subtype; mean size is ~8 cm.
Mucinous	Intestinal (gastrointestinal)	Unilateral, large multilocular or multilocular-solid lesion with mean size of 20–22 cm.
	Endocervical-like (seromucinous, Müllerian)	Smaller, much less common, more frequently bilateral (20%–30%), unilocular-solid or multilocular-solid lesions with eventual implants. Endocervical-like mucinous borderline tumors mimic serous borderline tumors.
Endometrioid		Size average of 8–10 cm, cystic-solid tumor, predominantly unilateral (bilateral only in 4%). Extraovarian disease may be found. Hemorrhagic, green, or brown intracystic fluid.
Clear cell		Clear cell tumors resemble endometrioid tumors on gross examination and cannot be distinguished with any reliability from serous tumors. Size average 15 cm, with a smooth lobulated external surface. Cut surfaces have a fine honeycomb appearance with minute cysts; the cyst fluid is clear. Peritoneal implants have not been described.
Brenner (transitional cell)		Large solid-cystic tumor with polypoid projections into the cyst lumens. They are always unilateral, larger tumors with mean diameter of 18 cm, confined to the ovary.

Abbreviation: BOT, borderline ovarian tumor.

Conservative surgery
can be performed in younger patients treated for OBTs,
provided that they are carefully followed-up

Risk of recurrence after conservative surgery
7% to 30%

Higher after conservative surgery

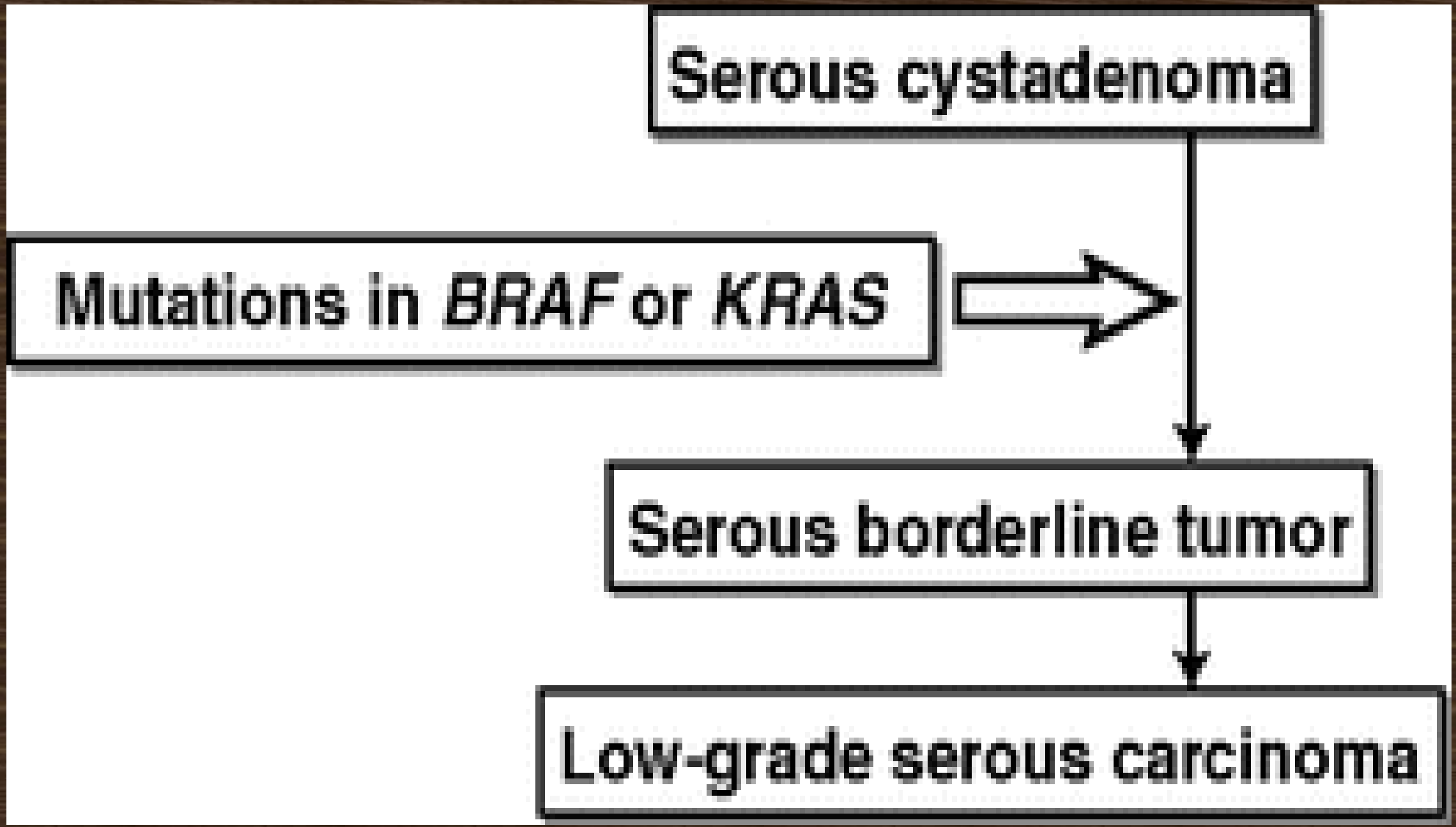
Pregnancy itself does not
affect the prognosis of the disease

Cystectomy is associated with a higher recurrence rate (up to 31%)

Cystectomy should be performed only for patients with bilateral tumors and/or only one ovary.

The predictors of relapse after cystectomy are
resection margins containing tumor cells or multifocal intraovarian tumor

No need for Systematic removal of the remaining ovary if patients are followed up closely .


Serous cystadenoma
Mutations in *BRAF* or *KRAS*
Serous borderline tumor
Low-grade serous carcinoma

BOT

Malignant transformation

Invasive ovarian cancer

Low grade carcinoma

Can even occur after several years

During the initial 2 years, follow-up evaluation is performed every 3 months.

Every 6 months for 3–5 years after surgery,

Every year thereafter

Transvaginal and transabdominal ultrasound are currently the Best option for follow up.

High ability to detect discrete intraovarian abnormalities as well as extraovarian implants when performed by an experienced examiner

Psychological impact of waiting for relapse is considerable.

Intraoperative frozen section analysis has a tendency to underdiagnose
this disease in 31% of patients as a benign tumor.

No micropapillary pattern

Careful exploration done

Careful resection of lesions

Restaging procedure could be omitted

Even if recurrence rate is higher with conservative treatment, the mortality rate did not increase.

Should uterus be removed?

Low rate of uterine involvement (3/147) (2%)

among patients with BOTs who underwent hysterectomy in addition to bilateral adnexectomy.

Optimal staging

Correct Pathological diagnosis

Good way to know if it will recur

Staging as per FIGO

Hysterectomy, bilateral salpingo-oophorectomy, omentectomy, peritoneal washing with cytology, resection of peritoneal lesions, systematic peritoneal biopsies in all areas of the abdomen as well as pelvic and paraaortic lymphadenectomy

Systematic lymphadenectomy can be omitted as part of the initial treatment of BOT

Appendectomy should be carried out in M-BOT to exclude the possibility of ovarian metastasis of mucinous tumors of the appendix

Slow rate of development of BOT to low grade cancer

Relative chemoresistance.

Borderline ovarian tumors are notoriously resistant to platinum-based chemotherapy

No advantages to chemotherapy for stage I tumors

Chemotherapy cannot decrease relapse rates or improve survival in BOTs .

BOTs treated with adjuvant chemotherapy or radiotherapy showed high persistent or recurrent disease (up to 40%)

Laparoscopy seems to be best for BOT

Cyst rupture or incomplete staging caused did not influence relapse rate. (358 patients studied).

Should We Manage Large Ovarian Cysts Laparoscopically?

55 cases of ovarian cysts between 10cm and 25 cm operated laparoscopically

Endometriosis 22 (40.00%)
Serous cyst adenoma 8 (14.54%)
Mucinous cyst adenoma 8 (14.54%)
Mixed epithelial 2 (3.63%)
Dermoid cyst 10 (18.18%)
Borderline tumor 5 (9.09%)

P.G. Paul, MBBS, DGO, et al:JOURNAL OF GYNECOLOGIC SURGERY
Volume 32, Number 5, 2016

TABLE 4. CHARACTERISTICS OF PATIENTS' BORDERLINE OVARIAN TUMORS

Patients	*Age (yrs)*	*Parity*	*CA-125 (IU/mL)*	*Cyst diameter (cm)*	*Ultrasonography findings*	*RMI Score/ ADNEX Model*	*Type of laparoscopic surgery*	*Histopathology*	*Follow-up (May 2014)*
1	1	Celibate	25	23	Multiloculated cyst with thick septations without solid areas	25/96.8	Right adnexectomy with staging biopsy (13/06/2012)	Borderline mucinous tumor	No evidence of recurrence (after 2 yrs)
2	24	Nulligravida	30	10	Bilateral multiloculated cyst without solid areas	90/98.1	Bilateral cystectomy with staging biopsies (23/2/2010)	Borderline mucinous tumor	Conceived after 3 mos, FTND, followed by total abdominal hysterectomy with bilateral salpingo-ophorectomy for recurrence of cyst 1 mo after delivery; no recurrence (after 3 yrs)
3	25	Celibate	115	20	Multiloculated cyst without solid areas	115/95	Unilateral cystectomy (7/11/2006)	Borderline mucinous tumor	Laparotomy with adnexectomy 1 mo later (no recurrence after 8 yrs)
4	28	P1L1	39	19	Multiloculated cyst without solid areas	39/96.4	Right adnexectomy (28/2/2006)	Borderline mucinous tumor	No recurrence (after 8 yrs)
5	38	P2L2, sterilized	100	11	Multiloculated cyst without solid areas	100/96.3	Right adnexectomy (5/8/2011)	Borderline mucinous tumor with foci of microinvasion	No recurrence (after 3 yrs)

yrs, years, IU, international units; RMI, Risk of Malignancy Index; ADNEX, *A*ssessment of *D*ifferent *NE*oplasias in the adne*X*a; FTND, full-term normal delivery; mo, month; P, para; L, live.

Pre op. diagnosis of BOT is difficult

Conservative surgery and follow up is possible

Recurrence is usually low grade, but can occur many years later

Usually chemoresistant


Thanks