UNIVERSITÉ PARIS-SUD 11

Borderline Tumors of the Ovary:

Classification and current management

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CHARACTERISTICS OF BOT COMPARED TO OVARIAN CANCERS

Age of patients: 30% of patients are < 40 y

Prognosis

FIGO stage	N	5 years relative survival (%)	10 years relative survival (%)
I	2310	99	97
II	158	98	90
III	228	96	88
IV	87	77	69

NCI DATA BASE Trimble et al. 2002

SEROUS BOT/APST (MOST FREQUENT IN EUROPE & NORTH AMERICA)

- **Serous** ➔ **implants** (10%-40%)
  - **non invasive (2003)** 88 % — **epithelial desmoplastic**
  - **invasive (2003)** 12 %

➔ **Bilaterality: 25%-35%**

➔ **Micropapillary pattern (described since 1996):**

-(infraclinic) implants (invasive or noninvasive) more frequent than in serous BOT without nonmicropapillary patterns

-Bilaterality of the ovarian tumor more frequent

-Involvement of the ovarian surface (excrescence) more frequent

MUCINOUS BOT

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Complex group of tumors. Evolution of the histologic classification
Bulky tumors > 15 cm +++. Question of the histologic sampling
Late recurrence under the form of invasive carcinoma recently reported 8%
Uzan et al. (2013). Single prognostic factor of recurrence: cystectomy +++

Mucinous

→ **Intestinal (most frequent)**

- **98% unilateral (if bilateral: exploration of GI tract)**
- **99% stage I**

→ **Mullerian or endocervical (now « seromucinous » in 2014 WHO)**

- **Association with endometriosis and/or others subtypes of BOT**
- **Could be bilateral**
- **Could be associated with peritoneal implants (mixed histology)**

Histologic distribution of borderline ovarian tumors worldwide: a systematic review

Taejong Song[1], Yoo-Young Lee[2], Chel Hun Choi[2], Tae-Joong Kim[2], Jeong-Won Lee[2], Duk-Soo Bae[2], Byoung-Gie Kim[2]
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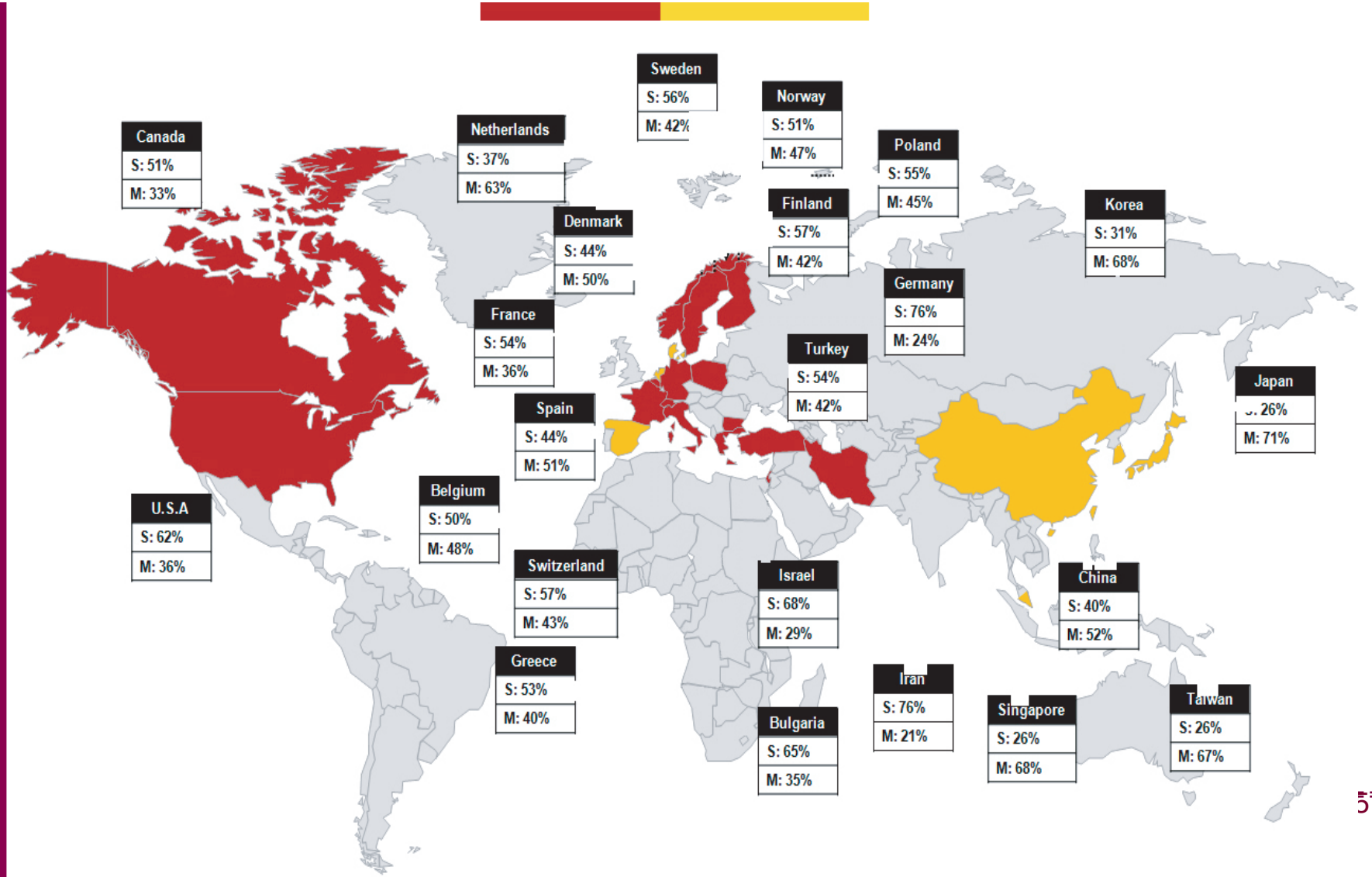

2003/2014 WHO classification

- **Serous BOT (APST) (> 10% of the T)**
  - Micropapillarry variant /« non-invasive low grade serous carcinoma » (2014)
  - « Non-invasive implants » (2003) ➔ « implants » (2014)
  - If invasive implants: « Low grade serous carcinoma » (2014)
- **Mucinous BOT (APMT) (> 10% of the T)**
  - Intestinal subtype (2003) ➔ MBOT (2014)
  - Endocervical/Mullerian (2003) ➔ Seromucinous BOT (2014)

  SBOT/MBOT: stromal MI: < 5 mm
- **Seromucinous BOT (APSMT) 2014 (see below)**
- **Endometrioid BOT (APET)**
- **Brenner BOT (APBT)**
- **Clear Cell BOT (APCCT)**

Conservative management of BOT increases the risk of recurrent disease compared to radical surgery

Recurrences

Radical : 0-5%

Conservative: 10%-30%

Oophorectomy: 5%

Cystectomy: 15-40%

human reproduction update

Fertility and borderline ovarian tumor: a systematic review of conservative management, risk of recurrence and alternative options

Emile Daraï[1,2,3,*], Raffaèle Fauvet[4,5], Catherine Uzan[6,7], Sébastien Gouy[6], Pierre Duvillard[8], and Philippe Morice[6,7,9]

Table I Oncological and fertility results of conservative treatment of early-stage borderline ovarian tumor (only series including >50 cases of conservative treatment are reported).

Authors	Conservative (*n*)	Mucinous (*n*)	Serous (*n*)	Salping-oophorectomy (*n*)	Cystectomy (*n*)	Median time months	Oncological results: Recurrence (%)	Recurrence oophorectomy (*n*)	Recurrence cystectomy (*n*)	Invasive recurrence (*n*)	Death (*n*)	Fertility results: Patients wishing a pregnancy (*n*)	Patients pregnant (*n*)	Pregnancy rate (%)
Zanetta *et al.* (2001)	164	—	—	—	—	70	15	—	—	5	1	—	—	—
Camatte *et al.* (2002)	68[a]	16	46	47	21	71	16[b]	11%	—	21%	0[b]	0	29	19	60
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61 and 77	[illegible]	[illegible]	[illegible]	[illegible]	3[e]	[illegible]	[illegible]	[illegible]	[illegible]
Boran *et al.* (2005)	62	27	33	40	22	41	7	1	3	0	0	25	10	40
Longacre *et al.* (2005)	53	—	—	—	—	>5 years	17	—	—	2	0	—	—	—
Fauvet *et al.* (2005)	162	—	—	—	—	—	17	—	—	0	0	62	31	32
Suh-Burgmann (2006)	193[a]	109	81	143	46	6.4 years	12	—	—	2	1	—	—	—
Romagnolo *et al.* (2006)	53[a]	—	—	32	21	44[f]	23	7	6	—	1	12	7	58
Yinon *et al.* (2007)	62[a]	38	24	40	22	82	26	11	5	1	0	—	25	40
Wong *et al.* (2007)	116[a]	—	—	78	38	21	3	2	2	2	1	—	—	—
De Iaco *et al.* (2009)	85[a]	22	54	50	35	—	26	10	12	0?	0	—	—	—
Park *et al.* (2009)	184[a]	139	43	128	56	65	5	3	6	1	1	31	27	73
Kokawa *et al.* (2009)	86	—	—	52	34	39[f]	—	—	—	—	2	—	—	—
Kanat-Pektas *et al.* (2011)	55[a]	24	29	36	19	61	5	1	2	0?	0	44	23	52
Koskas *et al.* (2011)	74	74	0	47	27	59	15	3	8	6	3	31	12	38
Song *et al.* (2011)	155[a]	106	37	117	38	56	8	7	5	1	0	51	45	88
Khunamornpong *et al.* (2011)	60	60	0	59	1	—	7	—	—	4	2	—	—	—
Pooled estimate for proportion (%) (with 95% CI)							13 (10–16)				0.5 (0–1)			54 (38–70)

Recurrence Death

Pooled estimate for proport. (CI95%) 13 % (10-16) 0.5% (0-1)

BILATERAL TUMORS

25-35% SBOT?

- **Unilateral salpingo-oophorectomy + controlateral cystectomy**
- **Or bilateral Cystectomies ?**
- **Uterine preservation ++++**

Ultra-conservative fertility-sparing strategy for bilateral borderline ovarian tumours: an 11-year follow-up

Stefano Palomba [1,*], Angela Falbo [1], Serena Del Negro [1], Morena Rocca [1], Tiziana Russo [2], Francesco Cariati [1], Gianluca Annunziata [1], Achille Tolino [3], Pierosandro Tagliaferri [4], and Fulvio Zullo [2]

Table III Oncological outcomes in patients with bilateral BOTs treated with bilateral cystectomy (experimental group) or with unilateral oophorectomy plus controlateral cystectomy (control group).

	Experimental group (n = 15)	Control group (n = 17)	P
Patients with recurrence (n, %)*	10 (66.7)	10 (58.8)	0.73
Multiple recurrence rate (n, %)†	3 (23.1)	0 (0.0)	0.09
Time to first recurrence (months)‡	16.2 (12, IQR; 3–36, range)	48 (7, IQR; 18–72, range)	<0.01
Age of patients who received radical surgery (years)‡	28.1 (4.5 IQR; 25–37 range)	37 (3 IQR; 28–38 range)	0.11
Radical treatment of recurrences (n, %)*	9 (60.0)	3 (17.6)	0.01

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Table II Reproductive outcomes in patients with bilateral BOTs treated with bilateral cystectomy (experimental group) or with unilateral oophorectomy plus controlateral cystectomy (control group).

	Experimental group (n = 15)	Control group (n = 17)	P
Total number of pregnancies (n)	27	21	
Patients with pregnancy (n, %)*	14 (93.3)	10 (58.8)	0.04
Distribution of pregnancy (n, %)*			
One pregnancy	5 (33.3)	2 (11.8)	0.13
Two pregnancies	5 (33.3)	5 (29.4)	
Three pregnancies	4 (26.7)	3 (17.6)	
Multiple births (n, %)°	2 (13.3)	3 (17.6)	0.77
Age at first conception (years)†	25 (6 IQR; 21–34 range)	27.5 (7 IQR; 22–31 range)	0.48
Time to conceive (months)†	5 (3 IQR; 3–21 range)	8.5 (5 IQR; 3–43 range)	0.01
Patients with a baby-in-arm (n, %)‡	13 (86.7)	9 (52.9)	0.06
Time to have a baby-in-arm (months)†	14 (3 IQR; 12–18 range)	18 (7 IQR; 12–52 range)	0.02

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Time to have a baby-in-arm (months)†	14 (3 IQR; 12–18 range)	18 (7 IQR; 12–52 range)	0.02

Original Research

Oncologic and fertility impact of surgical approach for borderline ovarian tumours treated with fertility sparing surgery

Martina Delle Marchette [a,b,1], Lorenzo Ceppi [a,b,*,1], Anita Andreano [c,1], Cristina Maria Bonazzi [b], Alessandro Buda [b], Tommaso Grassi [a,b], Daniela Giuliani [b], Federica Sina [b], Maria Lamanna [a,b], Tommaso Bianchi [a], Andrea Alberto Lissoni [a,b], Fabio Landoni [a,b], Maria Grazia Valsecchi [a,c,2], Robert Fruscio [a,b,2]

Table 4
Results from the multivariable Cox model investigating the association between type of surgery and fertility in the subgroup of women with pregnancy desire ($N = 252$).

Variable	*N fertile/N*	*HR*	*(95% CI)*		*P-value*
Type of surgery					
Salpingo-oophorectomy (ref.)	101/121				
Cystectomy	111/131	1.15	0.86	1.54	0.36
Surgical approach					
Laparoscopy (ref.)	92/110				
Open surgery	120/142	0.87	0.65	1.18	0.37
Number of interventions (any additional intervention)		0.62	0.53	0.73	<0.0001
Age (5-year increments)		1.13	0.97	1.31	0.12
Histotype					
Serous (ref.)	129/154				
Mucinous	83/98	1.15	0.86	1.52	0.35
Stage					
IA-IB (ref.)	97/113				
IC-II	89/107	1.07	0.8	1.44	0.64
III-IV	26/32	1.37	0.86	2.18	0.19
Laterality of the intervention					
Bilateral (ref.)	79/97				
Unilateral	133/155	0.92	0.67	1.25	0.59
Previous pregnancy					
No (ref.)	154/187				
Yes	58/65	1.68	1.17	2.41	0.005

Original Research

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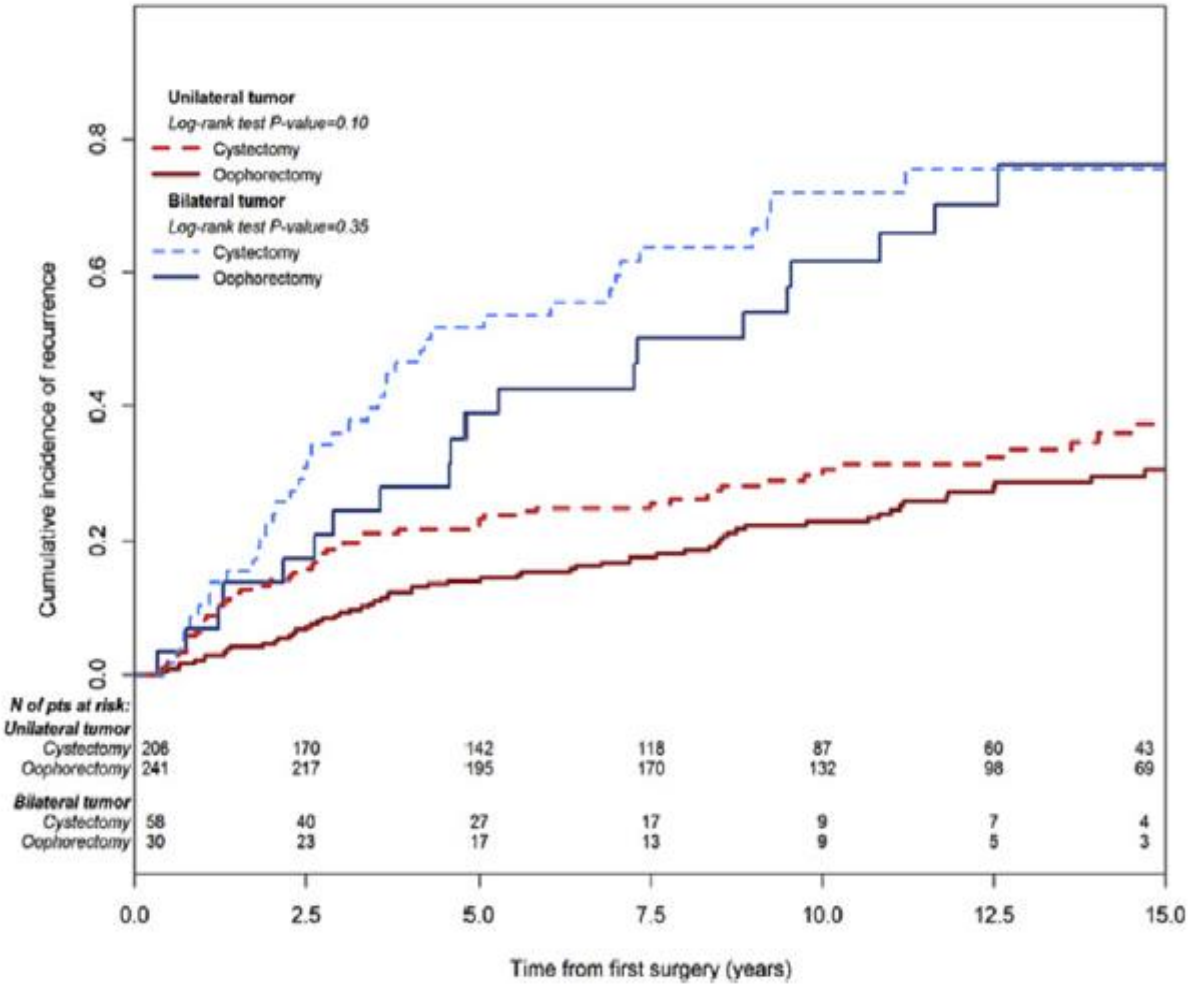


Histologic subtype
Serous versus mucinous

Influence of histological subtypes on the risk of an invasive recurrence in a large series of stage I borderline ovarian tumor including 191 conservative treatments

C. Uzan[1,2], M. Nikpayam[1], L. Ribassin-Majed[3], S. Gouy[1], S. Bendifallah[4,5,6], A. Cortez[7], A. Rey[3], P. Duvillard[8], E. Darai[4,5,6] & P. Morice[1,2,9*]

[1]Department of Gynecologic Surgery; [2]Unit INSERM U10-30, Villejuif; [3]Department of Biostatistics, Institut Gustave Roussy, Villejuif; [4]Department of Obstetrics and Gynaecology, Hopital Tenon, Paris; [5]INSERM UMRS 938, Paris; [6]Universite Pierre et Marie Curie (Paris VI), Paris; [7]Department of Pathology, Hopital Tenon, Paris; [8]Department of Pathology, Institut Gustave Roussy, Villejuif; [9]University Paris Sud, Le Kremlin Bicêtre, France

Table 4. Prognostic factors of recurrences (borderline and invasive) and invasive recurrences in patients treated conservatively

Factor	No. of patients (*N*)	No. of recurrence (*N*)	5-year % (CI)* time to relapse	*P* value	No. of invasive recurrence (*N*)	5-year % (CI)* time to invasive relapse	*P* value
Histologic subtype							
Mucinous	100	15	83% (CI 73% to 90%)	0.05	8	89% (CI 77% to 95%)	0.01
Serous	91	24	65% (CI 52% to 76%)		1	99% (CI 92% to 99,8%)	
Stage							
IA	102	16	81% (CI 70% to 89%)	0.002	4	94% (CI 84% to 98%)	NS (0.1)
IB	22	10	41% (CI 20% to 66%)		3	86% (CI 58% to 96%)	
IC	67	13	76% (CI 20% to 66%)		2	96% (CI 85% to 99%)	
Complete staging							
No	138	31	71% (CI 61% to 79%)	NS (0.3)	7	93% (CI 85% to 97%)	NS (0.9)
Yes	53	8	83% (CI 68% to 92%)		2	97% (CI86% 99%)	
Stromal microinvasion							
No	161	32	74% (CI 65% to 81%)	NS (0.6)	7	94% (CI 87% to 97%)	NS (0.5)
Yes	29	7	74% (CI 53% to 88%)		2	91% (CI 72% to 98%)	
Micropapillary pattern (serous)							
No	79	18	69% (CI 55% to 80%)	0.02	0	100%	0.01
Yes	12	6	40% (CI 16% to 70%)		1	91% (CI 62% to 98%)	

Influence of histological subtypes on the risk of an invasive r… borderline ova… conservative t… …series of stage I …l 91

C. Uzan[1,2], M. Nikpayam[1], …ndifallah[4,5,6], A. Cortez[7], A. Rey[3], P. Duvillard[8], E. Darai[4,5,6]

[1]Department of Gynecologic Surgery; [2]Unit… and Gynaecology, Hopital Tenon, Paris; [5]IN… …ustave Roussy, Villejuif; [4]Department of Obstetrics …VI), Paris; [7]Department of Pathology, Hopital Tenon, Paris; [8]Department of Pathology, Institut Gustave …

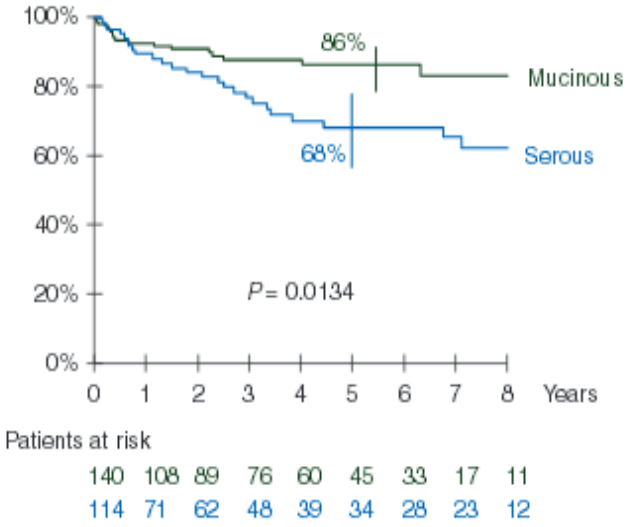


Figure 1. Time to relapse (borderline or invasive) according to the histologic subtypes.

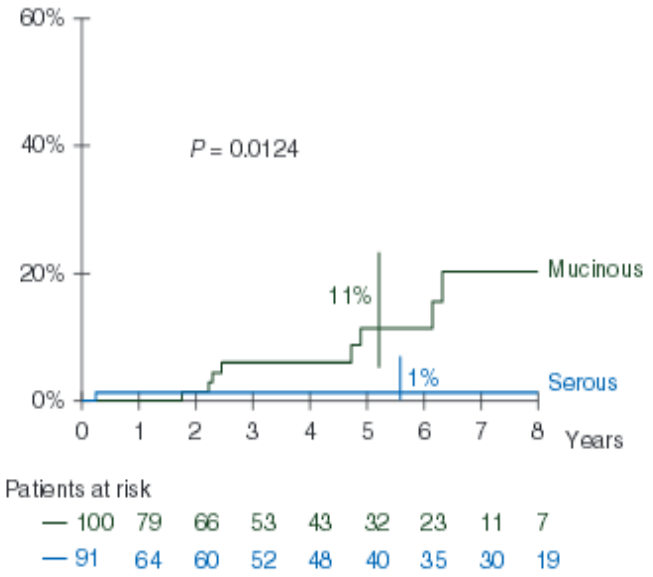


Figure 2. Cumulative rates of progression to invasive carcinoma according to the histologic subtypes in patients treated conservatively.

HISTOLOGIC SUBTYPE OF IMPLANTS (SEROUS TUMORS)

Series with > 50 patients

	n	DOD non invasive implants	DOD invasive implants
Bell 1988	56	3/50	5/6
Seidman 1996	65	1/52	6/13
Gershenson 1998	112	6/73	6/39
G.R. 2008	168	3/138	2/21
Longacre 2005	113	2/85	5/14
TOTAL	514	15/398 (3.7%)	24/83 (29%)

CONSERVATIVE TREATMENT IN STAGE II/III SEROUS BOT

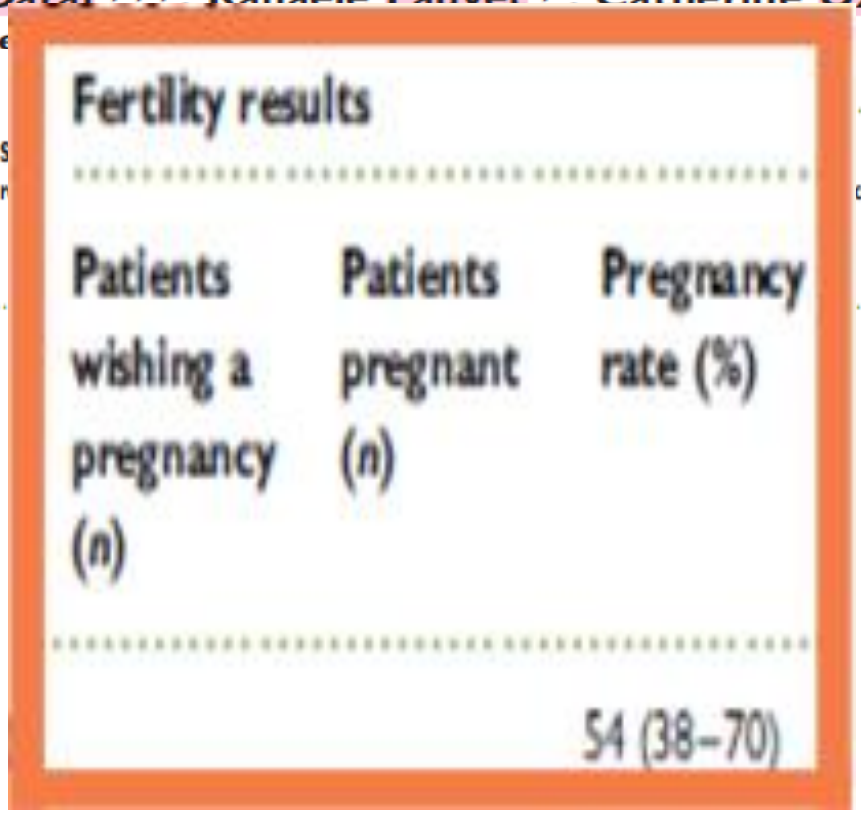
	n recurrence	n death
Zanetta et al 2001 n=25	10 (on ovary/perit or nodes)	0
Uzan & Morice n=41	22 (11 on ovary/11 peritoneum)	1 (noninv. impl)
Prat & De Nictolis n=10	3 (2 on ovary/1 peritoneum)	1 (inv. impl)
Longacre et al 2005 n=21	5 (on ovary)	0
Park et al 2009 n=3	1 (on ovary)	0

- High rate of recurrence
- Location of the recurrence: peritoneum
- No (or few?) impact on the survival

human reproduction update

Fertility and borderline ovarian tumor: a systematic review of conservative management, risk of recurrence and alternative options

Emile Daraï[1,2,3,*], Raffaèle Fauvet[4,5], Catherine Uzan[6,7], Sébastie… Morice[6,7,9]



Fertility results
Patients wishing a pregnancy (n)
Patients pregnant (n)
Pregnancy rate (%)
54 (38–70)

Authors	Conservative (n)	Mucinous (n)	Serous (n)	S… r…							Death (n)	Patients wishing a pregnancy (n)	Patients pregnant (n)	Pregnancy rate (%)
Pooled estimate for proportion (%) (with 95% CI)											0.5 (0–1			54 (38–70)
Zanetta et al. (2001)	164	—	—								1	—	—	—
Camatte et al. (2002)	68[a]	16	46								0	29	19	60
Maneo et al. (2004)	62	18	42								—	—	—	—
Boran et al. (2005)	62	27	33								0	25	10	40
Longacre et al. (2005)	53	—	—								0	—	—	—
Fauvet et al. (2005)	162	—	—								0	62	31	32
Suh-Burgmann (2006)	193[a]	109	81								1	—	—	—
Romagnolo et al. (2006)	53[a]	—	—								1	12	7	58
Yinon et al. (2007)	62[a]	38	24								0	—	25	40
Wong et al. (2007)	116[a]	—	—								1	—	—	—
De Iaco et al. (2009)	85[a]	22	54								0	—	—	—
Park et al. (2009)	184[a]	139	43								1	31	27	73
Kokawa et al. (2009)	86	—	—								2	—	—	—
Kanat-Pektas et al. (2011)	55[a]	24	29								0	44	23	52
Koskas et al. (2011)	74	74	0	47	27	59	15	3	8	6	3	31	12	38
Song et al. (2011)	155[a]	106	37	117	38	56	8	7	5	1	0	51	45	88
Khunamornpong et al. (2011)	60	60	0	59	1	—	7	—	—	4	2	—	—	—
Pooled estimate for proportion (%) (with 95% CI)							13 (10–16)				0.5 (0–1)			54 (38–70)

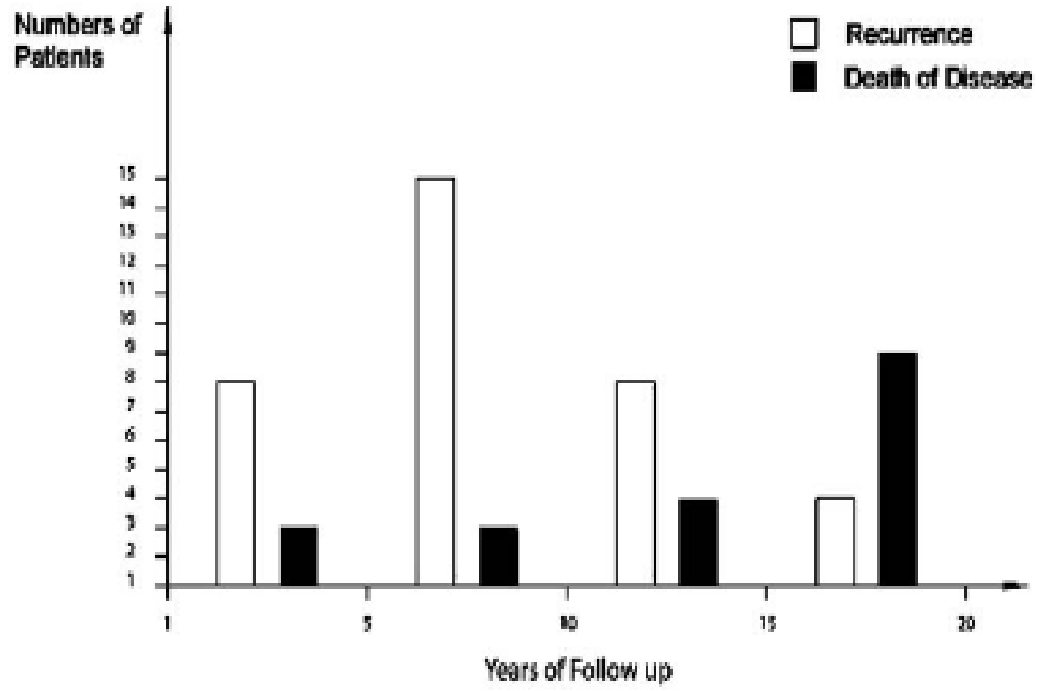
INFERTILTY TREATMENT IN PATIENTS WITH PREVIOUS HISTORY OF BOT

	N pts	N IO/IVF	Pregnancy	Recurrence
Hoffman 1999	1 stage II/III	1 IVF	1	0
Nijman 1992	1 stage II/III	1 IVF	1	0
Mantzavinos 1994	2 stage II/III	2 IVF	1	0
Hershkovitz 1998	2 stage II/III	1/1	2 (1 spontan. after IVF)	0
Beiner 2001	7 (2 stage II/III)	0/7	5	2
Fasouliotis 2004	5 (stage I)	0/5	3	2
Fauvet 2005	11 (1 stage II)	6/5	3	?
Madelenat 2007	30 (8 stage II/III)	3/27	13	4
Park 2007	5 (1 stage i)	5 IVF	4/8 cycles	0

The Recurrence and the Overall Survival Rates of Ovarian Serous Borderline Neoplasms With Noninvasive Implants is Time Dependent

Elvio G. Silva, MD, David M. Gershenson, MD,† Anais Malpica, MD,* and Michael Deavers, MD**

TABLE 2. Recurrence and Death From Disease by Length of Follow-up



The Recurrence and the Overall Survival Rates of Ovarian Serous Borderline Neoplasms With Noninvasive Implants is Time Dependent

Elvio G. Silva, MD, David M. Gershenson, MD,† Anais Malpica, MD,* and Michael Deavers, MD**

Thirty-five patients developed recurrences:

- **8 pts (10%) < 5 years,**
- **15 patients (19%) between 5 and 10 years,**
- **8 patients (10%) between 10 and 15 years,**
- **4 patients (5%) after 15 years of follow-up.**

Staging surgery and restaging surgery

Staging procedures in BOT

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- **Peritoneal staging is a useful procedure to upstage patients:**
  - **Between 7% and 47% patients upstaged**
  - **Omentectomy +++ & peritoneal cytology**

- **The interest of the staging procedures depends of the macroscopic appearance of the tumor:**
  - **Rate of implants: 69% in exophytic tumor versus 16% endo-phytic (Longacre 2005)**

- **But the rate of peritoneal staging with modifications of the further treatment (discovery of invasive implants in patients with absence of macroscopic spread on the peritoneum) is very low:**
  - **< 1%. 3 cases reported on 300 pts in the literature (Snider et al.; Winter III et al.; Zapardiel et al. 2010)**

Borderline tumours of the ovary: A cohort study of the Arbeitsgmeinschaft Gynäkologische Onkologie (AGO) Study Group

Andreas du Bois [a,b,*], Nina Ewald-Riegler [b], Nikolaus de Gregorio [c], Alexander Reuss [d],

Model D: Fertility-sparing surgery and implants included, organ preservation and FIGO stage excluded

Post-OP residual tumour	w/o Macroscopic residuals	1.000	–	0.0002
	With macroscopic residuals	4.980	2.131–11.640	
Implants	None	1.000	–	<0.0001
	Present	2.743	1.675–4.494	
Organ preservation	Bilateral or unilateral salpingo-oophorectomy	1.000	–	0.0102
	Cystectomy	2.363	1.226–4.554	
Staging quality	Adequate	1.000	–	0.0026
	Incomplete	2.188	1.315–3.683	
Age [years]	Per decade	0.838	0.726–0.968	0.0166

Eliminated variables: micropapillary growth pattern ($p = 0.5418$), microinvasion ($p = 0.1733$)

Experience of the IEO Zapardiel 2010

N cases	Upstaged cases	Recurrences among upstaged	Recurrences among non-upst.
37 serous	6 (16.2%)	2 (33.3%)	6 (19.3%)
25 mucinous	1 (4%)	1 (100%)	0
4 endometrioid	0	0	1 (25%)
2 mixed	0	0	0
1 clear cells	0	0	0
1 Brenner	1	0	0

4 out 6 upstaged serous tumours had micropapillary patterns

Series who compare the survival in staged in non-staged patients

- **5 series:**
  - **Winter III 2002**
  - **Rao 2005**
  - **Camatte 2004**
  - **Fauvet 2004**
  - **Zapardiel 2010**

- **All of them suggest that the use of complete staging does’t modify the survival of patients**

Original Research

Oncologic and fertility impact of surgical approach for borderline ovarian tumours treated with fertility sparing surgery

Martina Delle Marchette [a,b,1], Lorenzo Ceppi [a,b,*,1], Anita Andreano [c,1], Cristina Maria Bonazzi [b], Alessandro Buda [b], Tommaso Grassi [a,b], Daniela Giuliani [b], Federica Sina [b], Maria Lamanna [a,b], Tommaso Bianchi [a], Andrea Alberto Lissoni [a,b], Fabio Landoni [a,b], Maria Grazia Valsecchi [a,c,2], Robert Fruscio [a,b,2]

Table 4
Results from the multivariable Cox model investigating the association between type of surgery and fertility in the subgroup of women with pregnancy desire ($N = 252$).

Variable	*N fertile/N*	*HR*	*(95% CI)*		*P-value*
Type of surgery					
Salpingo-oophorectomy (ref.)	101/121				
Cystectomy	111/131	1.15	0.86	1.54	0.36
Surgical approach					
Laparoscopy (ref.)	92/110				
Open surgery	120/142	0.87	0.65	1.18	0.37
Number of interventions (any additional intervention)		0.62	0.53	0.73	<0.0001
Age (5-year increments)		1.13	0.97	1.31	0.12
Histotype					
Serous (ref.)	129/154				
Mucinous	83/98	1.15	0.86	1.52	0.35
Stage					
IA-IB (ref.)	97/113				
IC-II	89/107	1.07	0.8	1.44	0.64
III-IV	26/32	1.37	0.86	2.18	0.19
Laterality of the intervention					
Bilateral (ref.)	79/97				
Unilateral	133/155	0.92	0.67	1.25	0.59
Previous pregnancy					
No (ref.)	154/187				
Yes	58/65	1.68	1.17	2.41	0.005

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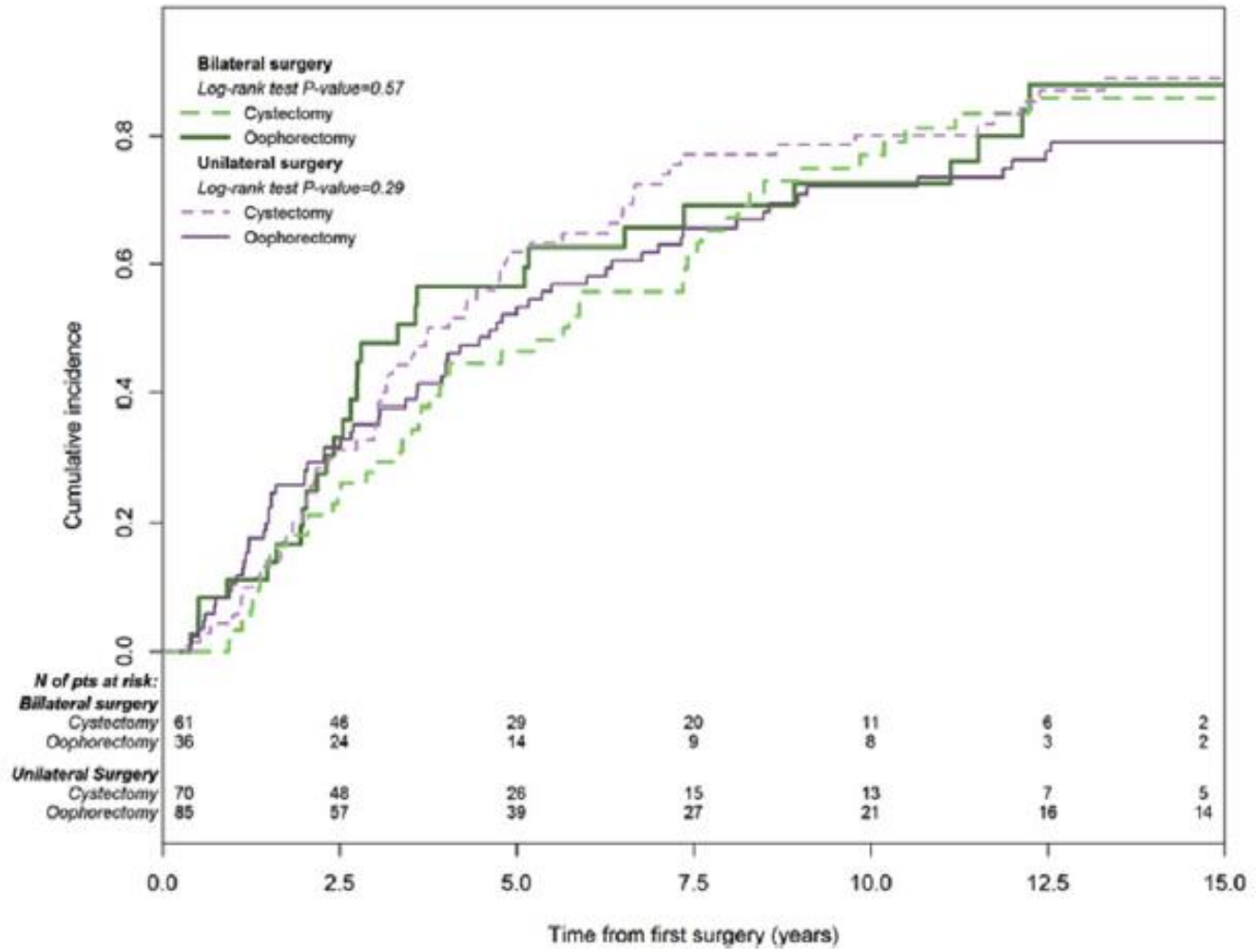

Indications of (re-)staging procedure

- During the initial management (confirmation of BOT by frozen section analysis), staging is needed (micropapillary pattern)

- If the tumor was misdiagnosed during the initial surgery. Re-staging surgery needed?:

  - Patients with serous BOT & micropapillary pattern

  - Patients with absence of the description of the peritoneal surface during the initial surgery

  - If performed: laparoscopic approach

GOOD SCIENCE
BETTER MEDICINE
BEST PRACTICE

European Society of Gynaecological Oncology

ESMO-ESGO Consensus Conference on Ovarian Cancer

Pathology and molecular biology, early and advanced stages, borderline ovarian tumours and recurrent disease

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ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

EARLY STAGE AND BORDERLINE

ESGO European Society of Gynaecological Oncology

Are non-serous borderline ovarian tumour managed according to the same standard as serous borderline ovarian tumour?

Summary of recommendations	LoE	GoR	Consensus
Preservation of at least part of one ovary and the uterus is the standard approach in young patients with borderline ovarian tumour	III	A	Yes: 100% *(40 voters)*
Unilateral salpingo-oophorectomy is recommended with ovarian mucinous borderline tumours to decrease the risk of invasive recurrence after cystectomy	IV	A	Yes: 100% *(40 voters)*
Cystectomy is an acceptable management in ovarian serous borderline tumour to preserve fertility	III	B	Yes: 100% *(40 voters)*

How should ovarian serous borderline tumour with extra ovarian implants be managed?

STAGING

Summary of recommendations	LoE	GoR	Consensus
Peritoneal staging surgery is recommended for ovarian serous borderline tumour	III	B	Yes: 100% *(40 voters)*
The benefit of restaging is not clear but should be considered in patients with: • Serous borderline tumour with micropapillary pattern • Serous borderline tumour with incomplete visual exploration of the peritoneal cavity	 IV III	 B B	 Yes: 100% *(40 voters)* Yes: 100% *(40 voters)*
There is no role for appendectomy in ovarian borderline tumour	V	A	Yes: 85% *(34 voters)* Abstain: 15% *(6 voters)*
There is no proven benefit of systematic lymph node dissection in stage II/III serous borderline tumours	IV	B	Yes: 97.5% *(39 voters)* Abstain: 2.5% *(1 voter)*

How should ovarian serous borderline tumour with extra ovarian implants be managed?

MANAGEMENT

Summary of recommendations	LoE	GoR	Consensus
All the peritoneal implants must be removed	IV	A	Yes: 100% *(40 voters)*
Fertility sparing surgery could be considered in selected patients with stage II or III ovarian serous borderline tumours	V	B	Yes: 100% *(40 voters)*
Adjuvant systemic treatment is not recommended for primary treatment of ovarian serous borderline tumour with extraovarian invasive/non invasive implants	III	B	Yes: 92.5% *(37 voters)* Abstain: 7.5% *(3 voters)*

Conclusions

- **Good prognosis… but: (small) group of patients with evolution to LGSC**
- **Pathologic expertise ++++ (WHO 2014)**
- **Network (ex. French network on rare ovarian tumors)**
- **Conservative treatment in young patients**
- **Stage II/III (serous): resection of implants +++**
- **No indication of adjuvant chemotherapy**
- **Indications de restaging secondaire limited to patients with micropapillary patterns**

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