VISCERAL SARCOMA
Update 2015-2016

Sylvie BONVALOT
Institut Curie, Paris
Laurent COUBEAU
Catholic University of Louvain, Brussels

VISCERAL SARCOMA : update

- Update in Retro Peritoneal Sarcoma
- Nomograms
- Evaluation of response after neoadjuvant treatment
- Other topics
  - Uterine Leiomyosarcoma and laparoscopic morcellation
  - Needle biopsy and GIST
  - Desmoplastic tumors
  - Vascular resection and reconstruction

Update in Retro Peritoneal Sarcoma

Preoperative or postoperative radiotherapy versus surgery alone for retroperitoneal sarcoma: a case-control, propensity score-matched analysis of a nationwide clinical oncology database

Daniel P Nussbaum, Christel N Rushing, Whitney O Lane, Diana M Cardona, David G Kirsch, Bercedis L Peterson, Dan G Blazer 3rd

www.thelancet.com/oncology **Published online May 17, 2016** **http://dx.doi.org/10.1016/S1470-2045(16)30050-X**

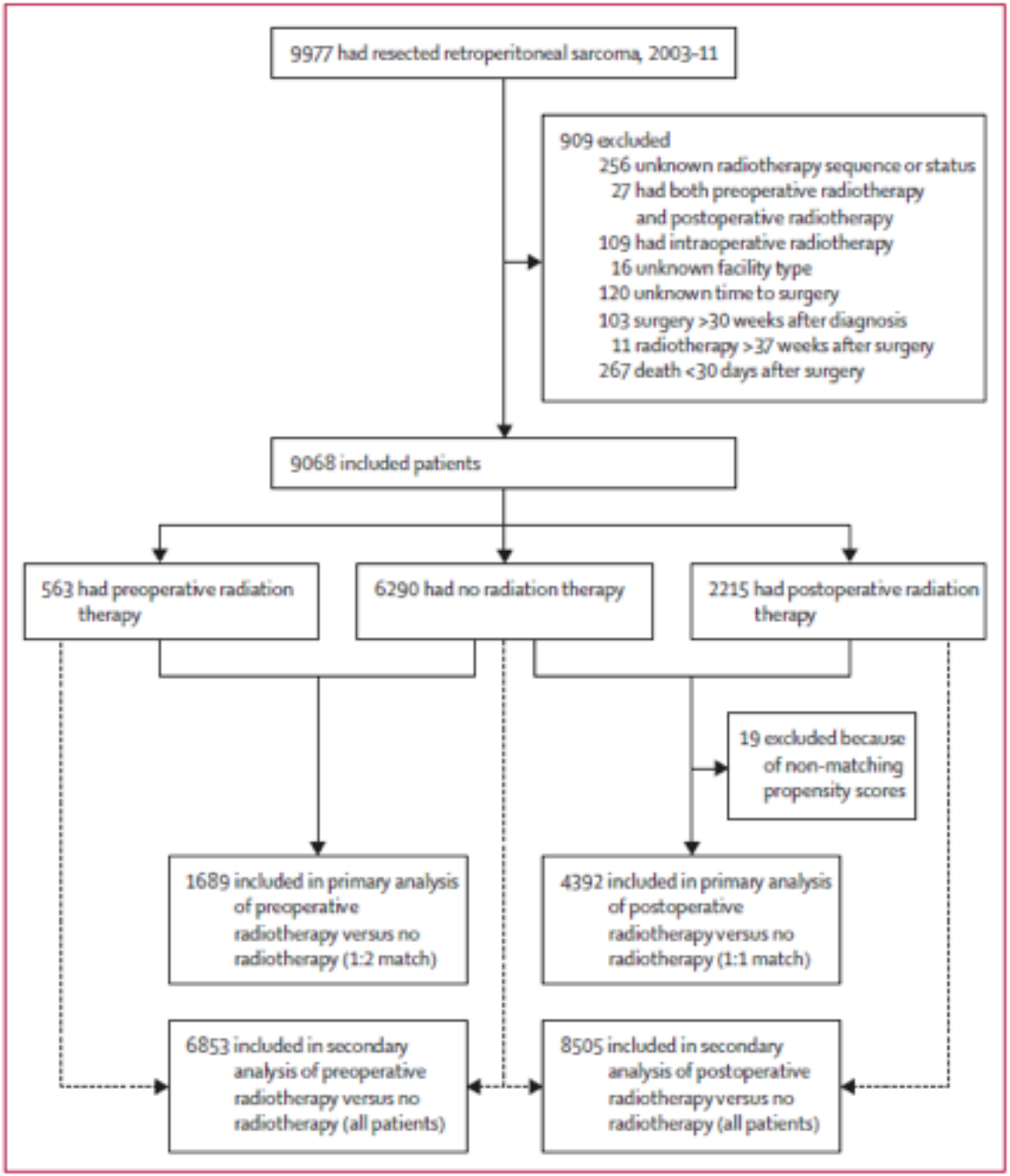
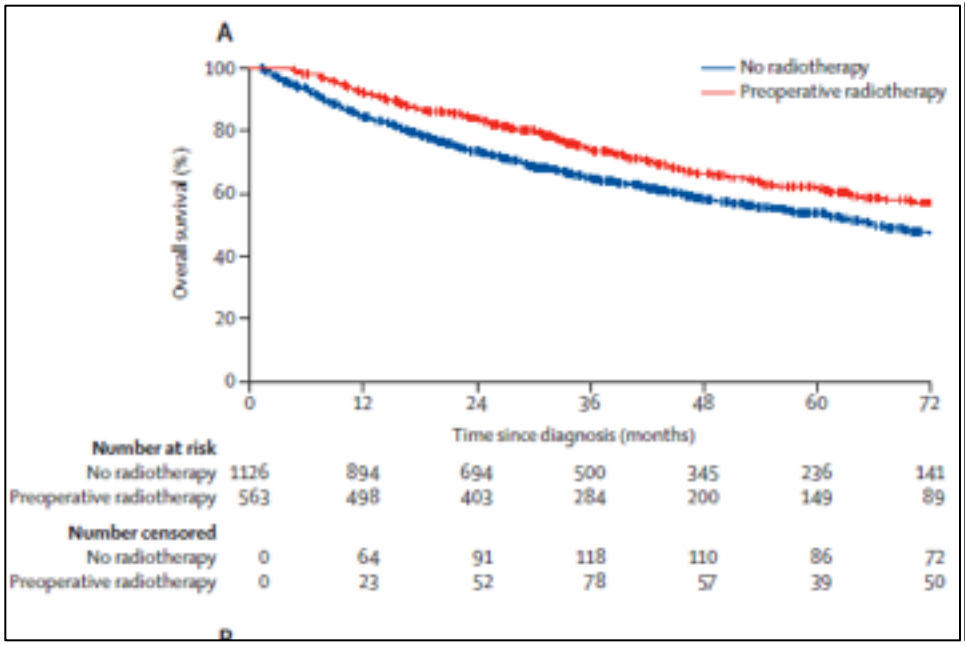
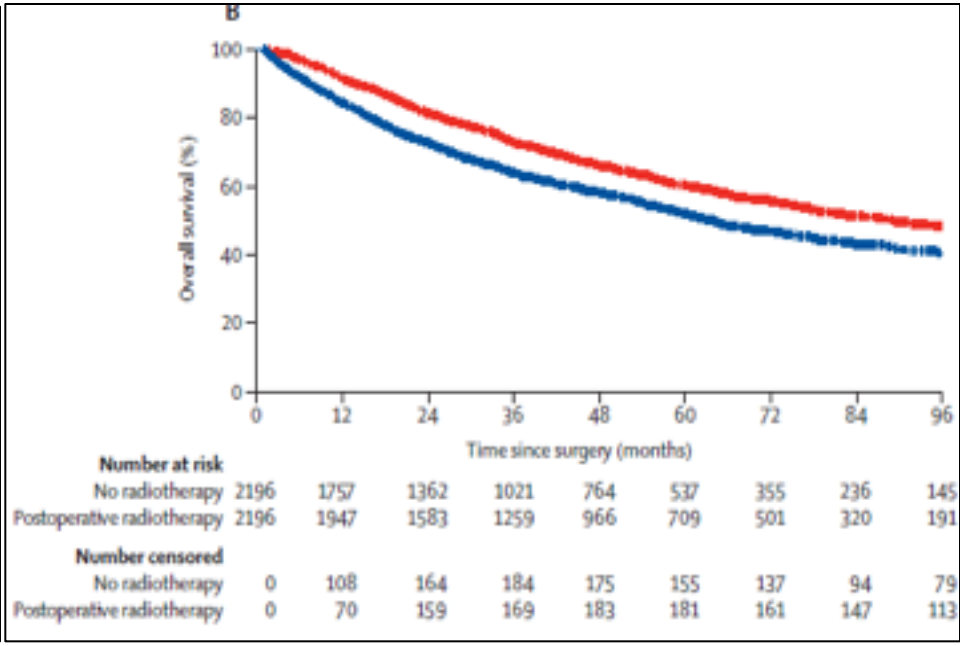


Figure 1: **CONSORT diagram**

Update in Retro Peritoneal Sarcoma





Defining the role of radiotherapy for retroperitoneal sarcoma

As we await the results of the EORTC (62092-22092; NCT01344018) randomised trial of preoperative radiotherapy and surgery versus surgery alone, we must continue to study retroperitoneal sarcoma cases carefully, stratify treatment strategy by histological subtype, and collect quality of life data. Retroperitoneal sarcoma should be diagnosed by core biopsy rather than marginal excision, and referral to high-volume centres involved in clinical trials and with prospective data registries is strongly advised.

Elizabeth H Baldini
Department of Radiation Oncology, Brigham and Women's Hospital and Dana-Farber Cancer Institute, Boston, MA 02115, USA
ebaldini@lroc.harvard.edu

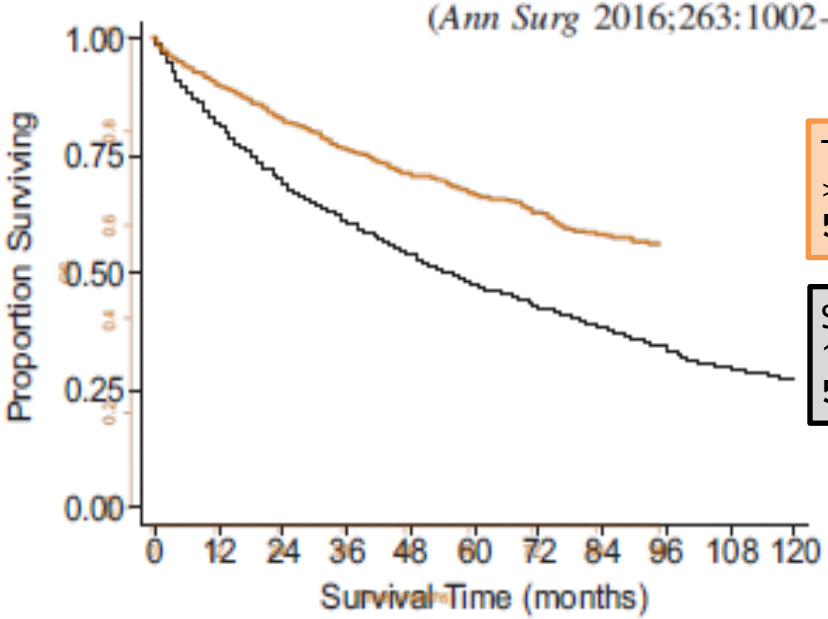
Update in Retro Peritoneal Sarcoma

Variability in Patterns of Recurrence After Resection of Primary Retroperitoneal Sarcoma (RPS)

A Report on 1007 Patients From the Multi-institutional Collaborative RPS Working Group

Alessandro Gronchi, MD, Dirk C. Strauss, MD,† Rosalba Miceli, MD, PhD,‡ Sylvie Bonvalot, MD, PhD,§ Carol J. Swallow, MD,¶ Peter Hohenberger, MD,|| Frits Van Coevorden, MD,** Piotr Rutkowski, MD,†† Dario Callegaro, MD,* Andrew J. Hayes, MD, PhD,† Charles Honoré, MD,§ Mark Fairweather, MD,‡‡ Amanda Cannell, MD,¶ Jens Jakob, MD,|| Rick L. Haas, MD,§§ Milena Szacht, MD,†† Marco Fiore, MD,* Paolo G. Casali, MD,¶¶ Raphael E. Pollock, MD, PhD,|||| and Chandrajit P. Raut, MD‡‡*

(*Ann Surg* 2016;263:1002–1009)



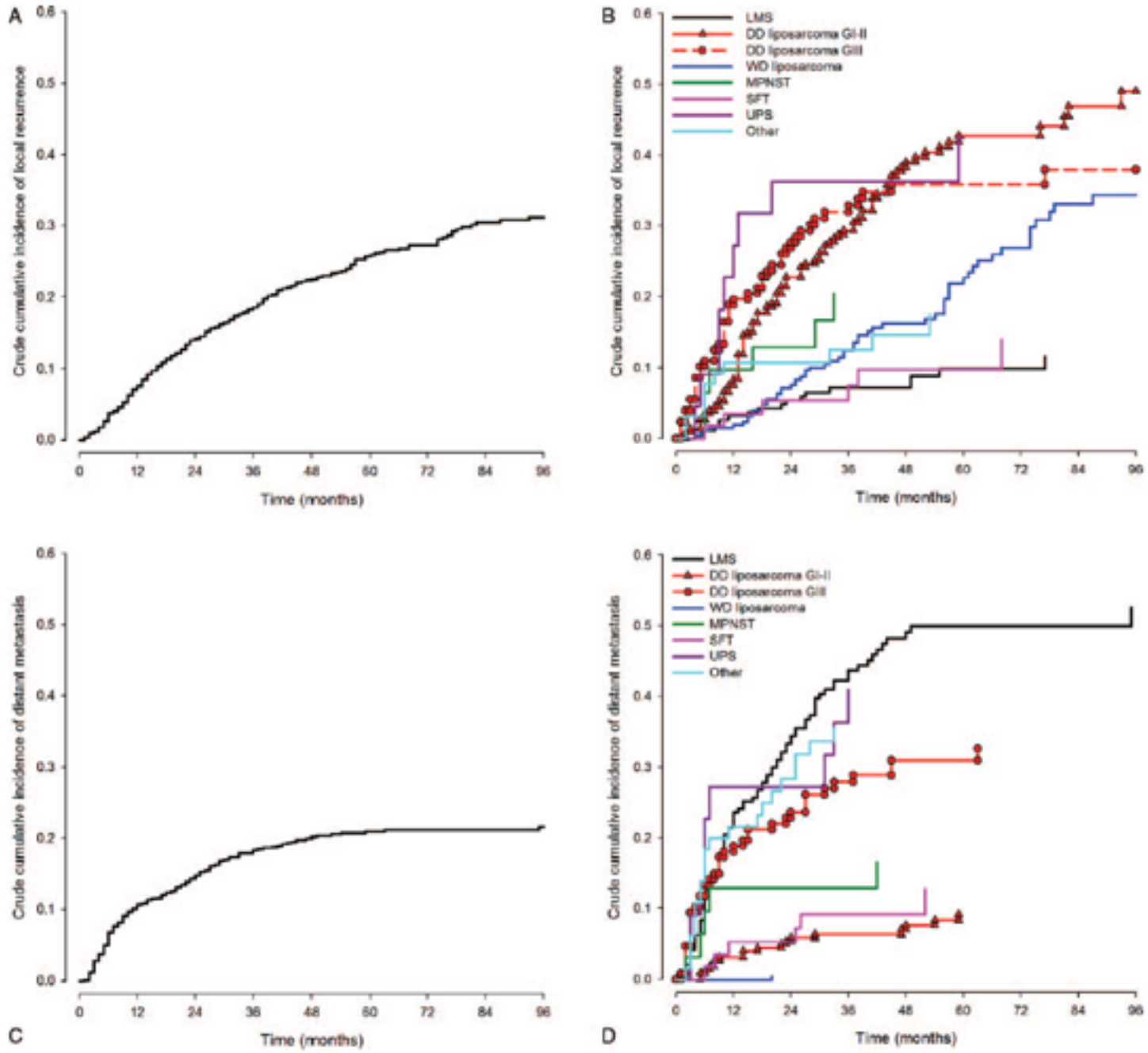
Transatlantic Sarcoma Group
>1000 Primary RPS
5yr OS - 67%

SEER:
1365 Primary RPS
5yr OS - 47%

Trans-Atlantic RPS Working Group

Sylvie Bonvalot, Department of Surgery, Institute Gustave Roussy, Villejuif, France
Alessandro Gronchi, Department of Surgery, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy
Peter Hohenberger, Department of Surgical Oncology and Thoracic Surgery, University Hospital of Mannheim, Mannheim, Germany
Saskia Litiere, Department of Biostatistics, European Organization for Research and Treatment of Cancer (EORTC) Head Quarters, Bruxelles, Belgium
Raphael E. Pollock, Department of Surgery, Division of Surgical Oncology, Ohio State University Medical Center, Columbia, USA
Chandrajit P. Raut, Department of Surgery, Division of Surgical Oncology, Brigham and Women's Hospital, Harvard Medical School, Boston, USA
Piotr Rutkowski, Department of Soft Tissue/Bone Sarcoma and Melanoma, Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology, Warsaw, Poland
Dirk Strauss, Department of Surgery, Royal Marsden Hospital, NHS Foundation Trust, London, UK
Carol J. Swallow, Department of Surgery, University of Toronto, Toronto, Canada
Frits Van Coevorden, Department of Surgical Oncology, Netherlands Cancer Institute, Amsterdam, The Netherlands

Median OS (months):
SEER: 60
RPS WG: 108
Δ 48 months


A
Crude cumulative incidence of local recurrence
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0
12
24
36
48
60
72
84
96
Time (months)
B
Crude cumulative incidence of local recurrence
LMS
DD liposarcoma GI-II
DD liposarcoma GIII
WD liposarcoma
MPNST
SFT
UPS
Other
Time (months)
C
Crude cumulative incidence of distant metastasis
Time (months)
D
Crude cumulative incidence of distant metastasis
LMS
DD liposarcoma GI-II
DD liposarcoma GIII
WD liposarcoma
MPNST
SFT
UPS
Other
Time (months)

Update in Retro Peritoneal Sarcoma

ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

EJSO

the Journal of Cancer Surgery

EJSO 41 (2015) 1386–1392

www.ejso.com

Impact of chemotherapy on survival in surgically resected retroperitoneal sarcoma

J.T. Miura [a], J. Charlson [b], T.C. Gamblin [a], D. Eastwood [c], A. Banerjee [c], F.M. Johnston [a], K.K. Turaga [a,*]

Background: The role of systemic chemotherapy (CT) in the multimodality treatment strategy for retroperitoneal sarcomas (RPS) remains controversial. We hypothesized that chemotherapy does not improve overall survival for patients with surgically resected RPS.

Methods: The National Cancer Database was used to identify all patients with RPS that underwent surgical resection from 1998 to 2011. Univariate and multivariable Cox proportional hazards modeling were used to assess overall survival (OS) and logistic regression was used for associations. Propensity score (PS) modeling was performed to create balanced cohorts for analysis.

Results: A total of 8653 patients with surgically resected RPS were identified; 1525 (17.6%) received CT; 10.6% of patients (n = 163) in the neoadjuvant setting. Factors associated with receipt of CT included moderate (OR 2.3) to poorly differentiated (OR 4.3) tumors, leiomyosarcoma (OR 1.8) or undifferentiated pleomorphic sarcoma (OR 2.3) histology, and R2 resection status (OR 2.2) (all $p < 0.05$). Unadjusted median OS for patients receiving CT compared to surgery alone was 40 vs 68.2 months respectively ($p < 0.01$). Following propensity score matching, worse median OS persisted among the CT cohort (40 vs 52 months, $p = 0.002$). Receipt of chemotherapy was not associated with improved long term survival in adjusted models for the raw and propensity matched cohorts (HR 1.17, 95% CI: 1.04–1.31; $p = 0.009$).

Conclusion: Current available chemotherapy regimens for RPS do not confer a survival benefit. Routine use of chemotherapy for RPS should be discouraged until new effective systemic agents become available.

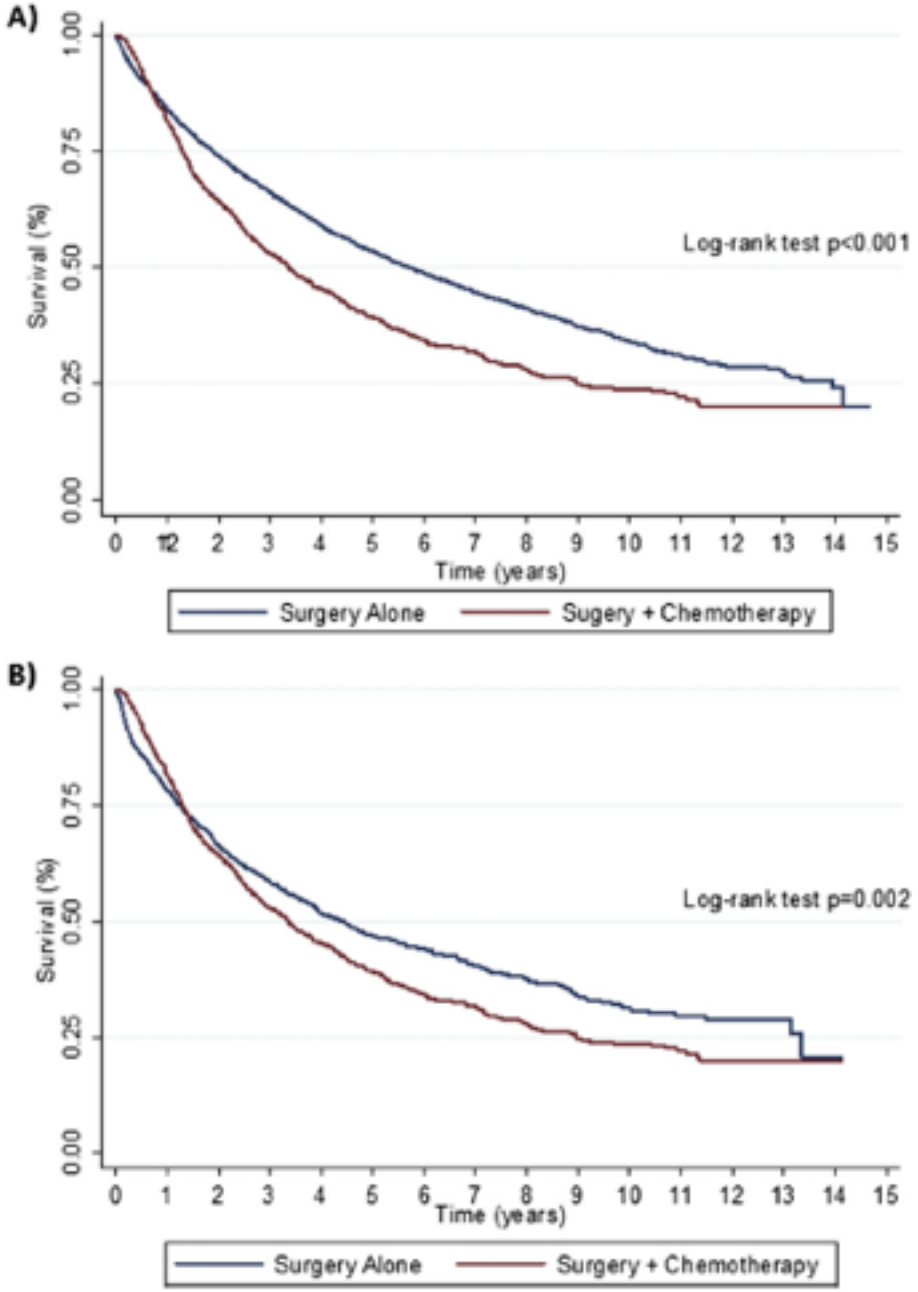
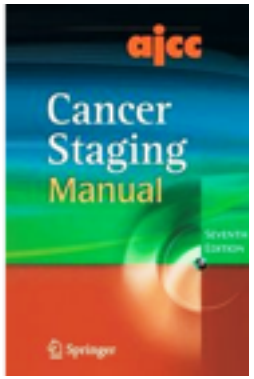


Figure 1. Kaplan–Meier survival curves of overall survival comparing surgery plus chemotherapy (CT) to surgery alone before (A) and after (B) propensity score matching.

Nomograms

- Background
  - **American Joint Commitee on Cancer 7th ed**
    - >5 cm
    - Deep → 94% of RPS : T2b



Grade ? Low/High …

  - **Nomogram**
    - Kattan 2002 on Soft Tissue Sarcoma
    - RPS specific nomogram 2010

13 % of RPS…

Memorial Sloan Kettering Cancer Center

One center …

Ardoino et al. Cancer 2010
Anaya et al. Ann Oncol 2010

Nomograms

Outcome Prediction in Primary Resected Retroperitoneal Soft Tissue Sarcoma: Histology-Specific Overall Survival and Disease-Free Survival Nomograms Built on Major Sarcoma Center Data Sets

Alessandro Gronchi, Rosalba Miceli, Elizabeth Shurell, Fritz C. Eilber, Frederick R. Eilber, Daniel A. Anaya, Michael W. Kattan, Charles Honoré, Dina C. Lev, Chiara Colombo, Sylvie Bonvalot, Luigi Mariani, and Raphael E. Pollock

VOLUME 31 · NUMBER 13 · MAY 1 2013

JOURNAL OF CLINICAL ONCOLOGY

Development sets : 523 patients
3 Reference Centers

Nomograms

External Validation of a Multi-Institutional Retroperitoneal Sarcoma Nomogram

Chandrajit P. Raut, MD, MSc[1,2]; Rosalba Miceli, PhD[3]; Dirk C. Strauss, MD[4]; Carol J. Swallow, MD, PhD[5,6]; Peter Hohenberger, MD[7]; Frits van Coevorden, MD[8]; Piotr Rutkowski, MD[9]; Marco Fiore, MD[10]; Dario Callegaro, MD[10]; Paolo G. Casali, MD[11]; Rick L. Haas, MD[12]; Andrew J. Hayes, MD[4]; Charles Honore, MD[13]; Amanda J. Cannell, BS[5,6]; Jens Jakob, MD[7]; Milena Szacht, MD, PhD[9]; Mark Fairweather, MD[1,2]; Raphael E. Pollock, MD, PhD[14]; Sylvie Bonvalot, MD[15]; and Alessandro Gronchi, MD[10]

Cancer May 1, 2016

Validation sets : 631 patients
6 Reference Centers

Exclusion : Incomplete resection referral : only primary !
GIST, Rhabdo, Desmoid, Ewing

Development and external validation of two nomograms to predict overall survival and occurrence of distant metastases in adults after surgical resection of localised soft-tissue sarcomas of the extremities: a retrospective analysis

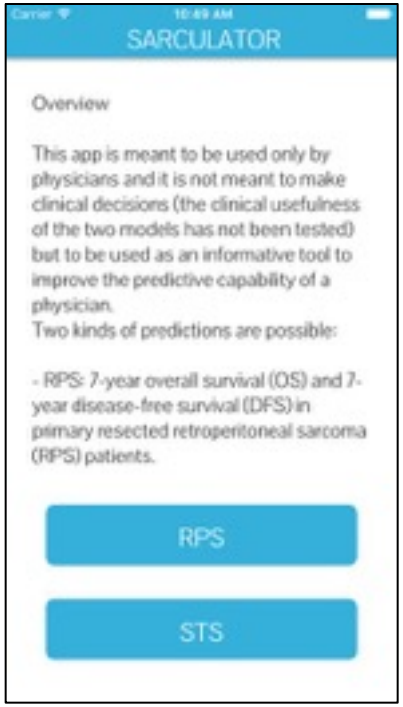
Dario Callegaro, Rosalba Miceli, Sylvie Bonvalot, Peter Ferguson, Dirk C Strauss, Antonin Levy, Anthony Griffin, Andrew J Hayes, Silvia Stacchiotti, Cecile Le Pechoux, Myles J Smith, Marco Fiore, Angelo P Dei Tos, Henry G Smith, Luigi Mariani, Jay S Wunder, Raphael E Pollock, Paolo G Casali, Alessandro Gronchi

	Overall survival		Distant metastasis	
	HR (95% CI)	p value*	HR (95% CI)	p value*
Age		<0·0001	†	†
66 years *vs* 40 years‡	1·58 (1·30–1·93)	..	..	..
Tumour size		<0·0001		<0·0001
10 cm *vs* 4 cm‡	2·48 (1·92–3·21)	..	2·98 (2·29–3·87)	..
FNCLCC grade		<0·0001		<0·0001
II *vs* I	2·68 (1·64–4·39)	..	3·83 (2·25–6·52)	..
III *vs* I	4·25 (2·64–6·84)	..	6·09 (3·64–10·20)	..
Histological subtype		<0·0001		<0·0001
Leiomyosarcoma *vs* myxoid liposarcoma	2·50 (1·51–4·16)	..	2·93 (1·91–4·49)	..
DD/pleom lipo *vs* myxoid liposarcoma	1·48 (0·80–2·74)	..	1·13 (0·62–2·05)	..
MPNST *vs* myxoid liposarcoma	1·89 (1·06–3·36)	..	1·53 (0·89–2·64)	..
Myxofibrosarcoma *vs* myxoid liposarcoma	1·64 (0·99–2·70)	..	0·97 (0·60–1·57)	..
Synovial *vs* myxoid liposarcoma	2·70 (1·59–4·60)	..	2·10 (1·31–3·36)	..
UPS *vs* myxoid liposarcoma	1·27 (0·76–2·11)	..	1·43 (0·93–2·19)	..
Vascular *vs* myxoid liposarcoma	5·81 (2·71–12·45)	..	3·16 (1·31–7·58)	..
Other *vs* myxoid liposarcoma	1·99 (1·23–3·21)	..	1·87 (1·23–2·83)	..

HR=hazard ratio. FNCLCC=Fédération Française des Centres de Lutte Contre le Cancer. DD/pleom lipo=dedifferentiated/pleomorphic liposarcoma. MPNST=malignant peripheral nerve sheath tumour. UPS=undifferentiated pleomorphic sarcoma. *p value was calculated as a two-sided Wald test. †Variable excluded after the Akaike information criterion-based backward selection.[19] ‡The two values are the third and first quartiles, respectively, of the variable distribution.

Table 2: Results of the multivariable Cox models, including the nomogram variables for overall survival and distant metastases

Nomograms



Results: 7 years DFS
7 years OS

AJCC 8th Edition inclusion

European Journal of Cancer 53 (2016) 84–95

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.ejcancer.com

Original Research

Evaluation of response after neoadjuvant treatment in soft tissue sarcomas; the European Organization for Research and Treatment of Cancer–Soft Tissue and Bone Sarcoma Group (EORTC–STBSG) recommendations for pathological examination and reporting

E. Wardelmann [a,1], R.L. Haas [b,*,1], J.V.M.G. Bovée [c], Ph Terrier [d], A. Lazar [e], C. Messiou [f], C. LePechoux [g], W. Hartmann [a], F. Collin [h], C. Fisher [i], G. Mechtersheimer [j], A.P. DeiTos [k], S. Stacchiotti [l], R.L. Jones [m], A. Gronchi [n], S. Bonvalot [o]

Response

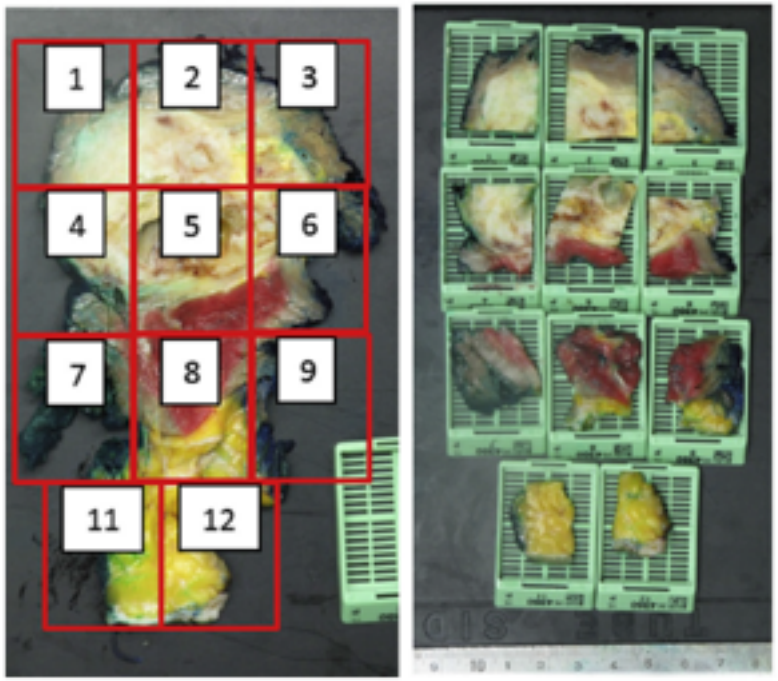


Fig. 3. This figure illustrates how to embed a representative slab from a sarcoma after neoadjuvant treatment. The slab is photographed before and after complete embedment. Of note, cassette no. 10 was used for a tangential embedment of slice no. 11 and was not photographed.

A – no stainable tumor cells
B – single stainable tumor cells or small clusters (overall below 1% of the whole specimen)
C – ≥1%–<10% stainable tumor cells
D – ≥10%–<50% stainable tumor cells
E – ≥50% stainable tumor cells.

Uterine Leiomyosarcoma and laparoscopic morcellation

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News & Events

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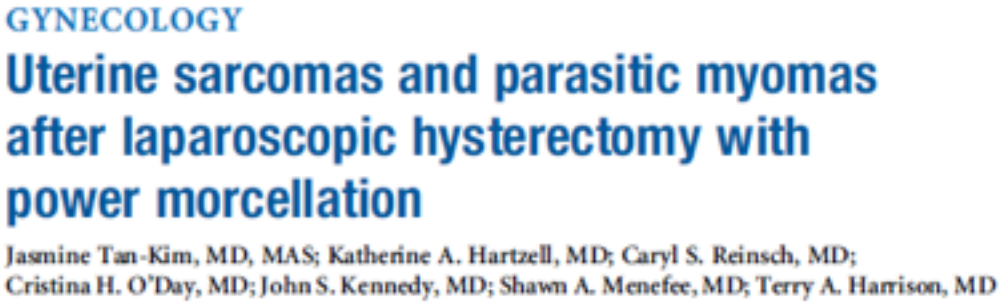
FDA News Release

FDA warns against using laparoscopic power morcellators to treat uterine fibroids

Agency recommends adding important safety information to product labels

« Uterine tissue may contain unsuspected cancer. The use of laparoscopic power morcellators during fibroid surgery may spread cancer … »

April 2014



GYNECOLOGY

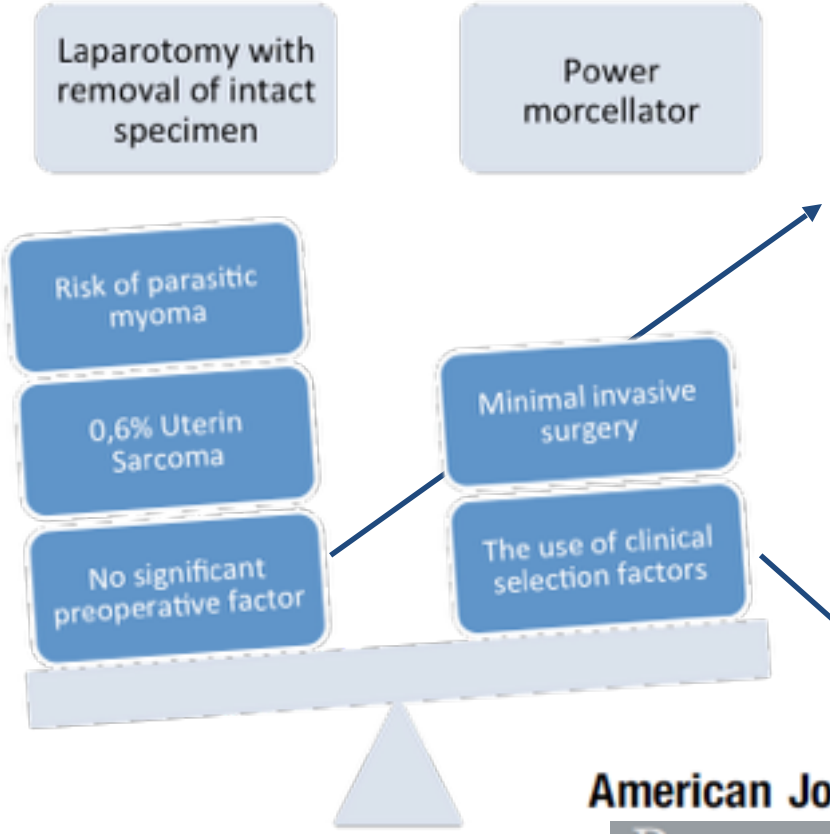
Uterine sarcomas and parasitic myomas after laparoscopic hysterectomy with power morcellation

Jasmine Tan-Kim, MD, MAS; Katherine A. Hartzell, MD; Caryl S. Reinsch, MD; Cristina H. O'Day, MD; John S. Kennedy, MD; Shawn A. Menefee, MD; Terry A. Harrison, MD

AJOG May 2015

Restrospective review
3523 laparoscopic HR
941 Morcellation
6 Uterine Sarcoma

Uterine Leiomyosarcoma and laparoscopic morcellation



GYNECOLOGY

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1.2%

Age $\leq$45 y, non-black, intrauterine disease, tumors $\leq$5 cm

American Journal of Obstetrics & Gynecology DECEMBER 2015

RESEARCH LETTERS ajog.org

The use of clinical characteristics to help prevent morcellation of leiomyosarcoma: An analysis of 491 cases

European Journal of Cancer 59 (2016) 128–133

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.ejcancer.com

Original Research

Needle biopsy through the abdominal wall for the diagnosis of gastrointestinal stromal tumour – Does it increase the risk for tumour cell seeding and recurrence?

Mikael Eriksson [a,*], Peter Reichardt [b], Kirsten Sundby Hall [c], Jochen Schütte [d], Silke Cameron [e], Peter Hohenberger [f], Sebastian Bauer [g], Mika Leinonen [h], Annette Reichardt [b], Maria Rejmyr Davis [i], Thor Alvegård [j], Heikki Joensuu [k]

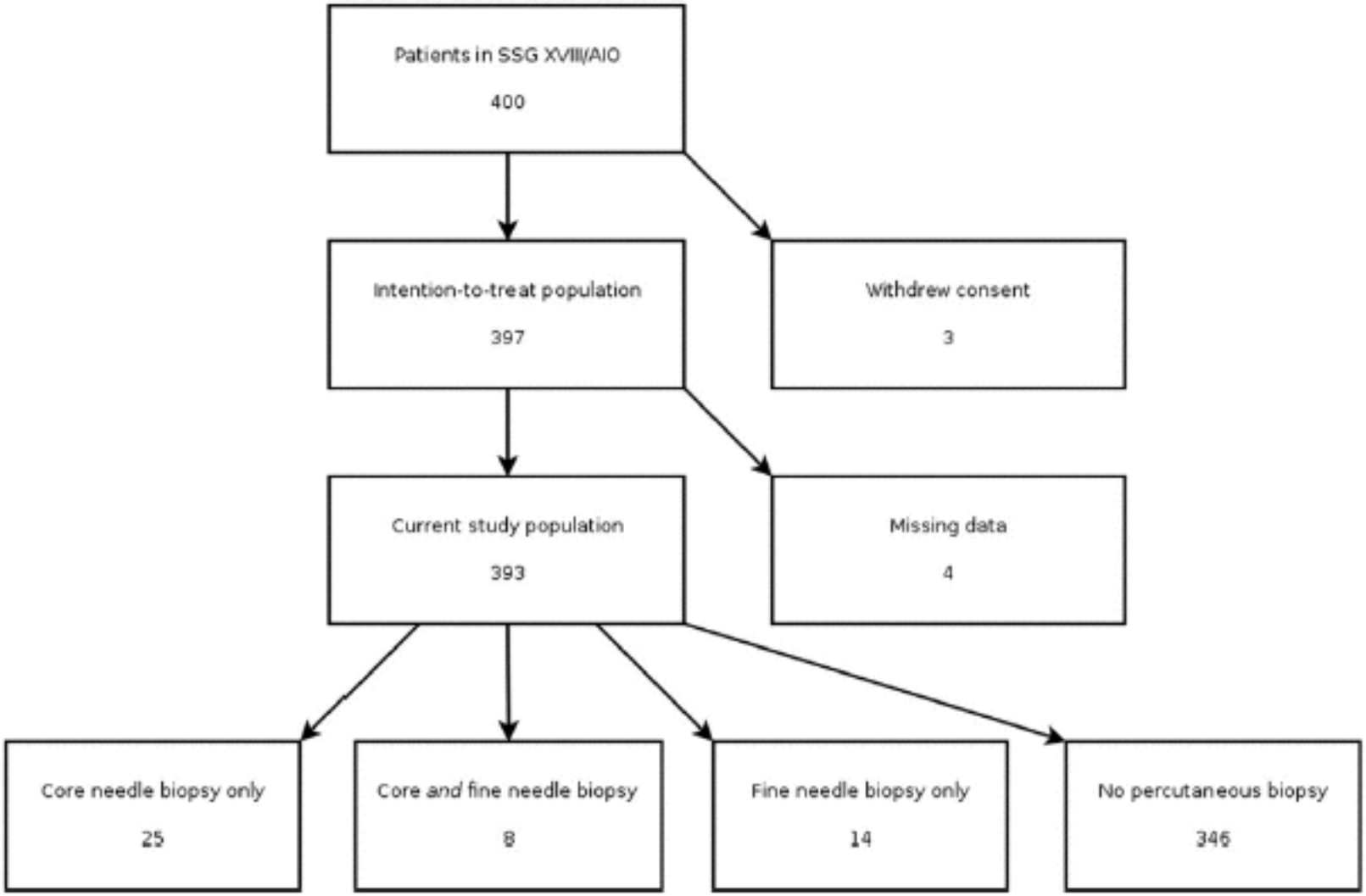

Fig. 1. A CONSORT diagram of the study. SSG, Scandinavian Sarcoma Group.

European Journal of Cancer 59 (2016) 128–133

Available online at www.sciencedirect.com

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journal homepage: www.ejcancer.com

Original Research

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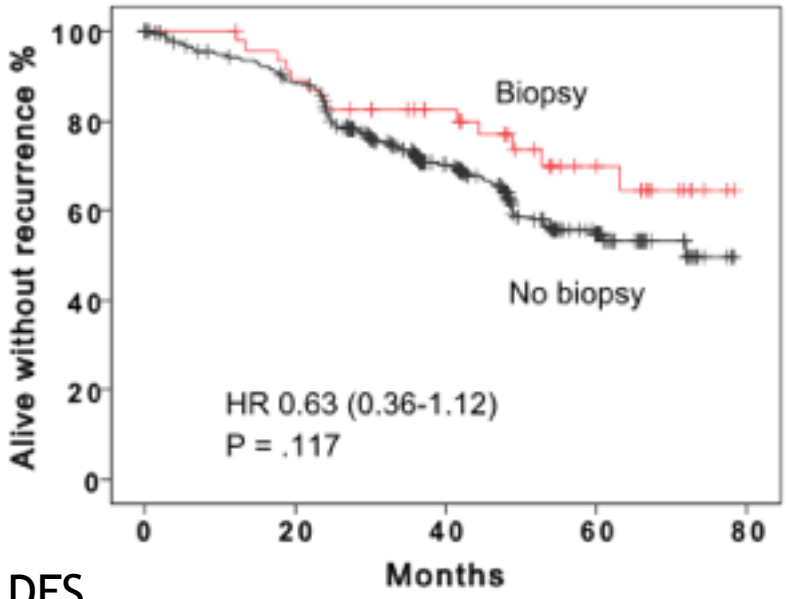
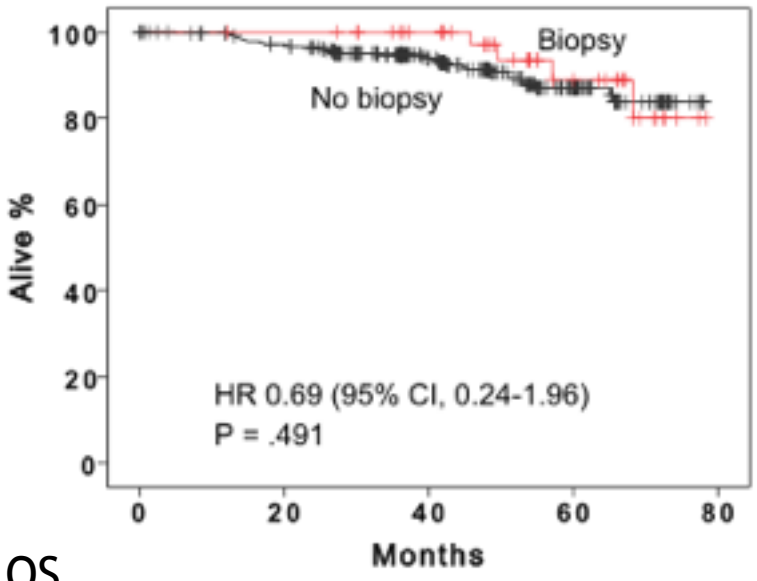
Mikael Eriksson [a,*], Peter Reichardt [b], Kirsten Sundby Hall [c], Jochen Schütte [d], Silke Cameron [e], Peter Hohenberger [f], Sebastian Bauer [g], Mika Leinonen [h], Annette Reichardt [b], Maria Rejmyr Davis [i], Thor Alvegård [j], Heikki Joensuu [k]



DFS



OS

Radiotherapy and Oncology 119 (2016) 40–44

Contents lists available at ScienceDirect

Radiotherapy and Oncology

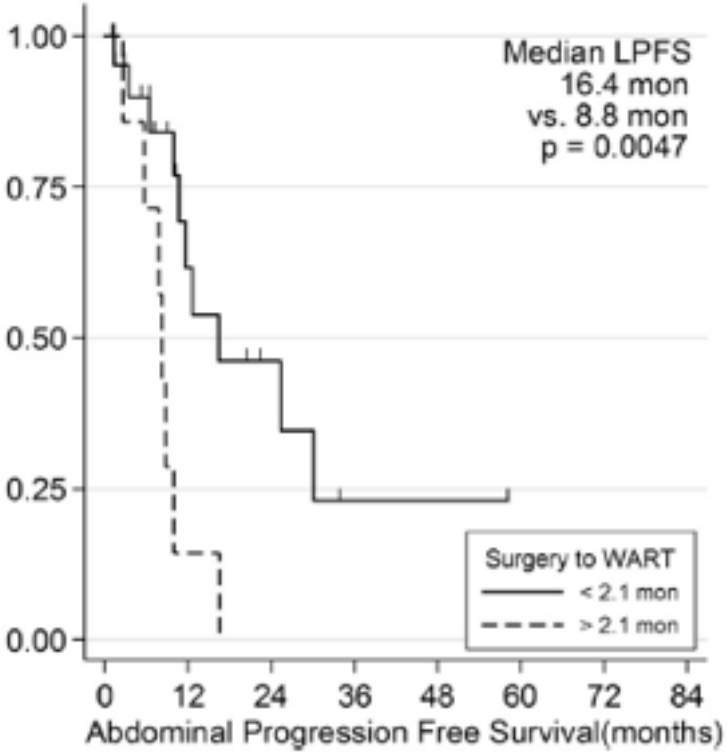
journal homepage: www.thegreenjournal.com

Desmoplastic small round cell tumor

Survival and toxicity following sequential multimodality treatment including whole abdominopelvic radiotherapy for patients with desmoplastic small round cell tumor

Eleanor Marshall Osborne [a], Tina Marie Briere [a], Andrea Hayes-Jordan [a], Lawrence B. Levy [a], Winston W. Huh [a], Anita Mahajan [a], Peter Anderson [b], Mary Frances McAleer [a,*]

[a] Anderson Cancer Center, Houston, United States; [b] The Cleveland Clinic, Cleveland, United States



Sarcoma Resection With and Without Vascular Reconstruction: A Matched Case-control Study

George A. Poultsides, MD, Thuy B. Tran, MD,* Eduardo Zambrano, MD,† Lucas Janson, MS,‡ David G. Mohler, MD,§ Matthew W. Mell, MD,¶ Raffi S. Avedian, MD,§ Brendan C. Visser, MD,* Jason T. Lee, MD,¶ Kristen Ganjoo, MD,|| E. John Harris, MD,¶ and Jeffrey A. Norton, MD**

(*Ann Surg* 2015;262:632–640)

From the *Department of Surgery, Division of Surgical Oncology, Stanford

Results: From 2000 to 2014, 50 sarcoma patients underwent VASC resection. These were matched with 100 NO-VASC patients having similar clinicopathologic characteristics. The rates of any complication (74% vs. 44%, $P = 0.002$), grade 3 or higher complication (38% vs. 18%, $P = 0.024$), and transfusion (66% vs. 33%, $P < 0.001$) were all more common in the VASC group. Thirty-day (2% vs. 0%, $P = 0.30$) or 90-day mortality (6% vs. 2%, $P = 0.24$) were not significantly higher. Local recurrence (5-year, 51% vs. 54%, $P = 0.11$) and overall survival after resection (5-year, 59% vs. 53%, $P = 0.67$) were similar between the 2 groups. Within the VASC group, overall survival was not affected by the type of vessel involved (artery vs. vein) or the presence of histology-proven vessel wall invasion.

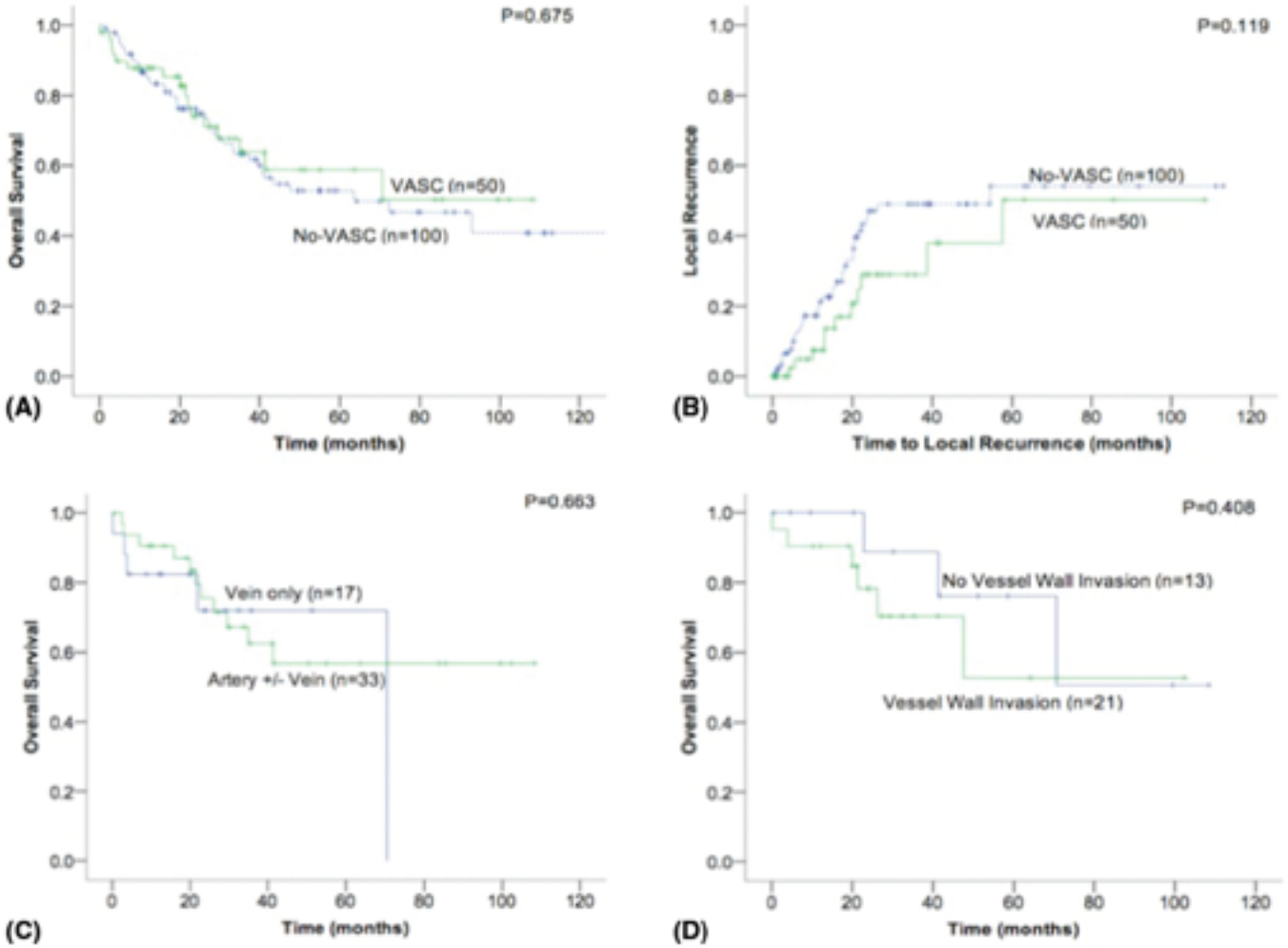


FIGURE 2. Comparison of overall survival (A) and time to local recurrence (B) between the VASC and NO-VASC groups. Comparison of overall survival (C) based on whether vascular resection involved arterial or venous structures only (VASC patients only). Comparison of overall survival (D) based on whether the vessel removed was histologically invaded by sarcoma (VASC patients only). VASC, vascular reconstruction; NO-VASC, without vascular reconstruction.

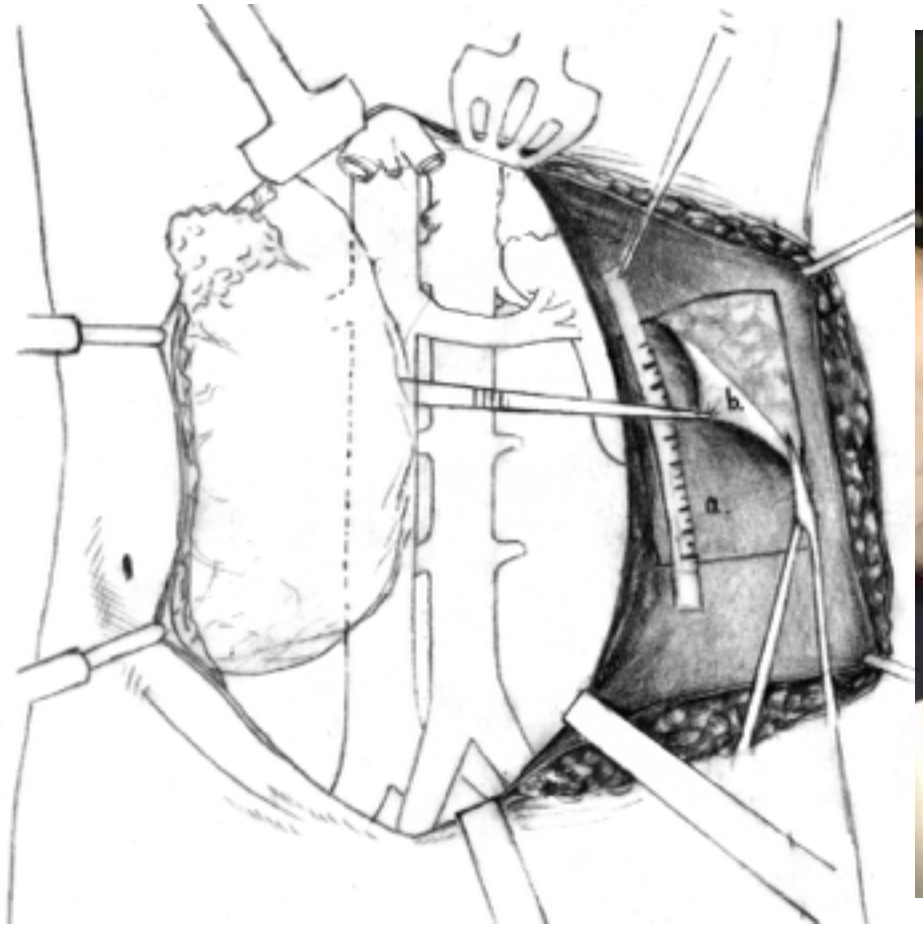
Vascular resection and reconstruction

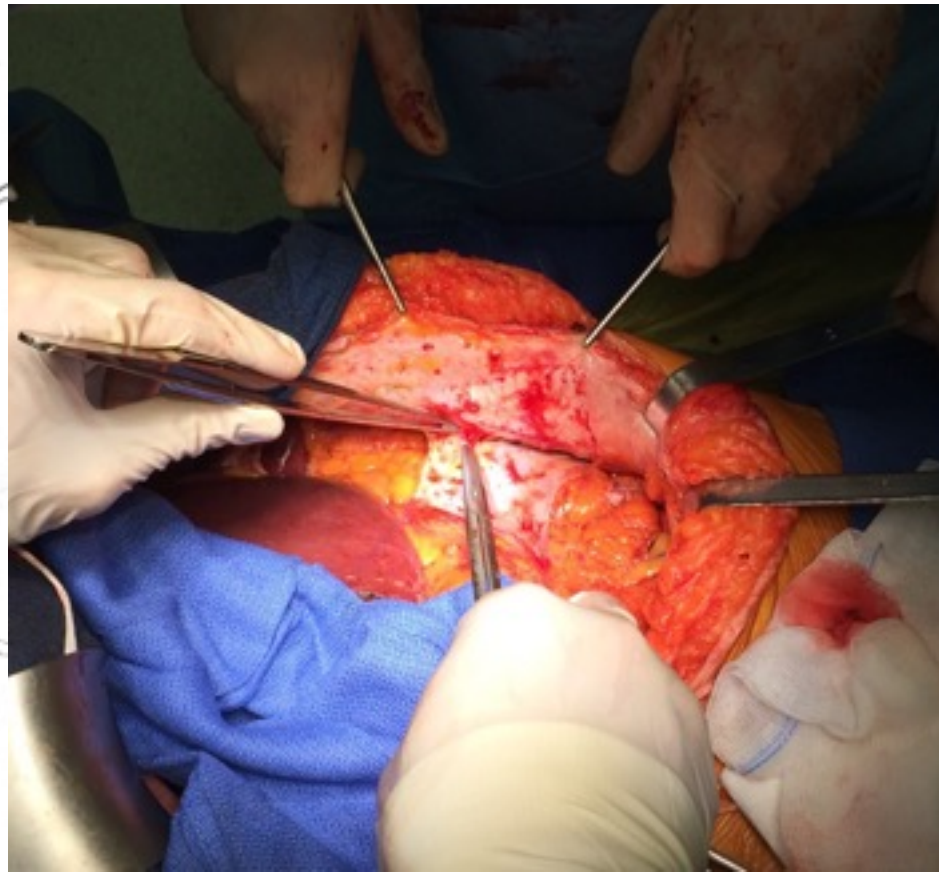
The use of autologous peritoneum for complete caval replacement following resection of major intra-abdominal malignancies

Coubeau Laurent, Rico Juri JM, Ciccarelli Olga ,Jabbour Nicolas, Lerut Jan
Surgery and Abdominal Transplantation Division, Université catholique de Louvain, Cliniques universitaires Saint-Luc, Brussels

5 cases of complete Inferior Vena Cava reconstruction **with single layer non fascial** peritoneum

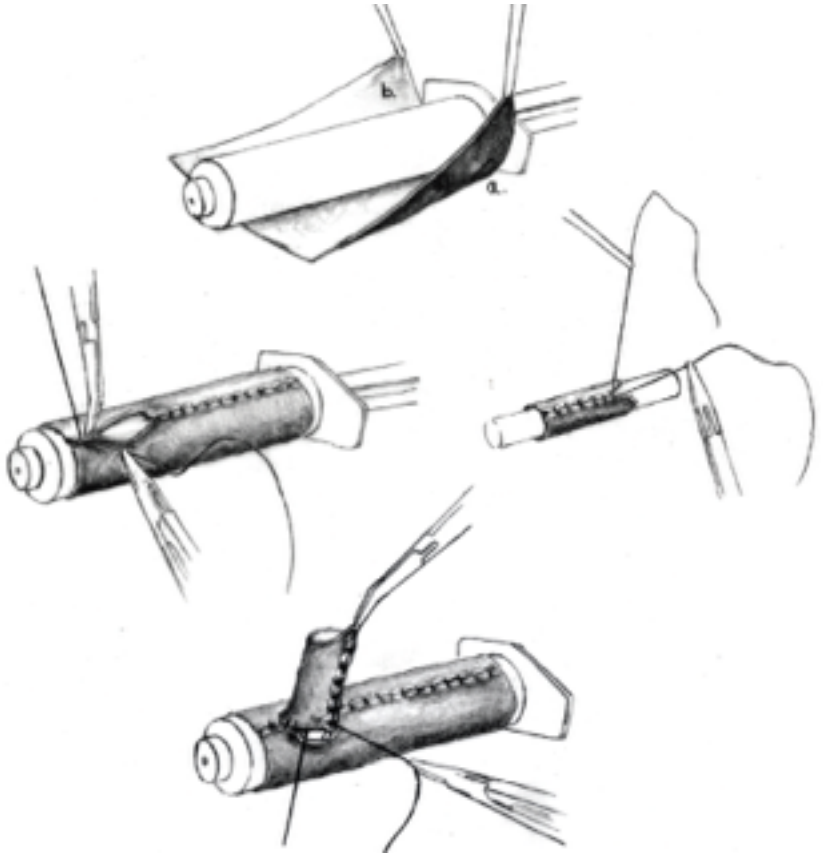
Peritoneal patch harvesting

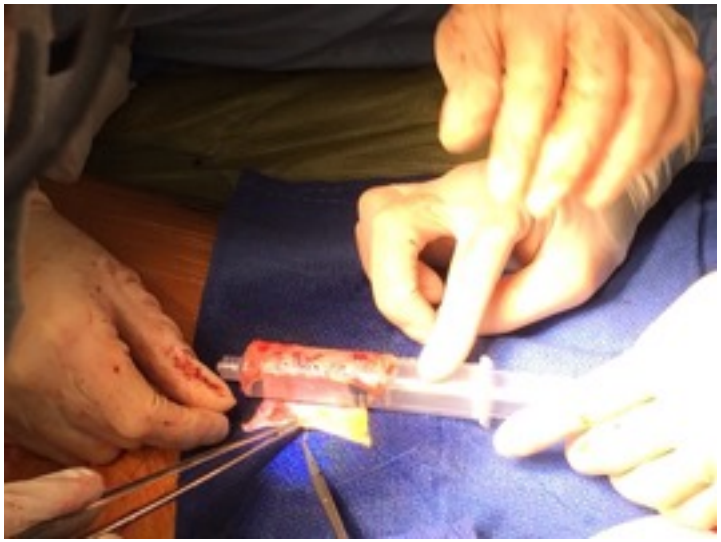


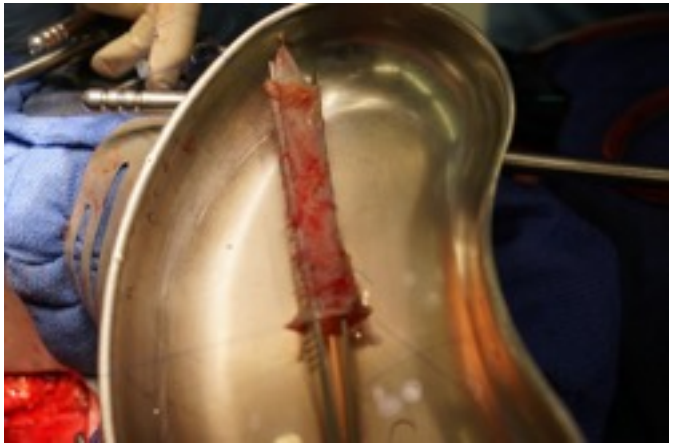


Circumference ($C=2\pi r$) length and patient IVC defect width

Tubulization







Implantation