Why We Need to Take Out the Tubes

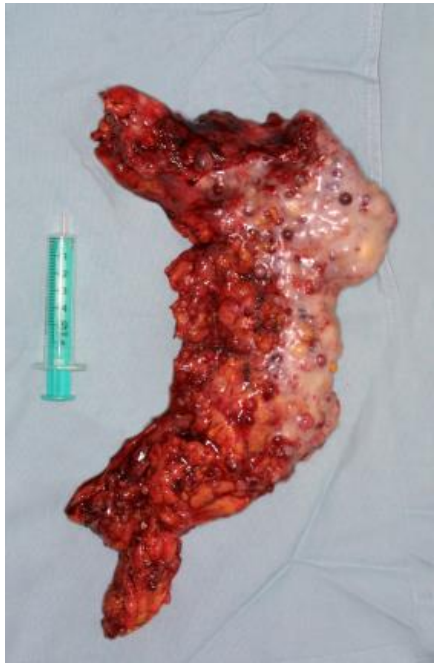
- Ovarian cancer remains an ugly disease
- Where does HGSC come from?
- Jurgen Piek, Angelina Jolie
- Current status of prophylactic/opportunistic salpingectomy
- Risks?
- Future directions – What more could we do?
- PS/OS at nongynecologic surgery?

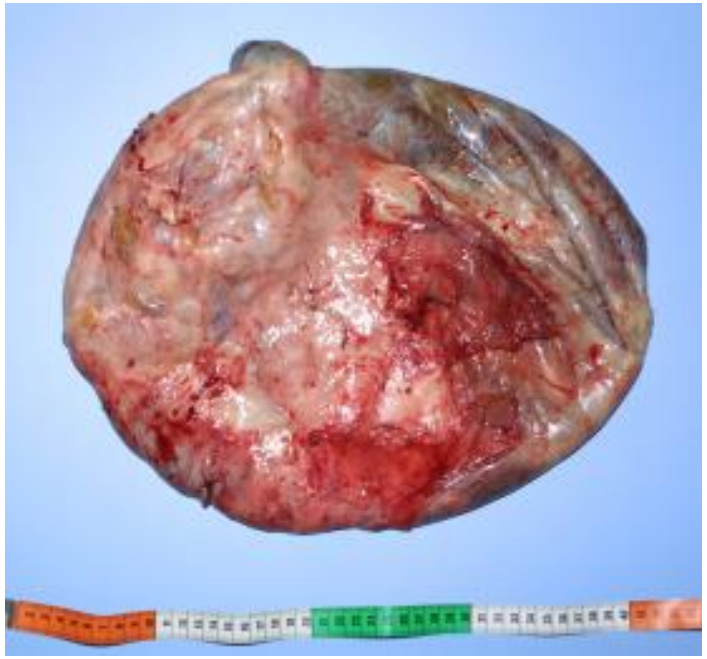
karl.tamussino@medunigraz.at

Med Uni Graz

No disclosures

Med Uni Graz





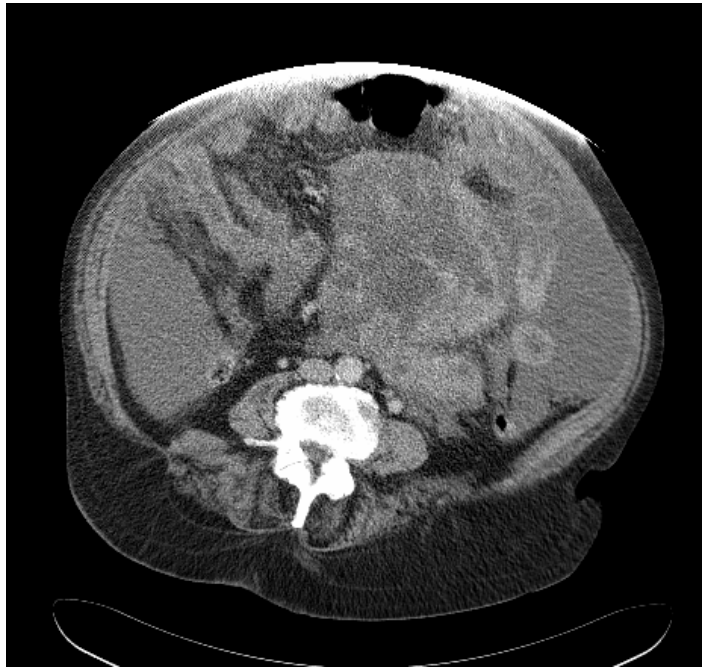
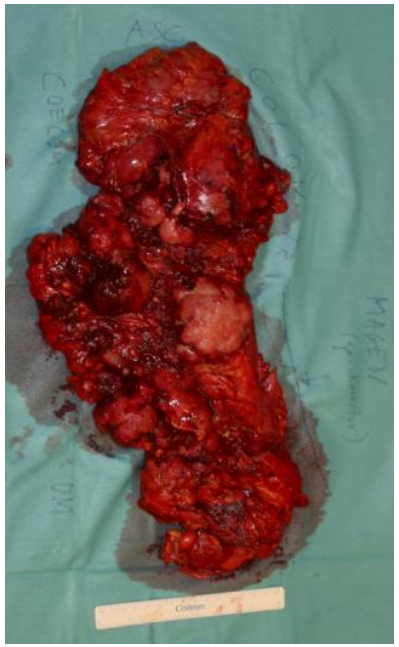
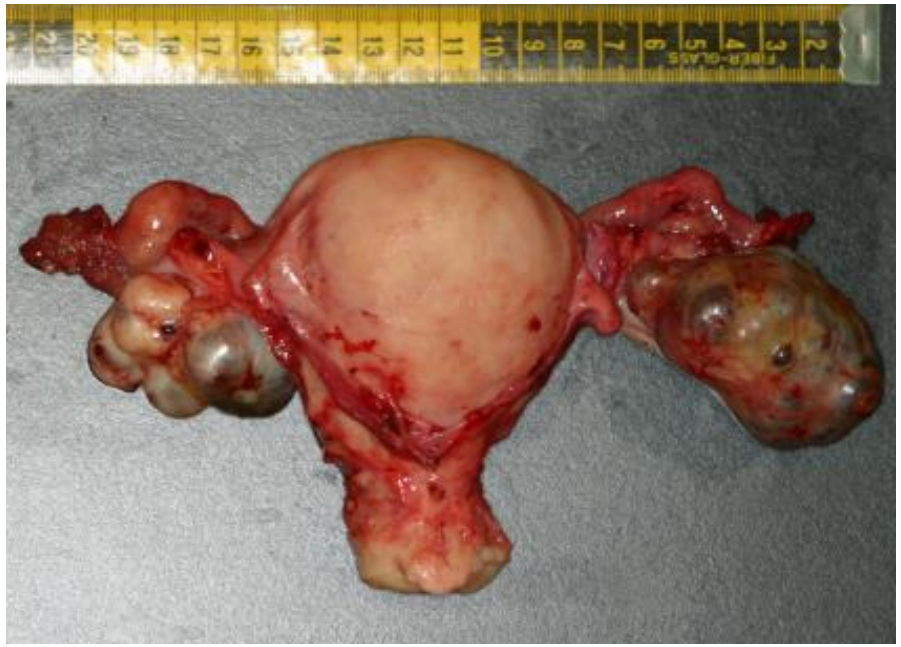
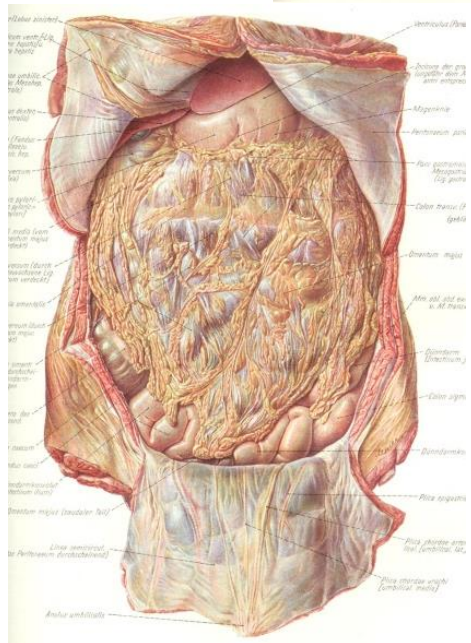


Fig. 418.—Large Adeno-carcinoma (Colloid Carcinoma) of the Ovaries, Secondary to Carcinoma of the Ovary; see First Report of the Ovaries is Below.

Operation removing omental mass. Recovery. Death some months later. No. 320. ½ natural size.







Incidence of and mortality from ovarian cancer

164					
165			**Alle Todesursachen (A00-Y89)**	**43.213**	**115**
166	1		Infektiöse und parasitäre Krankheiten (A00-B99)	430	1
167	2		Tuberkulose (A15-A19, B90)	23	-
168	3		AIDS (HIV-Krankheit) (B20-B24)	11	-
169	4		Virushepatitis (B15-B19,B94.2)	148	-
170	5		Neubildungen (C00-D48)	9.747	-
171	6		**Bösartige Neubildungen (C00-C97)**	9.403	-
172	7		BN von Lippe, Mundhöhle und Rachen (C00-C14)	153	-
173	8		Bösart. Neubild. der Speiseröhre (C15)	67	-
174	9		Bösart. Neubild. des Magens (C16)	363	-
175	10		Bösart. Neubild. des Dünndarms (C17)	22	-
176	11	3	BN des Colon, Rektums und Anus (C18-C21)	899	-
177	12		Bösart. Neubild. der Leber (C22)	287	-
178	13		Bösart. Neubild. der Gallenblase und-wege (C23,C24)	148	-
179	14	4	Bösart. Neubild. der Bauchspeicheldrüse (C25)	805	-
180	15		Bösart. Neubild. des Kehlkopfes (C32)	21	-
181	16	2	BN der Luftröhre, Bronchien und Lunge (C33-C34)	1.493	-
182	17		Bösartiges Melanom der Haut (C43)	140	-
183	18	1	Bösart. Neubild. der Brustdrüse (C50)	1.568	-
184	19		Bösart. Neubild. der Zervix uteri (C53)	139	-
185	20		BN anderen Teile der Gebärmutter (C54-C55)	274	-
186	21	5	Bösart. Neubild. des Ovariums (C56)	445	-
187	22		Bösart. Neubild. der Prostata (C61)	-	-
188	23		Bösart. Neubild. der Niere (C64)	171	-
189	24		Bösart. Neubild. der Harnblase (C67)	152	-
190	25		Bösart. Neubild. des Gehirns und ZNS (C70-C72)	246	-
191	26		Bösart. Neubild. der Schilddrüse (C73)	36	-
192	27		Morbus Hodgkin und Lymphome (C81-C85)	287	-

ROBERT KOCH INSTITUT

Eierstockkrebs (Ovarialkarzinom)

ICD-10 C56

	2019
	Frauen
Neuerkrankungen	7.319
standardisierte Erkrankungsrate[1]	10,7
Sterbefälle	5.291
standardisierte Sterberate[1]	6,5
5-Jahres-Prävalenz	21.338
10-Jahres-Prävalenz	33.690
relative 5-Jahres-Überlebensrate*	42 %
relative 10-Jahres-Überlebensrate*	33 %

[1] *je 100.000 Personen, altersstandardisiert nach altem Europastandard*

* *berechnet nach Periodenmethode für 2017 / 2018*

Screening?
Early detection?
Vaginal ultrasound??

Ovarian cancer screening and mortality in the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS): a randomised controlled trial

Ian J Jacobs, Usha Menon*, Andy Ryan, Aleksandra Gentry-Maharaj, Matthew Burnell, Jatinderpal K Kalsi, Nazar N Amso, Sophia Apostolidou, Elizabeth Benjamin, Derek Cruickshank, Danielle N Crump, Susan K Davies, Anne Dawnay, Stephen Dobbs, Gwendolen Fletcher, Jeremy Ford, Keith Godfrey, Richard Gunu, Mariam Habib, Rachel Hallett, Jonathan Herod, Howard Jenkins, Chloe Karpinskyj, Simon Leeson, Sara J Lewis, William R Liston, Alberto Lopes, Tim Mould, John Murdoch, David Oram, Dustin J Rabideau, Karina Reynolds, Ian Scott, Mourad W Seif, Aarti Sharma, Naveena Singh, Julie Taylor, Fiona Warburton, Martin Widschwendter, Karin Williamson, Robert Woolas, Lesley Fallowfield, Alistair J McGuire, Stuart Campbell, Mahesh Parmar†, Steven J Skates†*

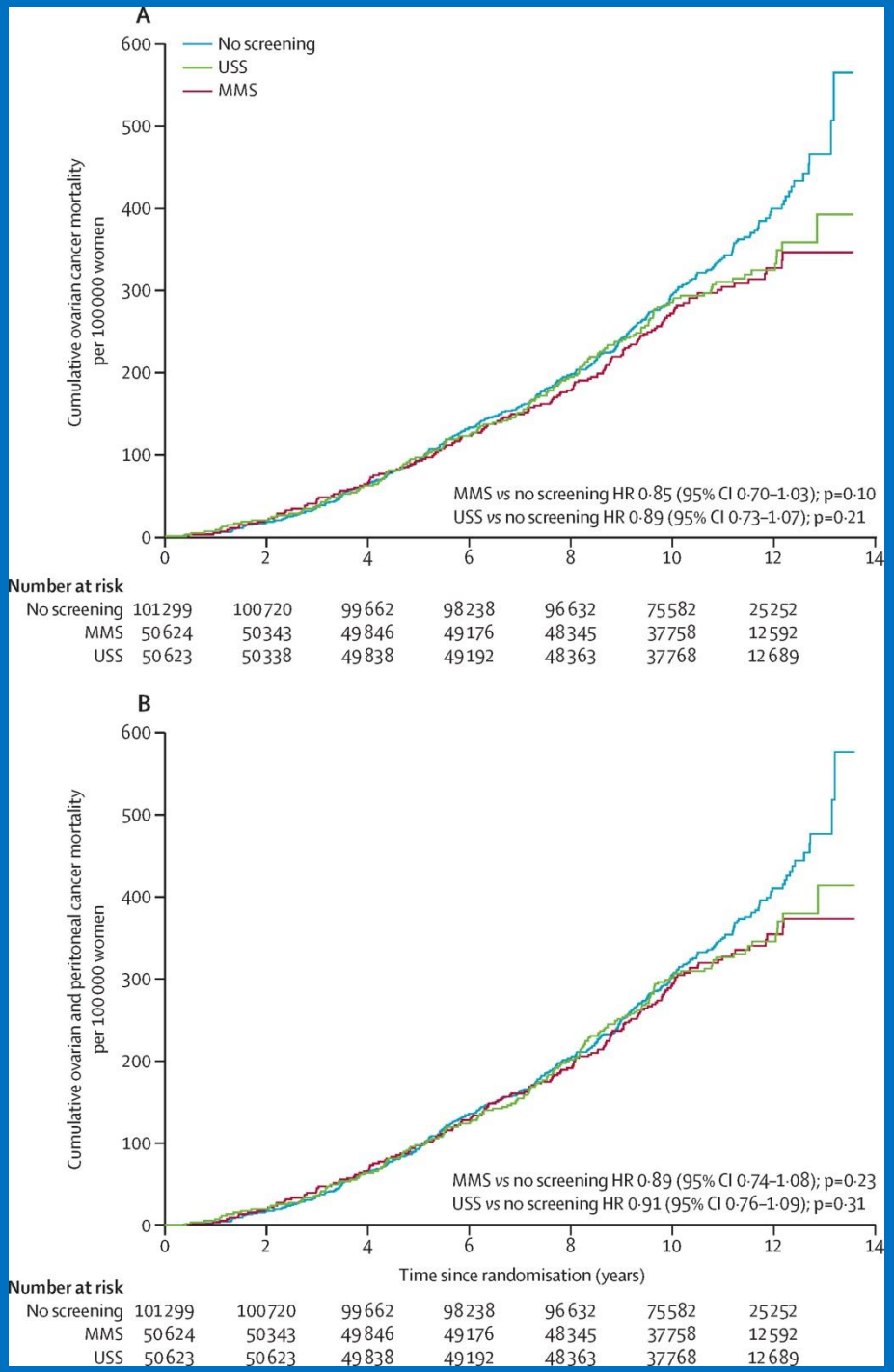
Summary

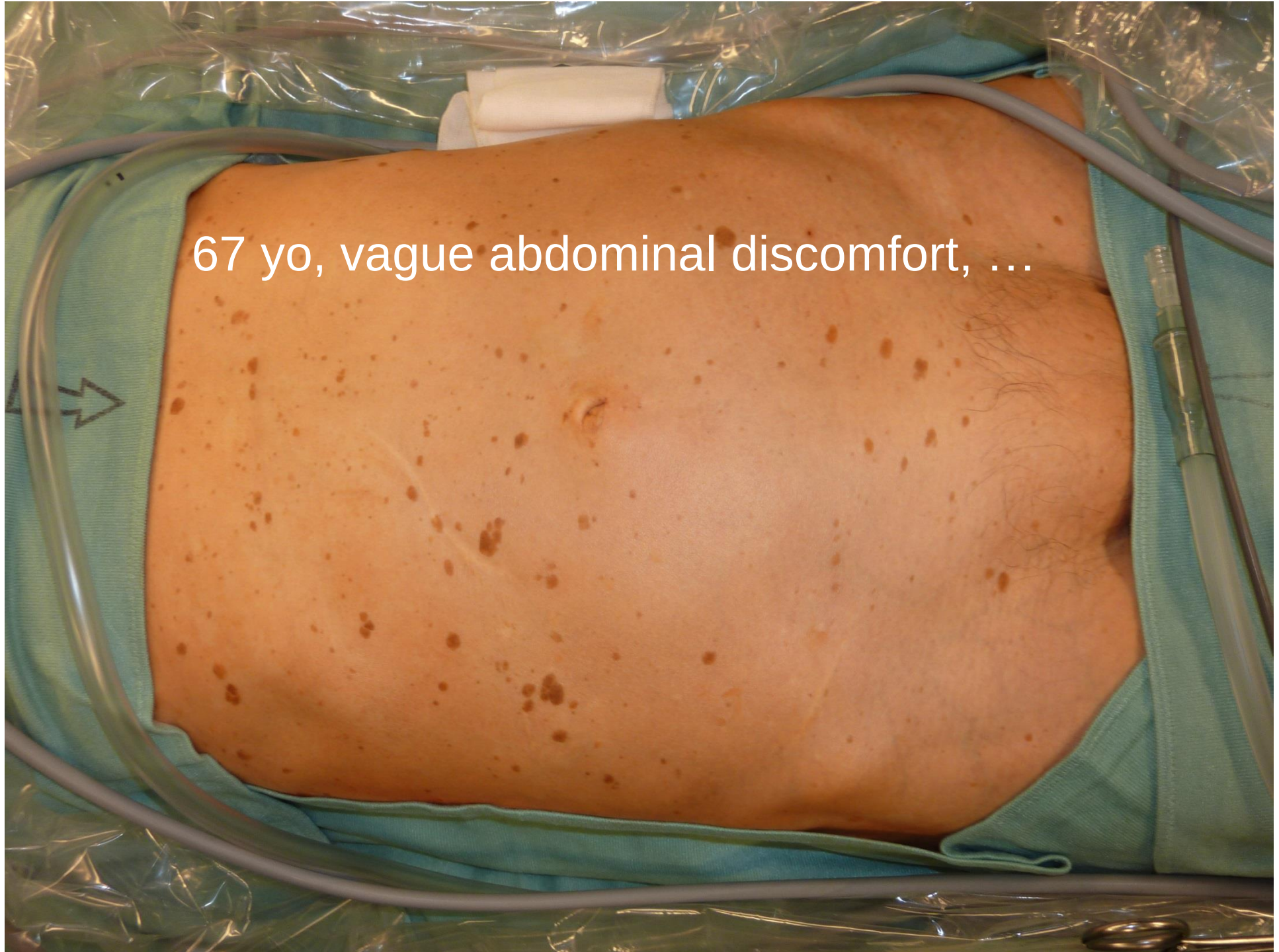
Background Ovarian cancer has a poor prognosis, with just 40% of patients surviving 5 years. We designed this trial to establish the effect of early detection by screening on ovarian cancer mortality.

Lancet 2016; 387: 945–56

Published Online December 17, 2015

202,638


A
No screening
USS
MMS
Cumulative ovarian cancer mortality per 100 000 women
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14
MMS vs no screening HR 0·85 (95% CI 0·70–1·03); p=0·10
USS vs no screening HR 0·89 (95% CI 0·73–1·07); p=0·21
Number at risk
No screening 101299 100720 99662 98238 96632 75582 25252
MMS 50624 50343 49846 49176 48345 37758 12592
USS 50623 50338 49838 49192 48363 37768 12689
B
Cumulative ovarian and peritoneal cancer mortality per 100 000 women
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14
MMS vs no screening HR 0·89 (95% CI 0·74–1·08); p=0·23
USS vs no screening HR 0·91 (95% CI 0·76–1·09); p=0·31
Time since randomisation (years)
Number at risk
No screening 101299 100720 99662 98238 96632 75582 25252
MMS 50624 50343 49846 49176 48345 37758 12592
USS 50623 50623 49838 49192 48363 37768 12689


67 yo, vague abdominal discomfort, …

Procedere bei „V.a. –ovarii“

Evaluierung mit CT Abd/Thorax

Schnelle diagn. Laparoskopie

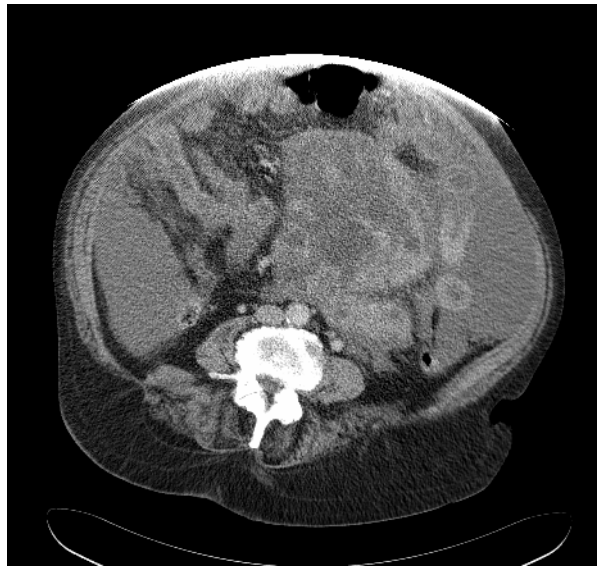
<u>R0 Resektion scheint möglich</u>:

Laparotomie mit viszeralchir. Bereitschaft

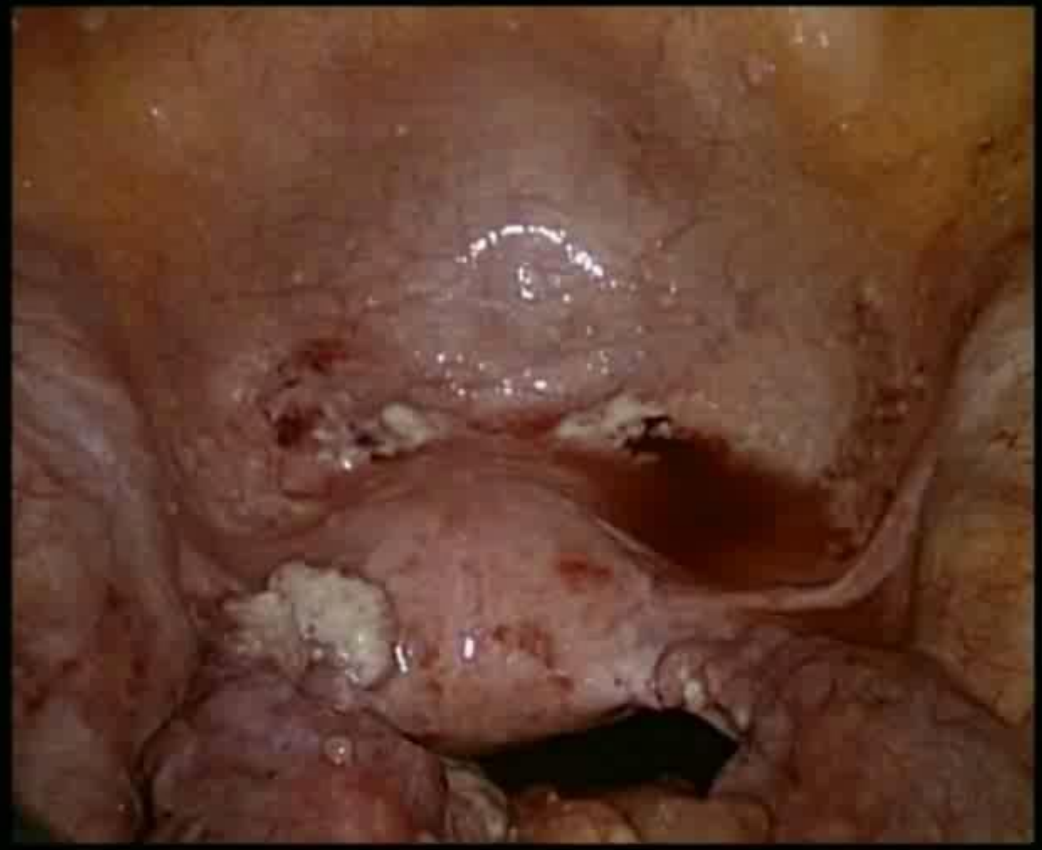
I-Bett, LigaSure, Condor, Argon

<u>R0 Resektion nicht möglich</u>:

Neoadjuvante Chemotherapie



UFK Graz 2018



Ovarian Cancer

- ca. 700 cases, >deaths in Austria, >5000 in D
- Higg mortality
- No reliable early detection
- Present in Stage III/IV
- 40% 5-yr survival despite surgery and adjuvant tx
- Our unsolved problem

Where does (HGS) ovarian cancer come from?

published on aerosol particle size.". If one accepts Gauthier's report regarding relatively stable aerosol particles, how can one even consider with any seriousness the reported size and behaviour of unstable water droplets ?

Is it possible that the fog from North America is seeping into Britain ?

Department of Pædiatrics,
University of British Columbia,
Vancouver 8,
Canada.

H. BAKER.

INCESSANT OVULATION—A FACTOR IN OVARIAN NEOPLASIA ?

SIR,—In these days when the pros and cons of inhibition of ovulation in women are being considered, I would like to bring to your notice some evidence of a possible relationship between the repeated involvement of the ovarian surface epithelium in the process of ovulation and the frequency of the development of the common ovarian neoplasms from this epithelium.

Compared with other mammals, the human female appears to be very extravagant with her ova. Ovulatory cycles are almost continuous from puberty to the menopause. In circumstances favourable to maximum fertility, the average number of births per married or cohabitating woman would be about twenty—an average that has not been even remotely reached in any society.[1] Social con-

1971

Surgical Gynecologic Oncology

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Coeditors: M. J. Webb, J. M. Monaghan, and G. Kindermann

In collaboration with K. Tamussino

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R. Winter
P.-C. Wu
W. Yasui

684 illustrations

1993
Georg Thieme Verlag Stuttgart · New York
Thieme Medical Publishers, Inc. · New York

1993

Etiology

H. Fox

The little knowledge we have of the etiology of malignant ovarian disease relates only to malignant epithelial ovarian neoplasms, i.e., carcinomas, and is based almost entirely on epidemiological studies.

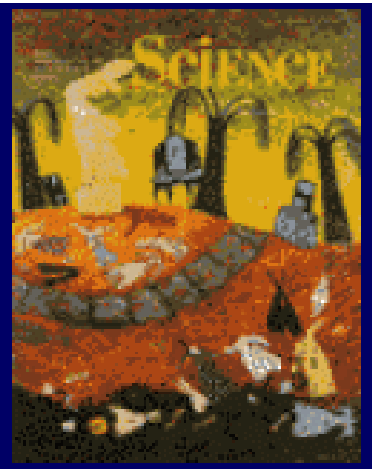
Quite apart from the possible effects of ovulation and ascending carcinogens, it is highly probable that a genetic factor is also involved, since a significant number of families have now been documented in which there has been, in several generations, a remarkably high incidence of ovarian adenocarcinoma (Lynch et al. 1990, Ponder et

RESEARCH ARTICLES

A Strong Candidate for the Breast and Ovarian Cancer Susceptibility Gene *BRCA1*

Yoshio Miki, Jeff Swensen, Donna Shattuck-Eidens, P. Andrew Futreal, Keith Harshman, Sean Tavtigian, Qingyun Liu, Charles Cochran, L. Michelle Bennett, Wei Ding, Russell Bell, Judith Rosenthal, Charles Hussey, Thanh Tran, Melody McClure, Cheryl Frye, Tom Hattier, Robert Phelps, Astrid Haugen-Strano, Harold Katcher, Kazuko Yakumo, Zahra Gholami, Daniel Shaffer, Steven Stone, Steven Bayer, Christian Wray, Robert Bogden, Priya Dayananth, John Ward, Patricia Tonin, Steven Narod, Pam K. Bristow, Frank H. Norris, Leah Helvering, Paul Morrison, Paul Rosteck, Mei Lai, J. Carl Barrett, Cathryn Lewis, Susan Neuhausen, Lisa Cannon-Albright, David Goldgar, Roger Wiseman, Alexander Kamb, Mark H. Skolnick*

A strong candidate for the 17q-linked *BRCA1* gene, which influences susceptibility to breast and ovarian cancer, has been identified by positional cloning methods. Probable predisposing mutations have been detected in five of eight kindreds presumed to segregate *BRCA1* susceptibility alleles. The mutations include an 11–base pair deletion, a 1–base pair insertion, a stop codon, a missense substitution, and an inferred regulatory mutation. The *BRCA1* gene is expressed in numerous tissues, including breast and ovary, and encodes a predicted protein of 1863 amino acids. This protein contains a zinc finger domain in its amino-terminal region, but is otherwise unrelated to previously described proteins. Identification of *BRCA1* should facilitate early diagnosis of breast and ovarian cancer susceptibility in some individuals as well as a better understanding of breast cancer biology.



1994

Localization of a Breast Cancer Susceptibility Gene, *BRCA2*, to Chromosome 13q12-13

Richard Wooster,* Susan L. Neuhausen,* Jonathan Mangion,* Yvette Quirk,* Deborah Ford,* Nadine Collins, Kim Nguyen, Sheila Seal, Thao Tran, Diane Averill, Patty Fields, Gill Marshall, Steven Narod, Gilbert M. Lenoir, Henry Lynch, Jean Feunteun, Peter Devilee, Cees J. Cornelisse, Fred H. Menko, Peter A. Daly, Wilma Ormiston, Ross McManus, Carole Pye, Cathryn M. Lewis, Lisa A. Cannon-Albright, Julian Peto, Bruce A. J. Ponder, Mark H. Skolnick, Douglas F. Easton,† David E. Goldgar, Michael R. Stratton

A small proportion of breast cancer, in particular those cases arising at a young age, is due to the inheritance of dominant susceptibility genes conferring a high risk of the disease. A genomic linkage search was performed with 15 high-risk breast cancer families that were unlinked to the *BRCA1* locus on chromosome 17q21. This analysis localized a second breast cancer susceptibility locus, *BRCA2*, to a 6-centimorgan interval on chromosome 13q12-13. Preliminary evidence suggests that *BRCA2* confers a high risk of breast cancer but, unlike *BRCA1*, does not confer a substantially elevated risk of ovarian cancer.

Journal of Pathology
J Pathol 2001; **195**: 451–456.
DOI: 10.1002/path.1000

2001

Original Paper

Dysplastic changes in prophylactically removed Fallopian tubes of women predisposed to developing ovarian cancer

Jurgen M. J. Piek[1], Paul J. van Diest[2]*, Ronald P. Zweemer[1], Jan W. Jansen[3], Ria J. J. Poort-Keesom[1], Fred H. Menko[4], Johan J. P. Gille[4], Ans P. M. Jongsma[1], Gerard Pals[4], Peter Kenemans[1] and René H. M. Verheijen[1]

[1] *Department of Obstetrics and Gynaecology, University Hospital Vrije Universiteit, Amsterdam, The Netherlands*

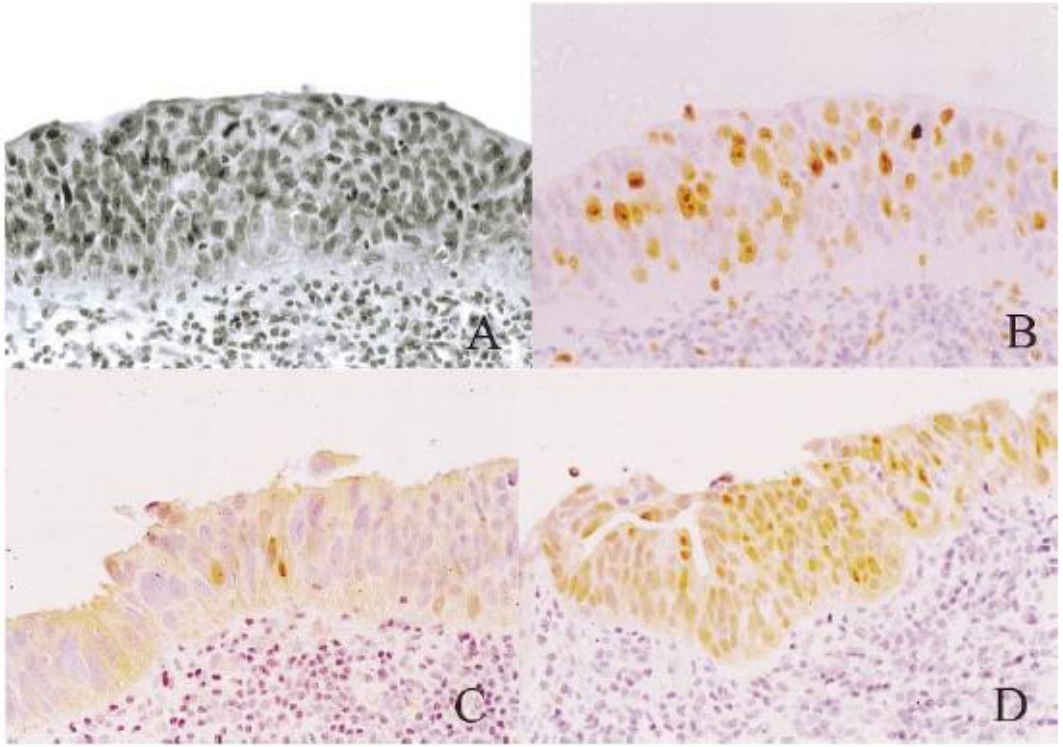


Figure 1. Dysplastic area: (A) H&E staining; (B) Ki67 expression; (C) cyclin D1 expression; (D) p53 expression. (×63 obj.)

The New York Times

2013, 2015

The Opinion Pages | OP-ED CONTRIBUTOR

My Medical Choice

By ANGELINA JOLIE MAY 14, 2013

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LOS ANGELES

MY MOTHER fought cancer for almost a decade and died at 56. She held out long enough to meet the first of her grandchildren and to hold them in her arms. But my other children will never have the chance to know her and experience how loving and gracious she was.

We often speak of "Mommy's mommy," and I find myself trying to explain the illness that took her away from us. They have asked if the same could happen to me. I have always told them not to worry, but the truth is I carry a "faulty" gene, BRCA1, which sharply increases my risk of developing breast cancer and ovarian cancer.

My doctors estimated that I had an 87 percent risk of breast cancer and a 50 percent risk of ovarian cancer, although the risk is different in the case of each woman.

Only a fraction of breast cancers result from an inherited gene mutation. Those with a defect in BRCA1 have a 65 percent risk of getting it, on average.

Once I knew that this was my reality, I decided to be proactive and to minimize the risk as much I could. I made a decision to have a preventive double mastectomy. I started with the breasts, as my risk of breast cancer is higher than my risk of ovarian cancer, and the surgery is more complex.

nytimes.com/2013/05/14/opinion/my-medical-choice.html?hp

The Opinion Pages | OP-ED CONTRIBUTOR

Angelina Jolie Pitt: Diary of a Surgery

By ANGELINA JOLIE PITT MARCH 24, 2015

Michela Buttignol

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LOS ANGELES — TWO years ago I wrote about my choice to have a preventive double mastectomy. A simple blood test had revealed that I carried a mutation in the BRCA1 gene. It gave me an estimated 87 percent risk of breast cancer and a 50 percent risk of ovarian cancer. I lost my mother, grandmother and aunt to cancer.

I wanted other women at risk to know about the options. I promised to follow up with any information that could be useful, including about my next preventive surgery, the removal of my ovaries and fallopian tubes.

I had been planning this for some time. It is a less complex surgery than the mastectomy, but its effects are more severe. It puts a woman into forced menopause. So I was readying myself physically and emotionally, discussing options with doctors, researching alternative medicine, and mapping my hormones for estrogen or progesterone replacement. But I felt I still had months to make the date.

Then two weeks ago I got a call from my doctor with blood-test results. "Your CA-125 is normal," he said. I breathed a sigh of relief. That test measures the amount of the protein CA-125 in the blood, and is used to monitor ovarian cancer. I have it every year because of my family history.

But that wasn't all. He went on. "There are a number of inflammatory markers that are elevated, and taken together they could be a sign of early cancer." I took a pause. "CA-125 has a 50 to 75 percent chance of missing ovarian cancer at early stages," he said. He wanted me to see the surgeon

www.nytimes.com/2015/03/24/opinion/angelina-jolie-pitt-diary-of-a-surgery.html

Am J Surg Pathol • Volume 30, Number 2, February 2006

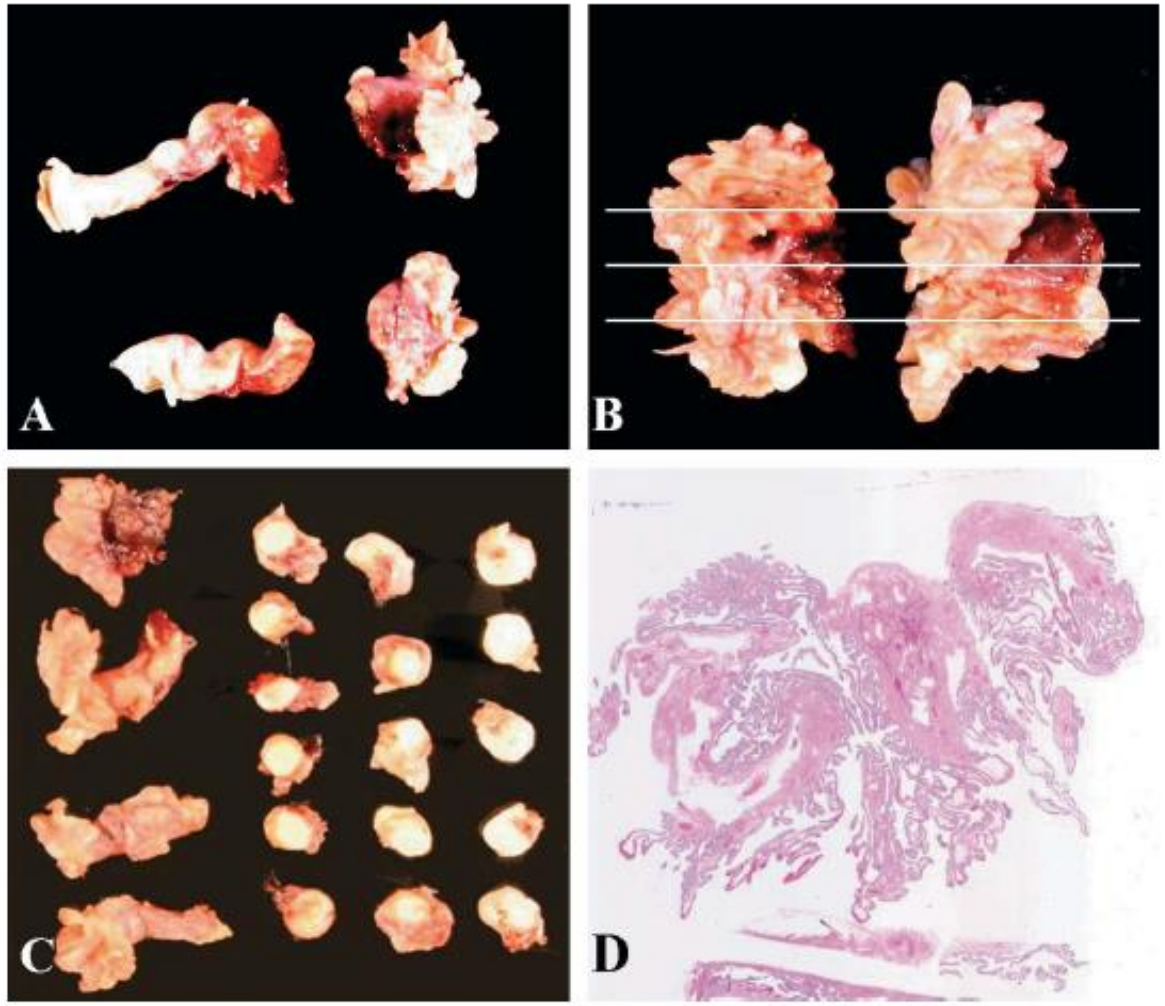
2006

The Tubal Fimbria Is a Preferred Site for Early Adenocarcinoma in Women With Familial Ovarian Cancer Syndrome

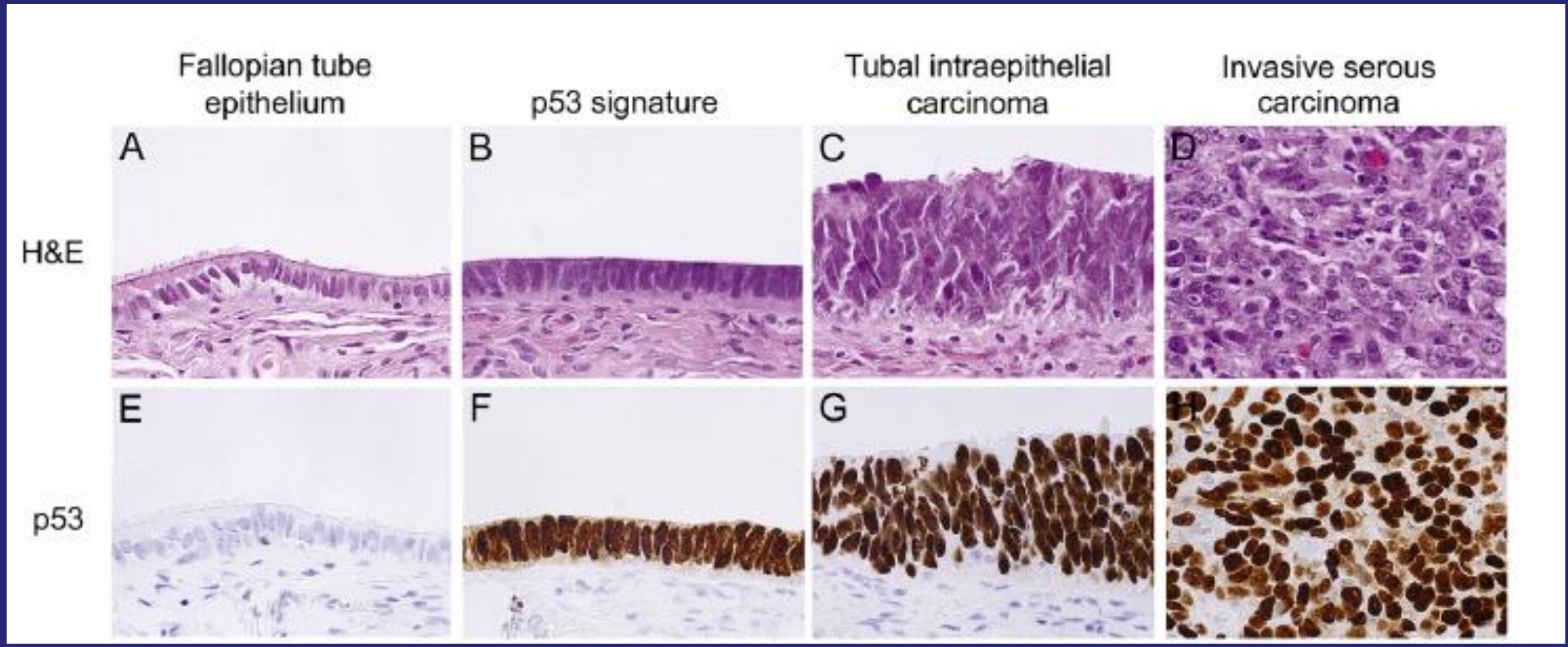
Fabiola Medeiros, MD, Michael G. Muto, MD,† Yonghee Lee, MD,* Julia A. Elvin, MD, PhD,* Michael J. Callahan, MD,† Colleen Feltmate, MD,† Judy E. Garber, MD,‡ Daniel W. Cramer, MD,† and Christopher P. Crum, MD**

Abstract: A proportion of adenocarcinomas in prophylactic adnexectomies (bilateral salpingo-oophorectomies [BSOs]) from women with BRCA mutations (BRCA positive) occur in the fallopian tube. We analyzed a consecutive series of BSOs from BRCA-positive women following an index case of fimbrial serous carcinoma. To determine if the fimbria is a preferred site of origin, we followed a protocol for Sectioning and Extensively Examining the FIMbria (SEE-FIM). Immunostaining for p53 and Ki-67 was also performed. Thirteen BRCA-positive women (cases) and 13 women undergoing BSOs for other disorders (controls) were studied. Tubal carcinoma was detected in 4 cases at the initial histologic evaluation and in no controls. A fifth carcinoma was discovered following further sectioning of the fimbriae. Three were BRCA2 positive and two BRCA1 positive. Three were in the fimbria, one in both the fimbria and proximal tube, and one involved the ampulla. Four were serous carcinomas, four were confined to the tube, and three were noninvasive

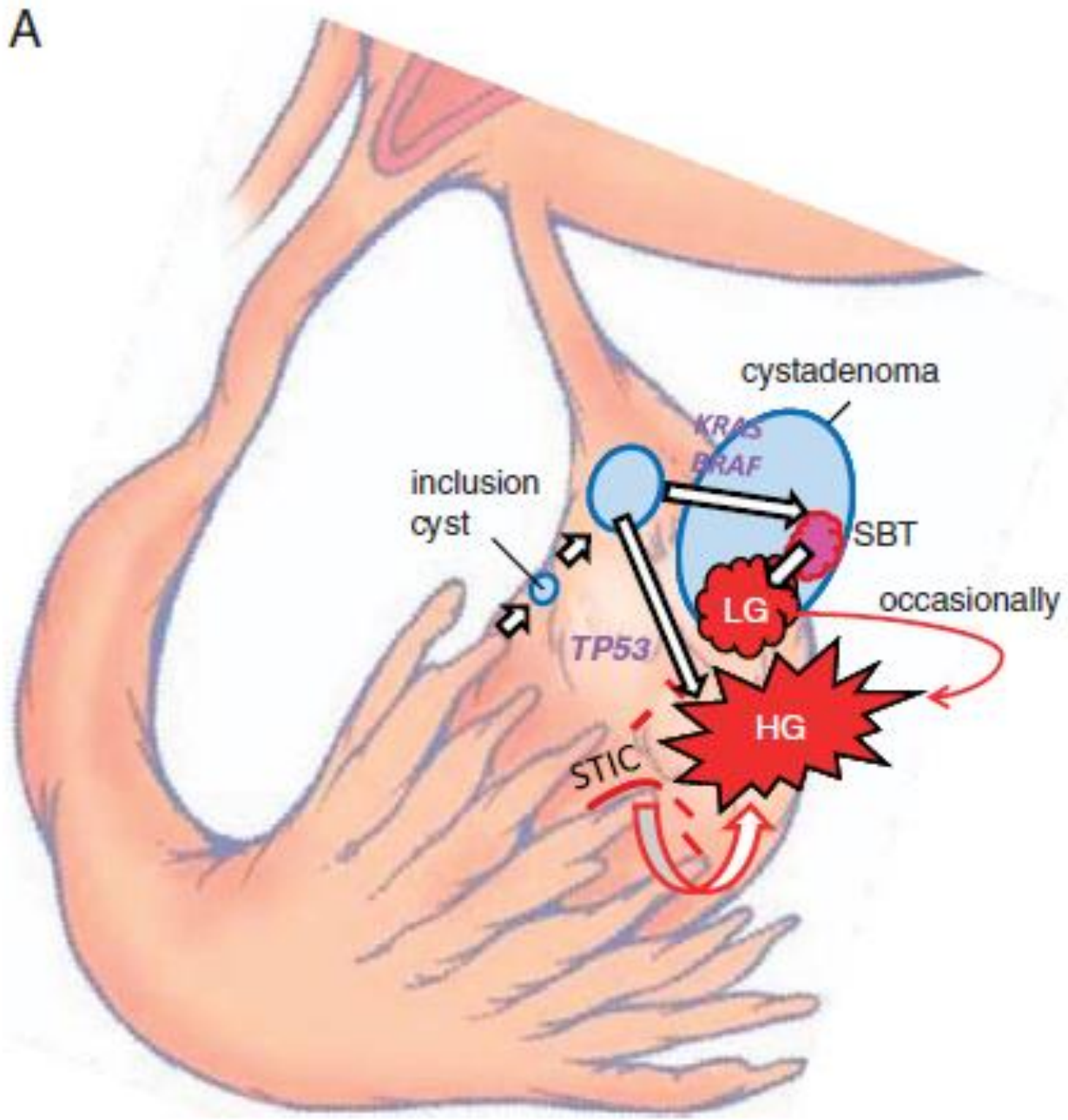
Studies of the pathogenesis of pelvic müllerian carcinomas in women have focused increasingly on the role of not only the ovary but also the fallopian tube.[4,11] This effort has been prompted by the discovery of serous carcinomas in the fallopian tubes of women with a hereditary predisposition for breast and ovarian cancer.[4] Consequently, protocols designed to remove the ovaries and fallopian tubes prior to the onset of cancer in susceptible individuals have entailed more detailed evaluation of these organs. The proportions of prophylactic specimens containing tubal versus ovarian carcinoma have varied, with the highest percentage recorded in studies where the entire tubes and ovaries were examined. In a total of six studies encompassing 341 cases, 13 specimens contained early serous carcinoma.[1,5,7–9] In one study that comprehensively sectioned the fallopian tubes, seven malignancies of the tube or ovary were identified in 41 cases (17%).[12] Four (10%) were found in the fallopian tube.[12]

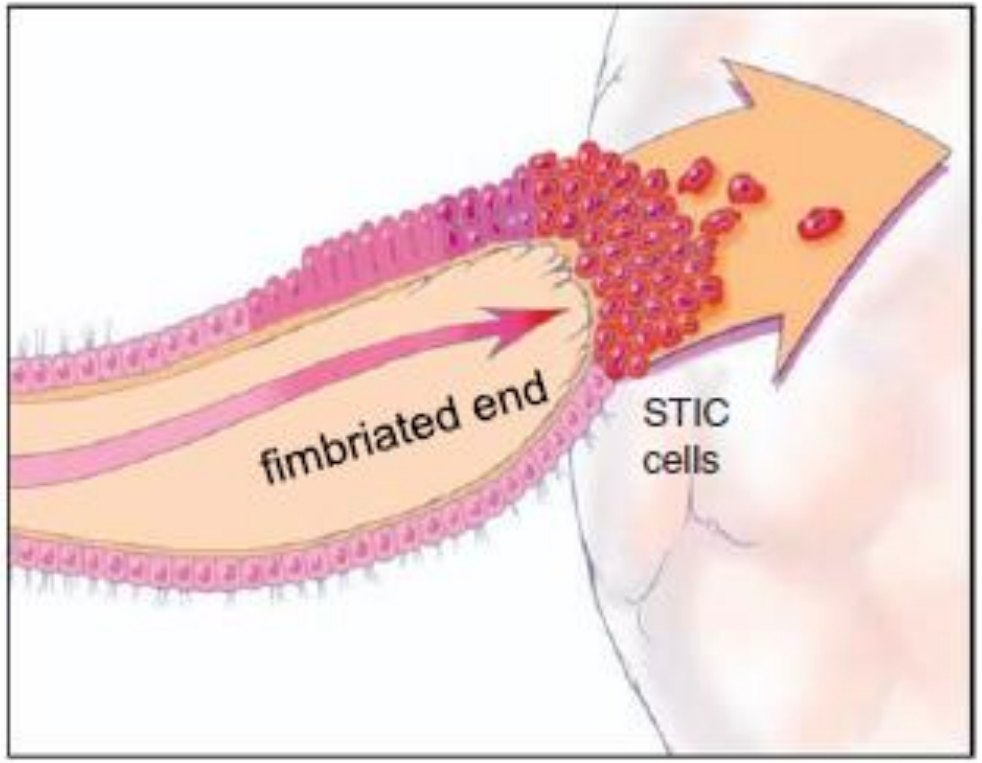


Serous Tubal Intraepithlial Carcinoma (STIC)



Karst et al. Gynecol Oncol 2011;123:5-12





Kurman et al. 2010

Is salpingectomy associated with a reduced risk for ovarian cancer?

OXFORD

JNCI J Natl Cancer Inst (2015) 107(2): dju410

doi:10.1093/jnci/dju410
First published online January 27, 2015
Article

ARTICLE

Ovarian Cancer Risk After Salpingectomy: A Nationwide Population-Based Study

Table 4. Hazard ratios for ovarian cancer over time since surgery according to surgical procedures*

	Time since surgery, y†		
Surgery	0–4	5–9	10+
Hysterectomy	0.55 (0.25 to 1.20)	0.94 (0.38 to 2.29)	0.87 (0.74 to 1.03)
Hysterectomy and BSO	0.05 (0.01 to 0.27)	0.07 (0.01 to 0.30)	0.06 (0.02 to 0.24)
Salpingectomy (all)	1.10 (0.48 to 2.49)	0.50 (0.17 to 1.43)	0.63 (0.48 to 0.81)
Unilateral	1.44 (0.60 to 3.48)	0.64 (0.21 to 1.93)	0.68 (0.52 to 0.90)
Bilateral	0.61 (0.08 to 4.61)	No cases	0.39 (0.18 to 0.87)
Sterilization	0.46 (0.19 to 1.10)	0.75 (0.29 to 1.97)	0.76 (0.66 to 0.86)
Unexposed	Referent	Referent	Referent

Incidental (Prophylactic) Salpingectomy at Benign Gynecologic Surgery and Cesarean Section: a Survey of Practice in Austria

Inzidentelle (prophylaktische) Salpingektomie im Rahmen benigner gynäkologischer Eingriffe oder eines Kaiserschnitts: eine Umfrage zur klinischen Praxis in Österreich

2016

Authors F. L. Potz[1], G. Tomasch[1], S. Polterauer[2], R. Laky[1], C. Marth[3], K. Tamussino[1]

Affiliations
[1] Division of Gynecology, Department of Obstetrics & Gynecology, Medical University of Graz, Graz, Austria
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[3] Department of Obstetrics & Gynecology, Medical University of Innsbruck, Innsbruck, Austria

Key words
- ovarian cancer
- prophylactic salpingectomy
- incidental salpingectomy
- risk-reducing salpingectomy

Schlüsselwörter
- Ovarialkarzinom
- prophylaktische Salpingektomie
- inzidentelle Salpingektomie
- risikomindernde Salpingektomie

Abstract

Introduction: Most serous ovarian cancers are now thought to originate in the fallopian tubes. This has raised the issue of performing incidental salpingectomy (also called elective, opportunistic, prophylactic or risk-reducing salpingectomy) at the time of benign gynecologic surgery or cesarean section. We conducted an online survey to ascertain the policies regarding incidental salpingectomy in Austria in late 2014.

Material and Methods: All 75 departments of obstetrics and gynecology in public hospitals in Aus-

Zusammenfassung

Einleitung: Es wird inzwischen angenommen, dass die meisten serösen Ovarialkarzinome in den Eileitern entstehen. Damit stellt sich die Frage, ob eine inzidentelle (auch elektive, opportunistische, prophylaktische oder risikomindernde) Salpingektomie im Rahmen benigner gynäkologischer Eingriffe oder während einer Sectio caesarea durchgeführt werden sollte. Ende 2014 führten wir eine Online-Umfrage durch, um die diesbezügliche Praxis in Österreich zu ermitteln.

Material und Methoden: Alle 75 Abteilungen für

Bibliography
DOI http://dx.doi.org/10.1055/s-0042-116493
Geburtsh Frauenheilk 2016; 76: 1325–1329 © Georg Thieme Verlag KG Stuttgart · New York · ISSN 0016-5751

2015

Stellungnahme der Arbeitsgemeinschaft für Gynäkologische Onkologie (AGO)
der Österreichischen Gesellschaft für Gynäkologie und Geburtshilfe (OEGGG)
und der Österreichischen Gesellschaft für Pathologie (ÖGP)

Elektive Salpingektomie zur Prävention des epithelialen Ovarialkarzinoms

Die OEGGG empfiehlt daher, dass entsprechenden Frauen mit abgeschlossener Familienplanung vor einer entsprechenden gynäkologischen Operation, einem Kaiserschnitt oder einer Tubensterilisation die Möglichkeit der prophylaktischen Salpingektomie angeboten wird.

Incidental (Opportunistic, Prophylactic) Salpingectomy at Benign Gynecologic Surgery in Austria 2014

F.L. Potz[1], R. Laky[1], D. Huemer[2], G. Tomasch[1], S. Polterauer[3], K. Tamussino[1]

[1]Division of Gynecology, Dept. OB/GYN, Medical University of Graz
[2]Department of Obstetrics & Gynecology, Medical University of Innsbruck
[3]Division of Gynecology and Gynecologic Oncology, Dept. OB/GYN, Medical University of Vienna, all in Austria

Background

The postulated and probable role of the fallopian tube in the origin of serous ovarian cancer has made an issue of incidental salpingectomy (also called elective, opportunistic, prophylactic or risk-reducing salpingectomy) at the time of benign gynecologic surgery, surgical sterilization or cesarean section. We aimed to ascertain policies regarding incidental salpingectomy in Austria.

Kurman 2010
Reifenstuhl 2014

Methods

Using the online tool *SurveyMonkey.com* we surveyed all 75 departments of OB/GYN in public hospitals in Austria regarding their policies regarding incidental salpingectomy at benign gynecologic procedures, cesarean section and surgical sterilization. The survey was done with a 6-item questionnaire sent to the chairs of the respective units.

Results

66 of 75 surveyed departments completed the questionnaire (response rate, 88%).
Overall, 46 of 66 (70%) units reported offering or recommending incidental salpingectomy at benign GYN surgery, 12 units (18%) did not, and 12% had no consistent policy. Five units (8%) indicated concern for the blood supply to the ovary. All units recommending incidental salpingectomy did so with the intention of preventing ovarian cancer. Salpingectomy was the preferred method for surgical sterilization, including sterilization at the time of cesarean section.

Bibliography
DOI http://dx.doi.org/10.1055/s-0042-116493
Geburtsh Frauenheilk 2016; 76: 1325–1329 © Georg Thieme Verlag KG Stuttgart · New York · ISSN 0016-5751

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Full length article

Opportunistic prophylactic salpingectomy for prevention of ovarian cancer: What do national societies advise?

Angelika Ntoumanoglou-Schuiki, Gordana Tomasch, Rene Laky, Nadja Taumberger, Vesna Bjelic-Radisic, Karl Tamussino*

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Available online xxx

Keywords:
Ovarian cancer
Opportunistic salpingectomy
Prophylactic salpingectomy

ABSTRACT

Objective: To determine how many FIGO (International Federation of Obstetrics and Gynecology) member societies have statements regarding opportunistic (incidental, prophylactic, risk-reducing) salpingectomy at the time of benign gynecologic surgery and to categorize statements as positive, negative or ambivalent.

Study design: The websites of the 130 FIGO member societies were searched for statements on opportunistic salpingectomy. We looked for separate statements and statements embedded in other documents such as clinical guidelines as well as statements by national societies of gynecologic oncology. If nothing was found on the websites we contacted societies by Email or fax.

Results: As of early 2018, 13 FIGO member societies representing 14 countries have statements regarding opportunistic salpingectomy. Nine were separate, stand-alone statements, four were embedded in other documents. Nine of the 13 statements (from Canada, Finland, U.S.A., Great Britain, Australia and New Zealand, Denmark, Austria, Turkey, and Japan) support consideration of opportunistic salpingectomy in appropriate women and four (from Germany, Sweden, Norway, and France) are ambivalent; there are no statements recommending against opportunistic salpingectomy.

Conclusion: In 2018 only a small minority of FIGO members have statements on opportunistic prophylactic salpingectomy. These statements are ambivalent or supportive, none is negative.

JAMA Network | Open

Original Investigation | Obstetrics and Gynecology

Outcomes From Opportunistic Salpingectomy for Ovarian Cancer Prevention

Gillian E. Hanley, PhD; Celeste Leigh Pearce, PhD; Aline Talhouk, PhD; Janice S. Kwon, MD; Sarah J. Finlayson, MD; Jessica N. McAlpine, MD; David G. Huntsman, MD; Dianne Miller, MD

Abstract

IMPORTANCE Opportunistic salpingectomy (OS), which is the removal of fallopian tubes during hysterectomy or instead of tubal ligation without removal of ovaries, is recommended to prevent ovarian cancer, particularly serous ovarian cancer. However, the effectiveness of OS is still undetermined.

OBJECTIVE To examine observed vs expected rates of ovarian cancer among individuals who have undergone OS.

DESIGN, SETTING, AND PARTICIPANTS This is a population-based, retrospective cohort study of all individuals in British Columbia, Canada, who underwent OS or a control surgery (hysterectomy alone or tubal ligation) between 2008 and 2017, with follow-up until December 31, 2017. Those with any gynecological cancer diagnosed before or within 6 months of their procedure were excluded. Data analysis was performed from April to August 2021.

EXPOSURES Removal of both fallopian tubes at the time of hysterectomy or instead of tubal ligation while leaving ovaries intact.

MAIN OUTCOMES AND MEASURES An ovarian cancer diagnosis listed in the British Columbia Cancer Registry. Age-specific rates of epithelial and serous ovarian cancer in the control group were combined with the specific follow-up time in the OS group to calculate expected numbers (and 95%

Key Points

Question Is opportunistic salpingectomy associated with fewer than expected ovarian cancers?

Findings This population-based cohort study included 25 889 individuals who underwent opportunistic salpingectomy and 32 080 individuals who underwent hysterectomy alone or tubal ligation. There were no serous ovarian cancers among individuals in the opportunistic salpingectomy group, which was significantly lower than the age-adjusted expected rate of 5.27 serous cancers.

Meaning The opportunistic salpingectomy group had significantly fewer serous ovarian cancers than expected, suggesting that opportunistic salpingectomy is associated with reduced ovarian cancer risk.

place them at slightly higher risk of ovarian cancer (eg, lower parity, lower gravidity, and higher age), indicating that our results are unlikely to be explained by confounding.

There were 15 serous cancers observed in the control group, and our calculations show that as we continue follow-up, there will be 45.1 serous ovarian cancers in this group by 2027. It is difficult to determine the preventable fraction given that we did not observe any serous cancers in our OS group. The least conservative interpretation would be that OS prevents all serous cancers, but more

Figure 2. Numbers of Expected vs Observed Cancers in the Opportunistic Salpingectomy Group

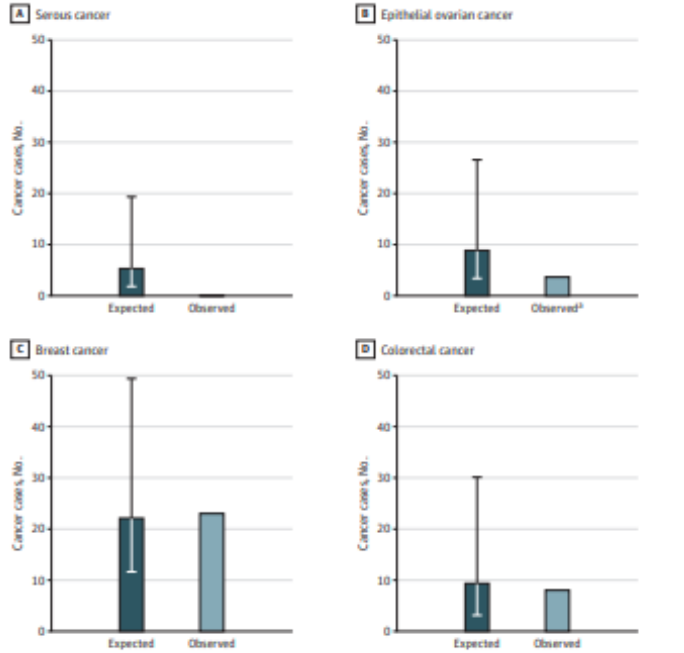
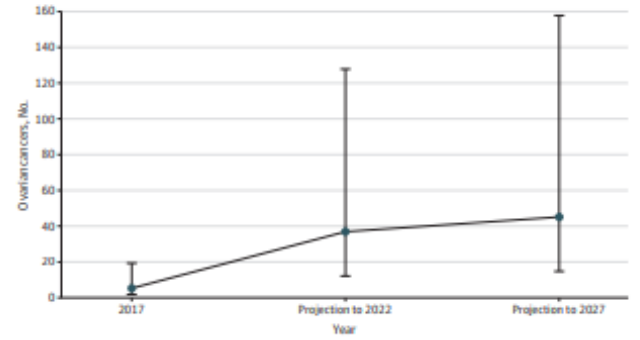
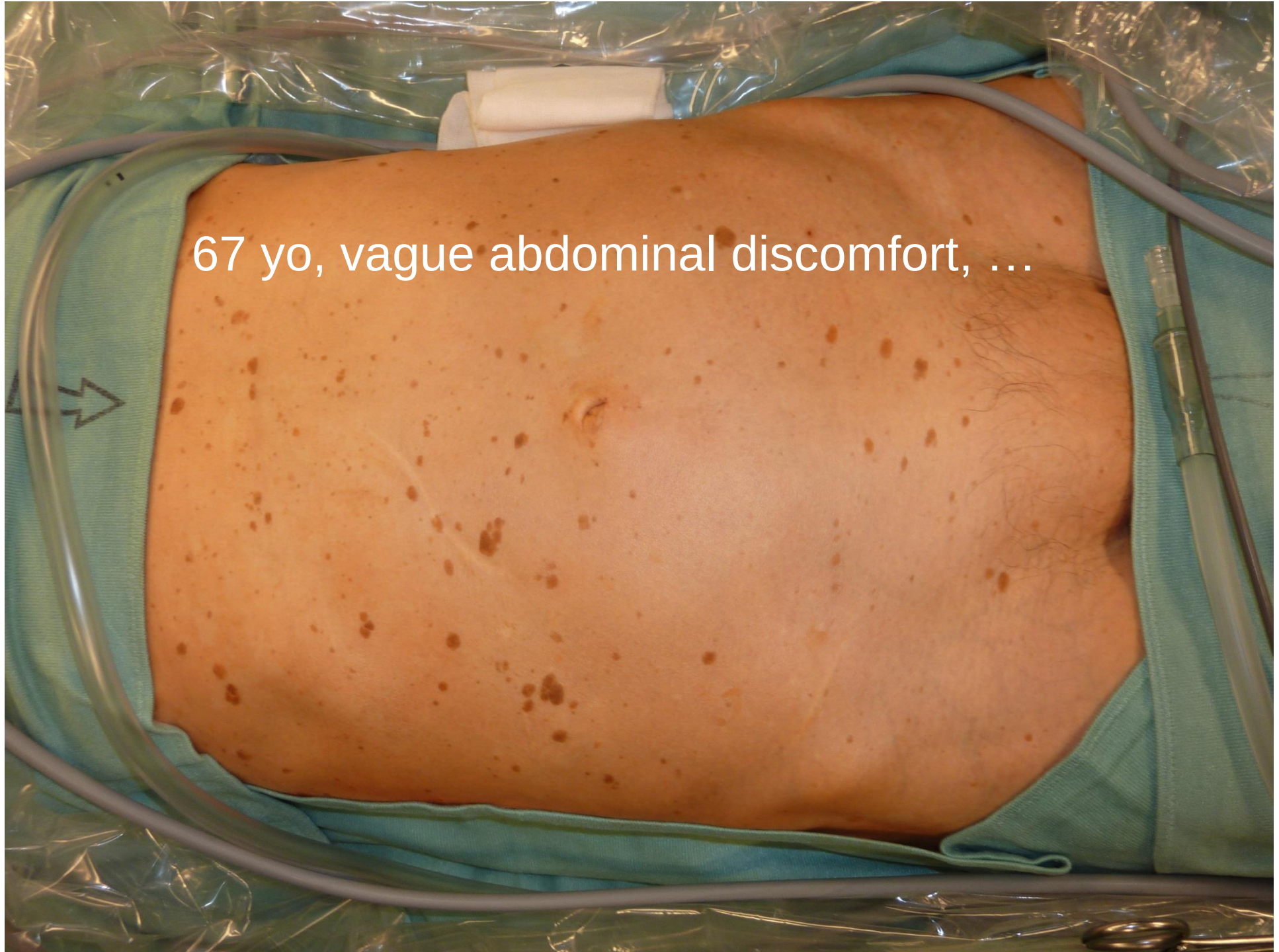


Figure 3. Projected Expected Numbers of Serous Ovarian Cancers in the Opportunistic Salpingectomy Group



What more could we do?


67 yo, vague abdominal discomfort, …

Original article

Prophylactic salpingectomy for prevention of ovarian cancer at the time of elective laparoscopic cholecystectomy

G. Tomasch[1], M. Lemmerer[2,3], S. Oswald[5], S. Uranitsch[3], C. Schauer[4], A.-M. Schütz[1,3], B. Bliem[1], A. Berger[3], P. F. J. Lang[4], G. Rosanelli[5], F. Ronaghi[6], J. Tschmelitsch[7], S. F. Lax[8], S. Uranues[2] and K. Tamussino[1]

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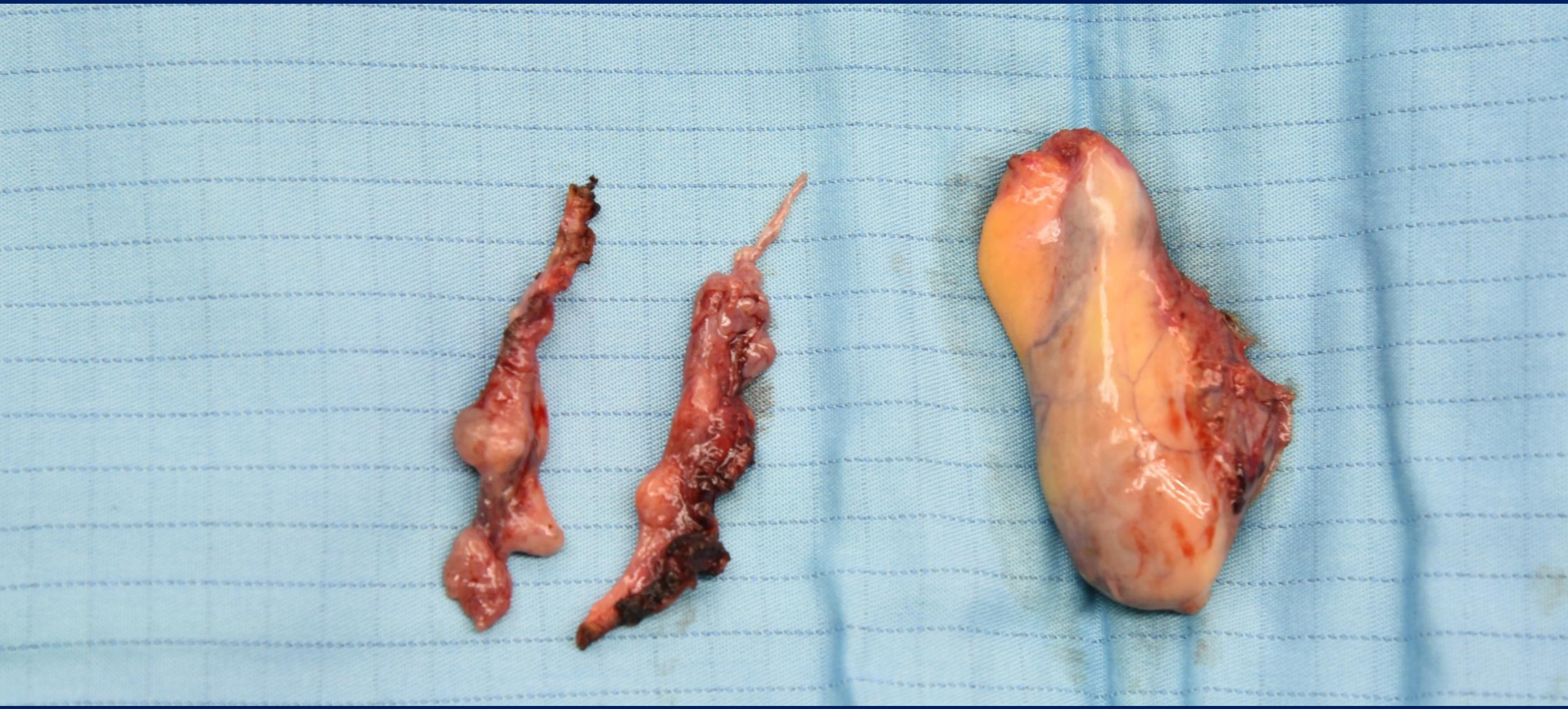
Correspondence to: Dr K. Tamussino, Division of Gynaecology, Medical University of Graz, Auenbruggerplatz 14, A-8036 Graz, Austria (e-mail: karl.tamussino@medunigraz.at)

Background: Most serous ovarian cancers are now understood to originate in the fallopian tubes. Removing the tubes (salpingectomy) likely reduces the risk of developing high-grade serous ovarian cancer. Numerous gynaecological societies now recommend prophylactic (or opportunistic) salpingectomy at the time of gynaecological surgery in appropriate women, and this is widely done. Salpingectomy at the time of non-gynaecological surgery has not been explored and may present an opportunity for primary prevention of ovarian cancer.

Methods: This study investigated whether prophylactic salpingectomy with the intention of reducing the risk of developing ovarian cancer would be accepted and could be accomplished at the time of elective laparoscopic cholecystectomy. Women aged at least 45 years scheduled for elective laparoscopic cholecystectomy were recruited. They were counselled and offered prophylactic bilateral salpingectomy at the time of cholecystectomy. Outcome measures were rate of accomplishment of salpingectomy, time and procedural steps needed for salpingectomy, and complications.

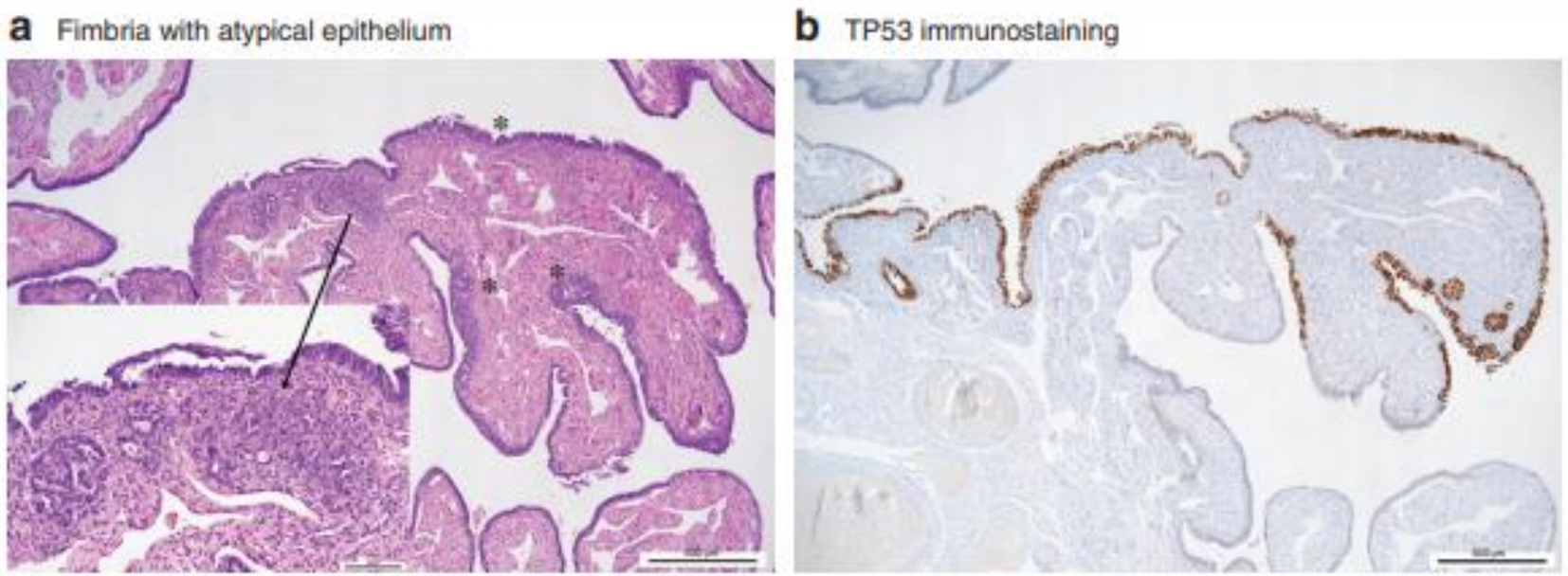
Results: A total of 105 patients were included in the study. The rate of acceptance of salpingectomy was approximately 60 per cent. Salpingectomy was performed in 98 of 105 laparoscopic cholecystectomies (93·3 per cent) and not accomplished because of poor visibility or adhesions in seven (6·7 per cent). Median additional operating time was 13 (range 4–45) min. There were no complications attributable to salpingectomy. One patient presented with ovarian cancer 28 months after prophylactic salpingectomy; histological re-evaluation of the tubes showed a previously undetected, focal serous tubal intraepithelial carcinoma.

Conclusion: Prophylactic salpingectomy can be done during elective laparoscopic cholecystectomy.



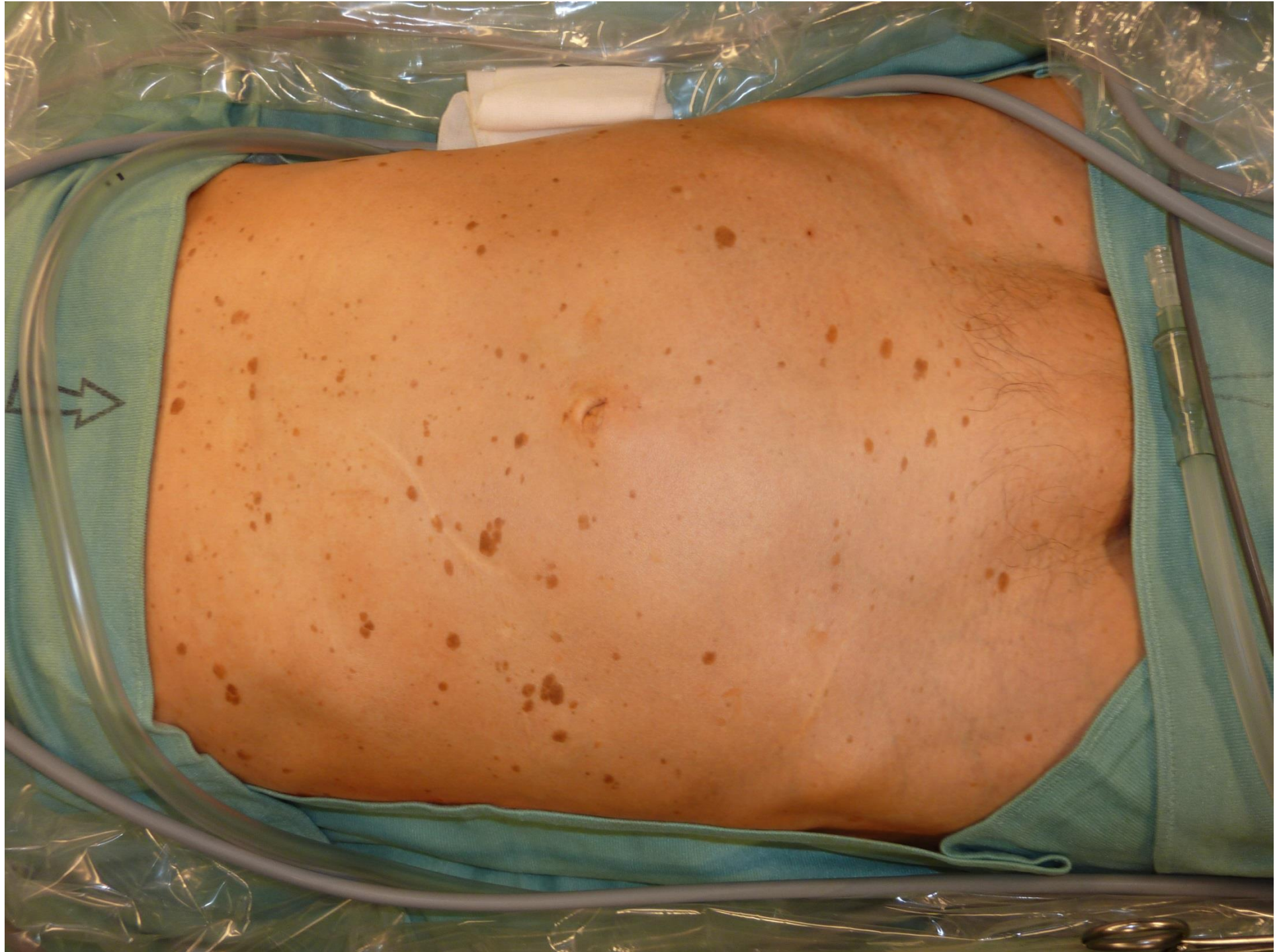
BJS 2020

Fig. 2 Images of serous tubal intraepithelial carcinoma



Serous tubal intraepithelial carcinoma in a patient who developed peritoneal carcinomatosis of a high-grade serous carcinoma 28 months after prophylactic salpingectomy. **a** The fimbria is partially covered by markedly atypical epithelium (*), which is highlighted by a mutant immunoreactive pattern for TP53. An area of approximately 0·5 mm is suspicious for early stromal invasion (**a**, insert, marked by arrow) but could not be confirmed at deeper levels (**b**). (**a** Haematoxylin and eosin stain; **b** 3,3′-diaminobenzidine immunostain with haematoxylin and eosin counterstain.)

BJS 2020



The New York Times 2013

The Opinion Pages | OP-ED CONTRIBUTOR

My Medical Choice

By ANGELINA JOLIE MAY 14, 2013

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LOS ANGELES

MY MOTHER fought cancer for almost a decade and died at 56. She held out long enough to meet the first of her grandchildren and to hold them in her arms. But my other children will never have the chance to know her and experience how loving and gracious she was.

We often speak of "Mommy's mommy," and I find myself trying to explain the illness that took her away from us. They have asked if the same could happen to me. I have always told them not to worry, but the truth is I carry a "faulty" gene, BRCA1, which sharply increases my risk of developing breast cancer and ovarian cancer.

My doctors estimated that I had an 87 percent risk of breast cancer and a 50 percent risk of ovarian cancer, although the risk is different in the case of each woman.

Only a fraction of breast cancers result from an inherited gene mutation. Those with a defect in BRCA1 have a 65 percent risk of getting it, on average.

Once I knew that this was my reality, I decided to be proactive and to minimize the risk as much I could. I made a decision to have a preventive double mastectomy. I started with the breasts, as my risk of breast cancer is higher than my risk of ovarian cancer, and the surgery is more complex.

nytimes.com/2013/05/14/opinion/my-medical-choice.html?hp

2015

The Opinion Pages | OP-ED CONTRIBUTOR

Angelina Jolie Pitt: Diary of a Surgery

By ANGELINA JOLIE PITT MARCH 24, 2015

Michela Buttignol

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LOS ANGELES — TWO years ago I wrote about my choice to have a preventive double mastectomy. A simple blood test had revealed that I carried a mutation in the BRCA1 gene. It gave me an estimated 87 percent risk of breast cancer and a 50 percent risk of ovarian cancer. I lost my mother, grandmother and aunt to cancer.

I wanted other women at risk to know about the options. I promised to follow up with any information that could be useful, including about my next preventive surgery, the removal of my ovaries and fallopian tubes.

I had been planning this for some time. It is a less complex surgery than the mastectomy, but its effects are more severe. It puts a woman into forced menopause. So I was readying myself physically and emotionally, discussing options with doctors, researching alternative medicine, and mapping my hormones for estrogen or progesterone replacement. But I felt I still had months to make the date.

Then two weeks ago I got a call from my doctor with blood-test results. "Your CA-125 is normal," he said. I breathed a sigh of relief. That test measures the amount of the protein CA-125 in the blood, and is used to monitor ovarian cancer. I have it every year because of my family history.

But that wasn't all. He went on. "There are a number of inflammatory markers that are elevated, and taken together they could be a sign of early cancer." I took a pause. "CA-125 has a 50 to 75 percent chance of missing ovarian cancer at early stages," he said. He wanted me to see the surgeon

www.nytimes.com/2015/03/24/opinion/angelina-jolie-pitt-diary-of-a-surgery.html

JNCI J Natl Cancer Inst (2015) 107(2): dju410

doi:10.1093/jnci/dju410
First published online January 27, 2015
Article

ARTICLE

Ovarian Cancer Risk After Salpingectomy: A Nationwide Population-Based Study

Henrik Falconer, Li Yin, Henrik Grönberg, Daniel Altman

Affiliations of authors: Department of Medical Epidemiology and Biostatistics (HF, LY, HG, DA) and Department of Women's and Children's Health (HF), Karolinska Institutet, Stockholm, Sweden; Department of Clinical Sciences, Karolinska Institutet Danderyd Hospital, Stockholm, Sweden (DA).

Correspondence to: Henrik Falconer, Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, 171 77 Stockholm, Sweden (e-mail:

Table 4. Hazard ratios for ovarian cancer over time since surgery according to surgical procedures*

	Time since surgery, y†		
Surgery	0–4	5–9	10+
Hysterectomy	0.55 (0.25 to 1.20)	0.94 (0.38 to 2.29)	0.87 (0.74 to 1.03)
Hysterectomy and BSO	0.05 (0.01 to 0.27)	0.07 (0.01 to 0.30)	0.06 (0.02 to 0.24)
Salpingectomy (all)	1.10 (0.48 to 2.49)	0.50 (0.17 to 1.43)	0.63 (0.48 to 0.81)
Unilateral	1.44 (0.60 to 3.48)	0.64 (0.21 to 1.93)	0.68 (0.52 to 0.90)
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Sterilization	0.46 (0.19 to 1.10)	0.75 (0.29 to 1.97)	0.76 (0.66 to 0.86)
Unexposed	Referent	Referent	Referent

Human Reproduction, Vol.36, No.1, pp. 211–218, 2021
Advance Access Publication on November 6, 2020 doi:10.1093/humrep/deaa264

human reproduction **ORIGINAL ARTICLE** ***Reproductive epidemiology***

Ovarian cancer risk after salpingectomy for ectopic pregnancy or hydrosalpinx: results of the OCASE nationwide population-based database study

L.A.M. van Lieshout[1,2,*], J.M.J. Piek[2], K. Verwijmeren[2,3], S. Houterman[4], A.G. Siebers[5,6], J.A. de Hullu[1], and R.L.M. Bekkers[2,7]

[1]Department of Obstetrics and Gynaecology, Radboud Institute for Health Sciences, Radboud University Medical Center, Nijmegen 6525GA, The Netherlands [2]Department of Obstetrics and Gynaecology, Catharina Cancer Institute, Catharina Hospital, Eindhoven 5623EJ, The Netherlands [3]Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht 6200MD, The Netherlands [4]Department of Education and Research, Catharina Hospital, Eindhoven 5623EJ, The Netherlands [5]PALGA, Houten 3991SZ, The Netherlands [6]Department of Pathology, Radboud University Medical Center, Nijmegen 6525GA, The Netherlands [7]GROW school for Oncology and Developmental Biology, Maastricht University, Maastricht 6229ER, The Netherlands

*Correspondence address. Radboud Institute for Health Sciences, Department of Obstetrics and Gynaecology, Radboud University Medical Center, P.O. box 9101, 6500HB Nijmegen, The Netherlands. E-mail: Laura.vanLieshout@radboudumc.nl

Submitted on April 15, 2020; resubmitted on August 27, 2020; editorial decision on September 11, 2020

STUDY QUESTION: What is the effect of salpingectomy for ectopic pregnancy or hydrosalpinx at a young age on ovarian cancer risk compared to no salpingectomy for any reason?

SUMMARY ANSWER: We found no significant reduction in ovarian cancer risk after salpingectomy for ectopic pregnancy or hydrosalpinx.

WHAT IS KNOWN ALREADY: Salpingectomy may reduce ovarian cancer incidence, although the lag-time between intervention and therapeutic effect remains to be elucidated.

STUDY DESIGN, SIZE, DURATION: This nationwide population-based database study uses the Dutch pathology database to identify all women who underwent salpingectomy for ectopic pregnancy or hydrosalpinx between January 1990 and December 2012 and compared ovarian cancer incidence to a control group of women who had a benign dermal nevus removed, matched for age at the time and year of procedure.

PARTICIPANTS/MATERIALS, SETTING, METHODS: After selection and manual control of intervention and control group, ovarian cancer incidence was recorded. Hazard ratios (HRs) with 95% CI for the development of ovarian cancer were calculated with Cox regression analyses, both unadjusted and adjusted for age. Subgroup analyses were performed to investigate lag-time between intervention and protective effect.

MAIN RESULTS AND THE ROLE OF CHANCE: In all, 18 961 women were included in the intervention group; 17 106 women had a unilateral salpingectomy and 1855 had a bilateral salpingectomy. The control group consisted of 23 686 women. With 14 ovarian cancer cases in the intervention group, the incidence rate (IR) of ovarian cancer was 5.4 (95% CI 3.1–8.9) per 100 000 person-years. In the control group, there were 24 ovarian cancer cases, resulting in an IR of 7.1 (95% CI 4.7–10.5) per 100 000 person-years ($P = 0.34$). The age-adjusted HR for ovarian cancer was 0.76 (95% CI 0.39–1.47) after salpingectomy. Unilateral salpingectomy resulted in an age-adjusted HR of 0.81 (95% CI 0.41–1.59) and bilateral salpingectomy resulted in an age-adjusted HR of 0.43 (95% CI 0.06–3.16) based on one case. None of our subgroup analysis for lag-time resulted in a significant difference in ovarian cancer incidence between intervention and control group. The difference in ovarian cancer incidence appeared largest in women with at least 8 years of follow-up ($P = 0.08$).

EDITORIAL

2011

Opportunistic Salpingectomy: We Chose to Act, Not Wait

Jessica N. McAlpine, MD,[1] Alicia A. Tone, PhD,[2] Gillian E. Hanley, MA, PhD[3]

[1]Division of Gynaecologic Oncology, Department of Obstetrics and Gynaecology, University of British Columbia, Vancouver BC

[2]Division of Gynecologic Oncology, Princess Margaret Cancer Centre, Toronto ON

[3]Department of Obstetrics and Gynaecology, University of British Columbia, Vancouver BC

We are now five years from the initiation of our campaign in British Columbia (BC) to encourage opportunistic salpingectomy (OS) for the prevention of ovarian cancer and approximately four years from the editorials and civilized debate contributed by Dr John Thiel, our team, and Dr Morelli et al. in the Journal.[1–3] Ironically, as in 2012, the timing of this editorial coincides with a colourful election campaign in the United States, and the discussion of civility in debate by the Journal's Editor-in-Chief[4] remains highly relevant.

sterilization in place of tubal ligation (TL). We also recommended that all women with high-grade serous carcinoma should be referred to the hereditary cancer program to undergo counselling and genetic testing for BRCA1/2 mutations, in order to offer screening or risk-reducing options for other BRCA-associated cancers in that individual and as a step towards testing and identifying other possibly affected family members. This initial campaign was supported by the Society of Gynaecologic Oncologists of Canada, with a formal statement in both official languages released in September 2011. The Royal Australian

JAMA Network Open

Original Investigation | Obstetrics and Gynecology

Outcomes From Opportunistic Salpingectomy for Ovarian Cancer Prevention

Gillian E. Hanley, PhD; Celeste Leigh Pearce, PhD; Aline Talhouk, PhD; Janice S. Kwon, MD; Sarah J. Finlayson, MD; Jessica N. McAlpine, MD; David G. Huntsman, MD; Dianne Miller, MD

Abstract

IMPORTANCE Opportunistic salpingectomy (OS), which is the removal of fallopian tubes during hysterectomy or instead of tubal ligation without removal of ovaries, is recommended to prevent ovarian cancer, particularly serous ovarian cancer. However, the effectiveness of OS is still undetermined.

OBJECTIVE To examine observed vs expected rates of ovarian cancer among individuals who have undergone OS.

DESIGN, SETTING, AND PARTICIPANTS This is a population-based, retrospective cohort study of all individuals in British Columbia, Canada, who underwent OS or a control surgery (hysterectomy alone or tubal ligation) between 2008 and 2017, with follow-up until December 31, 2017. Those with any gynecological cancer diagnosed before or within 6 months of their procedure were excluded. Data analysis was performed from April to August 2021.

EXPOSURES Removal of both fallopian tubes at the time of hysterectomy or instead of tubal ligation while leaving ovaries intact.

MAIN OUTCOMES AND MEASURES An ovarian cancer diagnosis listed in the British Columbia Cancer Registry. Age-specific rates of epithelial and serous ovarian cancer in the control group were combined with the specific follow-up time in the OS group to calculate expected numbers (and 95% CIs) of ovarian cancers in the OS group. These were compared with observed numbers. Age-adjusted expected and observed numbers of breast and colorectal cancers were also examined in the OS group.

Key Points

Question Is opportunistic salpingectomy associated with fewer than expected ovarian cancers?

Findings This population-based cohort study included 25 889 individuals who underwent opportunistic salpingectomy and 32 080 individuals who underwent hysterectomy alone or tubal ligation. There were no serous ovarian cancers among individuals in the opportunistic salpingectomy group, which was significantly lower than the age-adjusted expected rate of 5.27 serous cancers.

Meaning The opportunistic salpingectomy group had significantly fewer serous ovarian cancers than expected, suggesting that opportunistic salpingectomy is associated with reduced ovarian cancer risk.

Supplemental content

Author affiliations and article information are listed at the end of this article.

JAMA Network Open. 2022;5(2):e2147343. doi:10.1001/jamanetworkopen.2021.47343

place them at slightly higher risk of ovarian cancer (eg, lower parity, lower gravidity, and higher age), indicating that our results are unlikely to be explained by confounding.

There were 15 serous cancers observed in the control group, and our calculations show that as we continue follow-up, there will be 45.1 serous ovarian cancers in this group by 2027. It is difficult to determine the preventable fraction given that we did not observe any serous cancers in our OS group. The least conservative interpretation would be that OS prevents all serous cancers, but more

Figure 2. Numbers of Expected vs Observed Cancers in the Opportunistic Salpingectomy Group

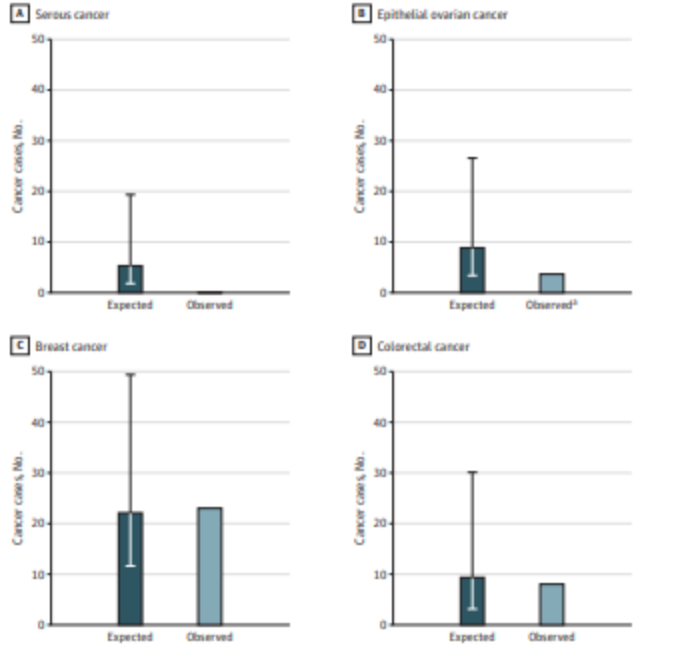
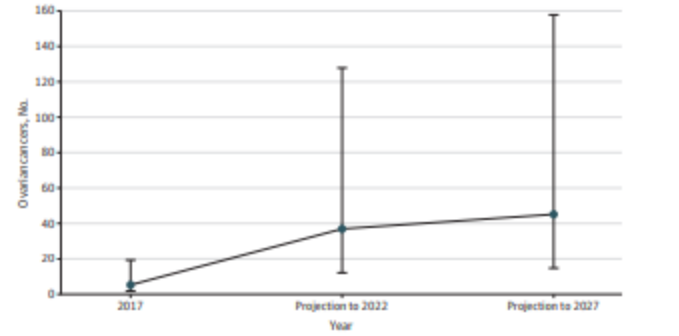


Figure 3. Projected Expected Numbers of Serous Ovarian Cancers in the Opportunistic Salpingectomy Group



2015

Stellungnahme der Arbeitsgemeinschaft für Gynäkologische Onkologie (AGO)
der Österreichischen Gesellschaft für Gynäkologie und Geburtshilfe (OEGGG)
und der Österreichischen Gesellschaft für Pathologie (ÖGP)

Elektive Salpingektomie zur Prävention des epithelialen Ovarialkarzinoms

Die OEGGG empfiehlt daher, dass entsprechenden Frauen mit abgeschlossener Familienplanung vor einer entsprechenden gynäkologischen Operation, einem Kaiserschnitt oder einer Tubensterilisation die Möglichkeit der prophylaktischen Salpingektomie angeboten wird.

www.oeggg.at

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2018

Full length article

Opportunistic prophylactic salpingectomy for prevention of ovarian cancer: What do national societies advise?

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Opportunistic salpingectomy
Prophylactic salpingectomy

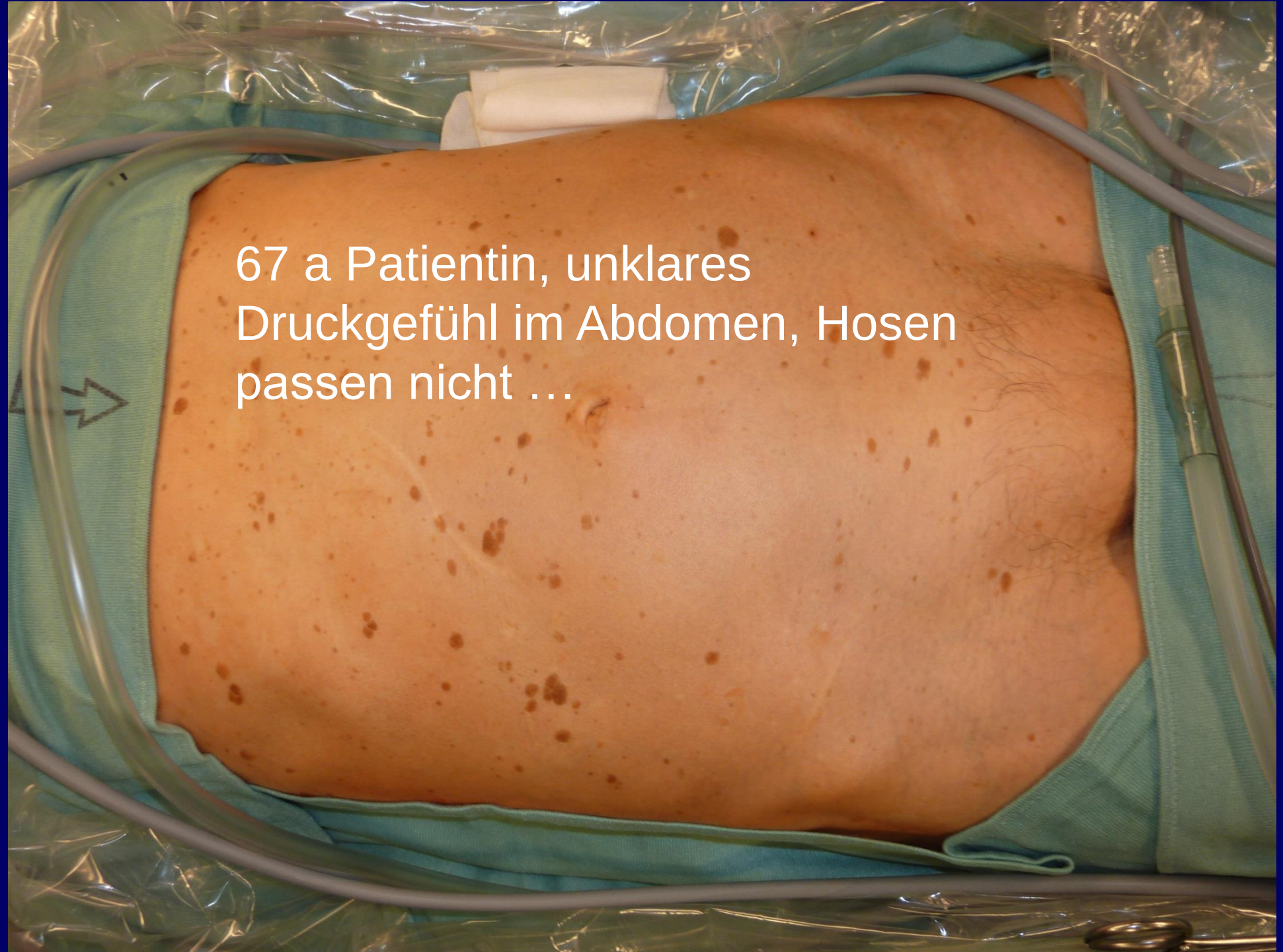
ABSTRACT

Objective: To determine how many FIGO (International Federation of Obstetrics and Gynecology) member societies have statements regarding opportunistic (incidental, prophylactic, risk-reducing) salpingectomy at the time of benign gynecologic surgery and to categorize statements as positive, negative or ambivalent.

Study design: The websites of the 130 FIGO member societies were searched for statements on opportunistic salpingectomy. We looked for separate statements and statements embedded in other documents such as clinical guidelines as well as statements by national societies of gynecologic oncology. If nothing was found on the websites we contacted societies by Email or fax.

Results: As of early 2018, 13 FIGO member societies representing 14 countries have statements regarding opportunistic salpingectomy. Nine were separate, stand-alone statements, four were embedded in other documents. Nine of the 13 statements (from Canada, Finland, U.S.A., Great Britain, Australia and New Zealand, Denmark, Austria, Turkey, and Japan) support consideration of opportunistic salpingectomy in appropriate women and four (from Germany, Sweden, Norway, and France) are ambivalent; there are no statements recommending against opportunistic salpingectomy.

Conclusion: In 2018 only a small minority of FIGO members have statements on opportunistic prophylactic salpingectomy. These statements are ambivalent or supportive, none is negative.


67 a Patientin, unklares
Druckgefühl im Abdomen, Hosen
passen nicht …

Original article

Prophylactic salpingectomy for prevention of ovarian cancer at the time of elective laparoscopic cholecystectomy

G. Tomasch[1], M. Lemmerer[2,3], S. Oswald[5], S. Uranitsch[3], C. Schauer[4], A.-M. Schütz[1,3], B. Bliem[1], A. Berger[3], P. F. J. Lang[4], G. Rosanelli[5], F. Ronaghi[6], J. Tschmelitsch[7], S. F. Lax[8], S. Uranues[2] and K. Tamussino[1]

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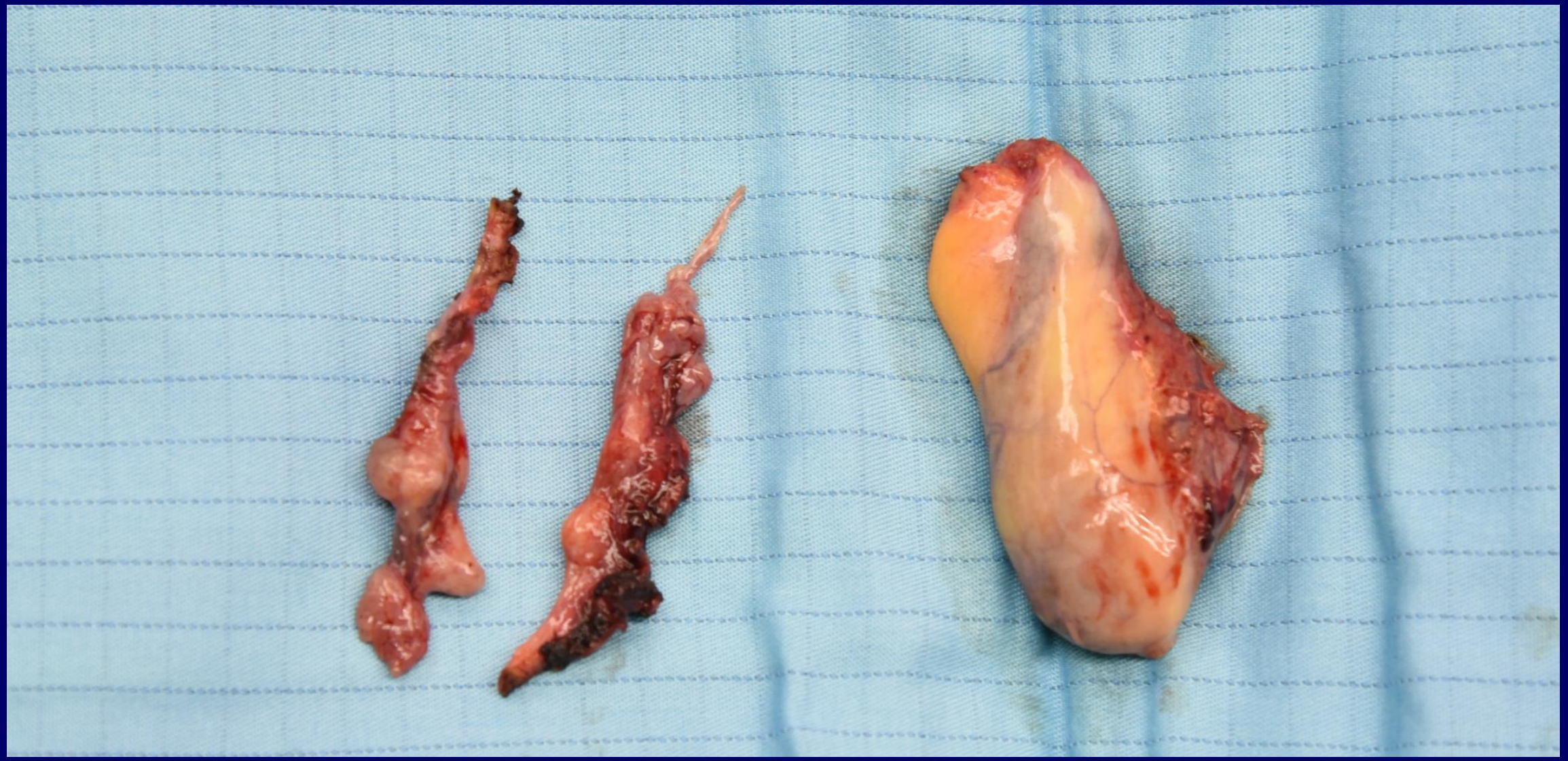
Background: Most serous ovarian cancers are now understood to originate in the fallopian tubes. Removing the tubes (salpingectomy) likely reduces the risk of developing high-grade serous ovarian cancer. Numerous gynaecological societies now recommend prophylactic (or opportunistic) salpingectomy at the time of gynaecological surgery in appropriate women, and this is widely done. Salpingectomy at the time of non-gynaecological surgery has not been explored and may present an opportunity for primary prevention of ovarian cancer.

Methods: This study investigated whether prophylactic salpingectomy with the intention of reducing the risk of developing ovarian cancer would be accepted and could be accomplished at the time of elective laparoscopic cholecystectomy. Women aged at least 45 years scheduled for elective laparoscopic cholecystectomy were recruited. They were counselled and offered prophylactic bilateral salpingectomy at the time of cholecystectomy. Outcome measures were rate of accomplishment of salpingectomy, time and procedural steps needed for salpingectomy, and complications.

Results: A total of 105 patients were included in the study. The rate of acceptance of salpingectomy was approximately 60 per cent. Salpingectomy was performed in 98 of 105 laparoscopic cholecystectomies (93·3 per cent) and not accomplished because of poor visibility or adhesions in seven (6·7 per cent). Median additional operating time was 13 (range 4–45) min. There were no complications attributable to salpingectomy. One patient presented with ovarian cancer 28 months after prophylactic salpingectomy; histological re-evaluation of the tubes showed a previously undetected, focal serous tubal intraepithelial carcinoma.

Conclusion: Prophylactic salpingectomy can be done during elective laparoscopic cholecystectomy.

SaLCHE 2020



Tomasch et al. BJS 2020

What more could we do?

Zählung: Anzahl stationäre Aufenthalte

KA-Typ: Alle

Geschlecht: Weiblich

(HF250) Magenbypass – laparoskopisch

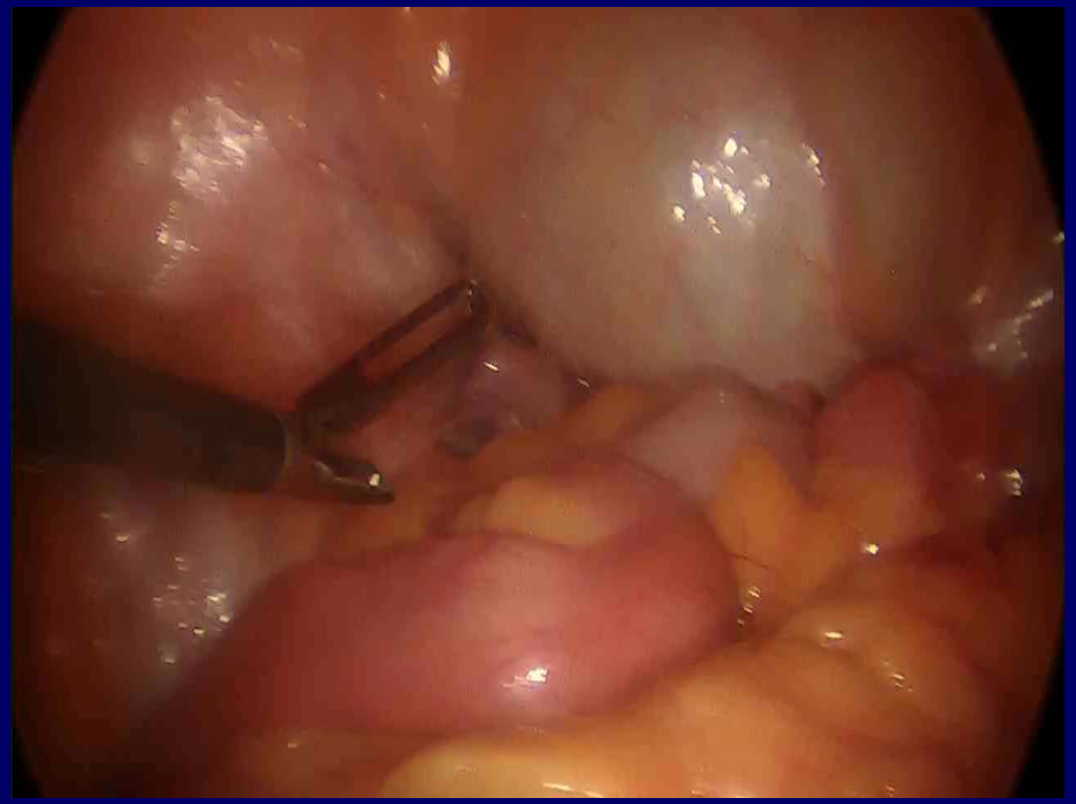
Altersgruppe	2012	2013	2014	2015	2016
10 bis 14 Jahre	1	3	1		1
15 bis 19 Jahre	42	49	38	31	27
20 bis 24 Jahre	121	164	145	138	123
25 bis 29 Jahre	155	180	164	176	198
30 bis 34 Jahre	146	158	198	187	195
35 bis 39 Jahre	185	171	157	196	192
40 bis 44 Jahre	195	194	190	228	178
45 bis 49 Jahre	188	188	192	177	205
50 bis 54 Jahre	136	156	150	156	168
55 bis 59 Jahre	93	95	101	96	122
60 bis 64 Jahre	45	47	50	47	57
65 bis 69 Jahre	23	19	20	20	16
70 bis 74 Jahre	6	4	6	6	6
75 bis 79 Jahre			1	1	
Gesamt	**1336**	**1428**	**1413**	**1459**	**1488**
Insgesamt	**1954**	**1981**	**1993**	**2135**	**2179**

63%

Can We See the Tubes at Bariatric Surgery?

D. Pucher, S. Oswald, F. Tadler, J. Strutzmann, H. Sagmeister, G. Tomasch,
H. Bornemann, G. Rosanelli, R. Schrittwieser, Th. Aigmüller, K. Tamussino

Surgical data from 31 patients in whom visualization/ access of the fallopian tubes were attempted at the time of bariatric surgery	
Bariatric surgery	**No. of patients (n = 31)**
Age	38 (20-59)
BMI	42 (34-50)
previous pelvic surgery	16/31 (52%)
Bariatric procedure	
Gastric bypass	30
Sleeve gastrectomy	1
Successful visualization of the tubes	26/31 (84%)
Successful access to the tubes	
with 1 instrument	03/26
with 2 instruments	23/26
Anesthesia parameters	
Pinsp (mmHg)	23
Pmax (mmHg)	27
Vt (L)	0,5
ventilation frequency / min	13



VIEWPOINT

Salpingectomy in Ovarian Cancer Prevention

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Nearly 20 000 women are diagnosed with ovarian cancer in the US each year, and approximately 80% have the most lethal subtype: high-grade serous carcinoma. The vast majority of patients have no risk factors, have widely metastatic disease at symptom onset, and die within 5 years of diagnosis. Hope for efficacious screening and prevention strategies has been long-standing. The recent results of the United Kingdom Collaborative Trial of Ovarian Cancer Screening, the largest ovarian cancer screening trial in history, were unsettling. Although screening resulted in an increase in earlier-stage diagnosis, this did not translate into lives saved.[1]

Efforts to develop screening for ovarian cancer have been unsuccessful, in large part because of the uncertainty about the exact origin of the disease. For more than a century, physicians and scientists hypothesized that high-grade serous carcinoma arises from ovarian surface epithelium. However, accumulating epidemiological, clinical, pathological, and molecular data over the past 20 years indicate that high-grade serous carcinoma primarily originates from microscopic precancers in the fimbriated ends of fallopian tubes, rather than from the ovary itself. Unfortunately, the fallopian tube cannot be visualized using clinical-grade imaging, and there is no blood test to detect the early, yet rapidly spreading, peritoneal metastasis characteristic of high-grade serous carcinoma.

In 2022, Canadian researchers[2] published the first prospective evidence that surgical removal of both fallopian tubes (bilateral salpingectomy) may substantially decrease high-grade serous carcinoma risk for women in the general population. At the time of follow-up, no high-grade serous carcinoma was observed among the 25 889 women who had undergone salpingectomy during hysterectomy or in lieu of tubal ligation for sterilization. Gynecologic surgeons use the term *opportunistic salpingectomy* to describe salpingectomy for the primary prevention of ovarian cancer in women who undergo pelvic surgery for another indication (eg, hysterectomy).[3] Excision of the postreproductive fallopian tube, which has no crucial form or function, is low risk for patients. However, removal of the ovaries can have adverse health effects because the ovaries are important endocrine organs that likely function beyond menopause.

Since 2011, many national-level organizations worldwide have endorsed opportunistic salpingectomy as a practical, population-level approach to ovarian cancer prevention. Universal uptake of salpingectomy during hysterectomy and in lieu of tubal ligation could prevent nearly 2000 deaths from ovarian cancer per year and save a half billion health care dollars in the US annually.[4] Given these potential benefits, opportunistic salpingectomy must become standard of surgical care, and efforts are needed to ensure tubal ligation and hysterectomy without salpingectomy for postreproductive women become obsolete.

How Can Opportunistic Salpingectomy Expand Beyond Gynecologic Surgery to Save More Lives?

Most surgical procedures for cancer prevention compromise form or function (eg, mastectomy, oophorectomy, colectomy) or are undertaken to prevent an exceedingly rare cancer (eg, appendectomy for appendiceal cancer, which affects just 1 per 1 million individuals). The advantage of preventing ovarian cancer, 1 of the top 5 most dangerous cancers in women, by removing the fallopian tube, a structure that has no form or function after childbearing years, is unprecedented in the history of medicine. In their postreproductive years, hundreds of thousands of women undergo abdominal surgery, such as cholecystectomy, hernia repair, appendectomy, and gastrointestinal and urologic operations. These are windows of opportunity for opportunistic salpingectomy beyond gynecologic surgery.

> The medical community's vision and execution of increasing knowledge of and access to ovarian cancer prevention by salpingectomy must be grounded in science, equity, and patient safety.

Regretfully, there has been low uptake of opportunistic salpingectomy as a cancer preventive intervention. According to patients, their lack of awareness about opportunistic salpingectomy is the key barrier to implementation in gynecologic surgery.[5] This is compounded by major knowledge gaps within the medical field. Many health care professionals are not yet aware of the discovery that ovarian cancer arises from the fallopian tubes and need to be apprised of where opportunistic salpingectomy fits into reproductive medicine.

In addition, there is no established approach to integrate a surgical procedure for cancer prevention that spans across surgical specialties. Siloes in surgical training and institutions breed unique specialty-specific subcultures that undermine teamwork to care for patients. In particular, gynecologic surgeons in departments of obstetrics and gynecology are distanced from the larger surgical community, creating unique organizational challenges for adopting a population-based approach to ovarian cancer prevention beyond the obstetrics and gynecology space. Careful process mapping to enrich cross-specialty partnership, as opposed to relocating

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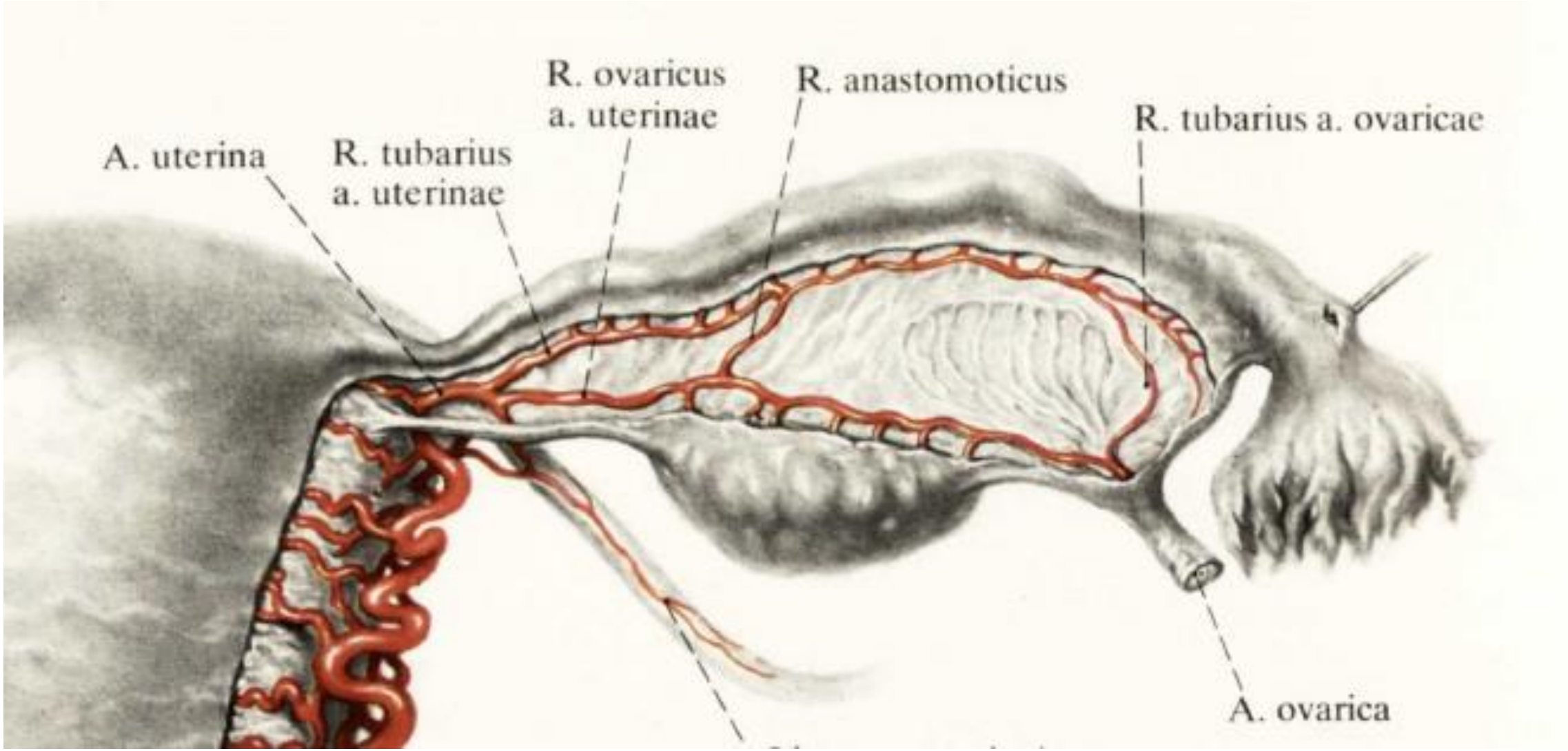
What about the blood supply to the ovary? Earlier menopause?



Reiffenstuhl 1974

Human Reproduction vol.15 no.1 pp.142–144, 2000

Ovarian function before and after salpingectomy in artificial reproductive technology patients

P.Dar[1,3], G.S.Sachs[2], D.Strassburger[1], and S.Arieli[1]

To determine the effect of the removal of the tube on ovarian function we studied 52 artificial reproduction technology cycles in 26 women before and after undergoing laparoscopic salpingectomy for ectopic pregnancy. Ovarian response was measured by the duration and quantity of human menopausal gonadotrophins used in the cycle, the pre-ovulatory concentrations of oestradiol, the number of oocytes retrieved, and the quality of the embryos. All parameters were compared between cycles carried out before and after salpingectomy as well as between affected and unaffected sides. Our findings show no significant difference in any of the parameters studied. We conclude that laparoscopic salpingectomy does not abate ovarian response in artificial reproduction technology cycles that follow the procedure.

Salpingectomy likely does not effect ovarian reserve

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How can we expand/extend PS to nonGYN surgery? Challenges|Silos

- Education of general surgeons (mostly males)
- Consent
- Who does the procedure?
- Who pays for the procedure?
- Who gets paid for the procedure?
- We´re working on this

Conclusions

- HGSC remains an ugly disese and an unsolved problem
- HGSCs originate in the tubes
- Salpingectomy reduces the risk for HGSC
- Salpingectomy likely does not impact ovarian reserve
- Standard of care in GYN
- PS/OS needs to be explored/extended to nongyn. surgery

Med Uni Graz