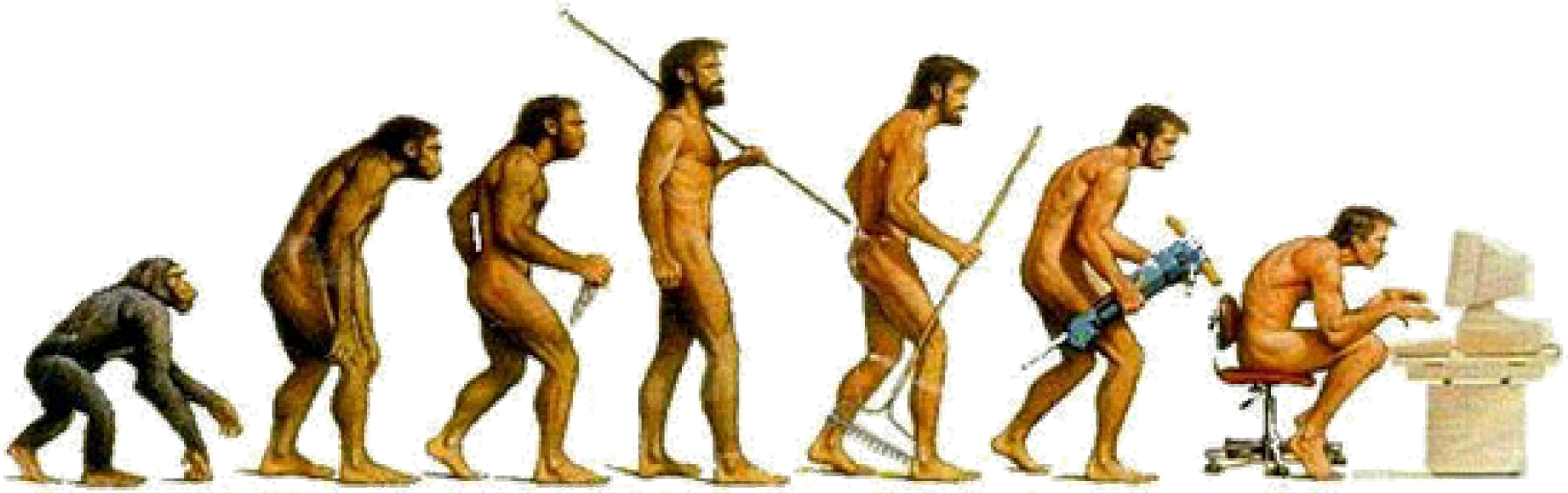
Department of Clinical and Experimental Medicine
Division of Obstetrics and Gynaecology

LO STATO DELL'ARTE DELLA CHIRURGIA MININVASIVA IN GINECOLOGIA

ARS Toscana - Firenze 15 Ottobre 2018

Prof. Tommaso Simoncini
Department of Clinical and Experimental Medicine
University of Pisa

EVOLUTION OF MINIMALLY INVASIVE SURGERY (MIS) IN GYNECOLOGY



Vaginal

Laparotomy

Laparoscopy

Robotic

EVOLUTION OF MINIMALLY INVASIVE SURGERY (MIS) IN GYNECOLOGY

1806 Phillip Bozzini (Germany) invents the endoscope to look into the vagina and urethra

1865 Sir Francis Richard Cruise (Ireland) first exploration of a body cavity – thoracoscopy

Around 1900 Georg Kelling (Germany) first endoscopic exploration of the abdomen (celioscopy)

1920 – 1940 Heinz Kalk (Germany) and John Ruddock (USA) development of abdominal exploration, mostly diagnostic and biopsies

1943 Raoul Palmer (France) First endoscopic assessments in gynecology – mostly infertility – developed a quartz lamp to add light

After WWII Hans Frangenheim (Germany) developed an abdominal insufflator after Palmer and wrote the first textbook on gynecological laparoscopy (1959)

1970 and on Kurt Semm (Germany) first gynecologic laparoscopic operative procedures

Advances in imaging (Hopkins rod lens system) and illumination (fiber optics) in the 1950s, and imaging (solid state cameras and high definition video displays) in the 1980s, provided video images with sufficient anatomic detail to allow surgical operations of increasing
Complexity.

Technology allowed endoscopy to realize its full potential, a true revolution in surgery.

EVOLUTION OF MINIMALLY INVASIVE SURGERY (MIS) IN GYNECOLOGY

DECREASING SURGICAL INVASIVENESS

LESS PAIN, QUICKER RECOVERY

GOOD FOR THE PATIENT

SHORTER HOSPITAL STAY, LESS EXPENSES

GOOD FOR THE HOSPITAL

MORE PRECISE SURGERY, BETTER OUTCOMES

GOOD FOR THE SURGEON

NEEDS TECHNOLOGY, ADDITIONAL COSTS

CHALLENGE FOR THE HOSPITAL

NEEDS TECHNICAL SKILLS, LONGER TRAINING

CHALLENGE FOR THE SURGEON

GYNECOLOGICAL SURGERY: what is it?

Surgery of...

UTERINE LESIONS
UTERINE MYOMAS

PELVIC PAIN
ENDOMETRIOSIS

BENIGN ADNEXAL DISEASES

PELVIC ORGAN PROLAPSE
URINARY INCONTINENCE

FERTILITY PRESERVATION

EMERGENCY SURGERY
ADNEXAL TORSION
HAEMORRHAGIC LUTEAL CYSTS
ECTOPIC PREGNANCY

GYNECOLOGICAL CANCERS

VULVOVAGINAL DISEASES

GYNECOLOGICAL surgery: the impact on society

Anno	Laparotomie N (%)	Laparoscopie N (%)	Totale N (%)
2009	182 (18,8)	788 (81,2)	970 (100)
2010	132 (13,3)	859 (86,7)	991 (100)
2011	129 (13,7)	811 (86,3)	940 (100)
2012	100 (11,7)	755 (88,3)	855 (100)
2013	88 (11,4)	683 (88,6)	771 (100)
2014	66 (9,3)	643 (90,7)	709 (100)
2015	54 (8,9)	556 (91,1)	610 (100)
2016	66 (10,8)	547 (89,2)	613 (100)
Totale	**817 (12,7)**	**5.642 (87,3)**	**6.459 (100)**

diagnosi di cisti ovarica in ospedali toscani anni 2009-2016 - Suddivisione per via d'accesso

OVARIAN CYSTS

Piramide per età della popolazione femminile residente in Toscana con ricovero ospedaliero per cisti ovarica, anni 2009 e 2016

La chirurgia ginecologica per patologia benigna in Toscana, agenzia regionale di sanità, febbraio 2018

GYNECOLOGICAL SURGERY: the impact on society

Distribuzione degli interventi effettuati in donne con diagnosi di leiomioma dell'utero in ospedali toscani anni 2009-2016 - Suddivisione per via d'accesso

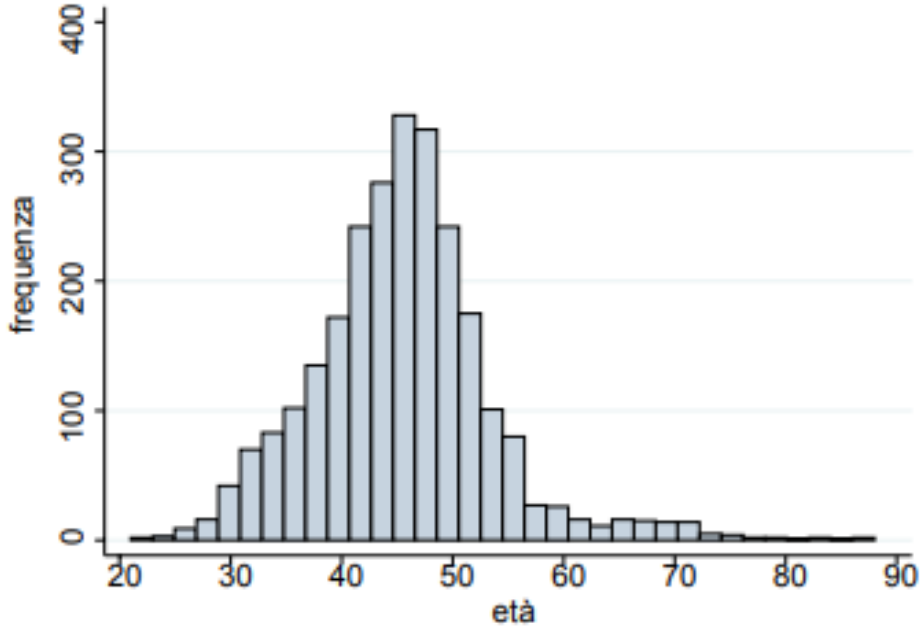
Anno	Laparotomie N (%)	Laparoscopie N (%)	Isteroscopie N (%)	Vaginale N (%)	Totale N (%)
2009	1.525 (59,1)	483 (18,7)	550 (21,3)	21 (0,8)	2.579 (100)
2010	1.746 (58,9)	560 (18,9)	634 (21,4)	20 (0,6)	2.960 (100)
2011	1.687 (59,3)	493 (17,3)	648 (22,7)	17 (0,6)	2.845 (100)
2012	1.429 (51,9)	587 (21,3)	714 (25,9)	19 (0,6)	2.749 (100)
2013	1.361 (51,8)	591 (22,5)	665 (25,3)	9 (0,3)	2.626 (100)
2014	1.398 (53,3)	506 (19,3)	703 (26,8)	12 (0,4)	2.619 (100)
2015	1.316 (53,4)	427 (17,3)	702 (28,5)	17 (0,6)	2.462 (100)
2016	1.313 (54,0)	425 (17,5)	678 (27,9)	12 (0,4)	2.428 (100)
Totale	**11.775 (55,4)**	**4.072 (19,1)**	**5.294 (24,9)**	**127 (0,6)**	**21.268 (100)**

S

e because of the presence of

myomas

Distribuzione della popolazione femminile residente in Toscana con ricovero ospedaliero per leiomioma dell'utero, anno 2016



La chirurgia ginecologica per patologia benigna in Toscana, agenzia regionale di sanità, febbraio 2018

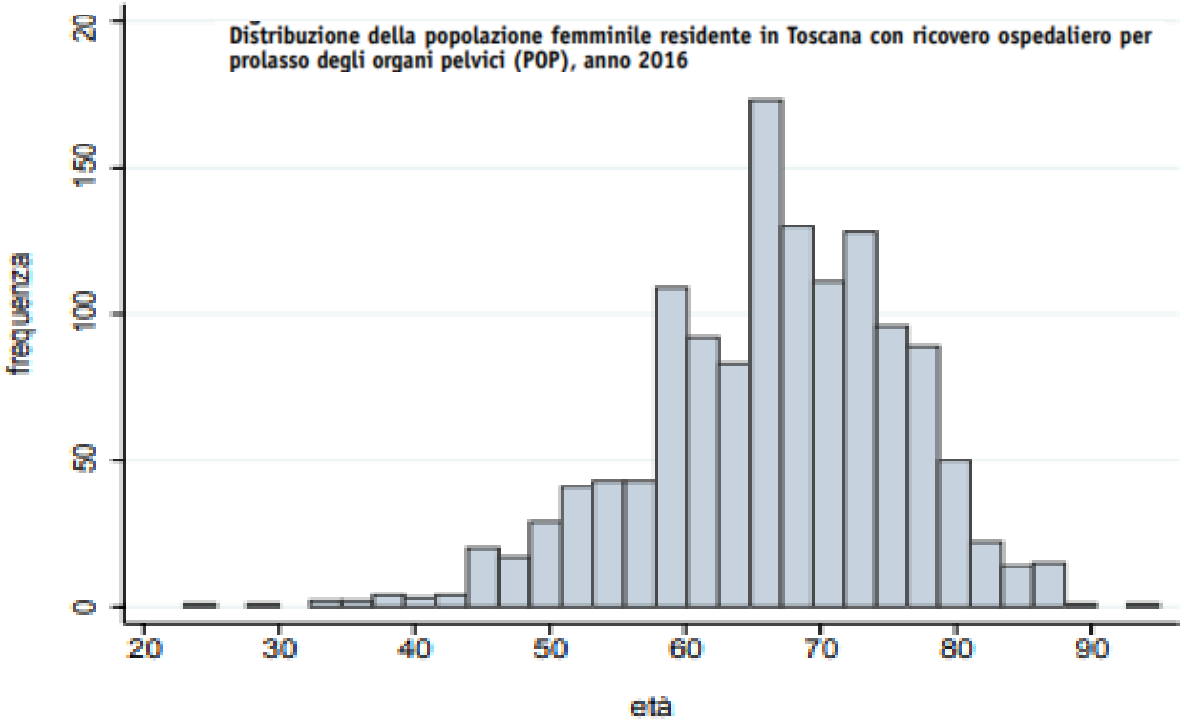
Int J Fertil Steril. 2016 Jan-Mar;9(4):424-35. Epub 2015 Dec 23. Epidemiology of Uterine Myomas: A Review.

GYNECOLOGICAL SURGERY: the impact on society

Anno	Laparotomie N(%)	Laparoscopie N(%)	Vaginali N(%)	Totale N(%)
2009	34 (2,2)	28 (1,8)	1.501 (96,0)	1.563 (100)
2010	40 (2,6)	23 (1,5)	1.494 (96,0)	1.557 (100)
2011	21 (1,4)	20 (1,3)	1.469 (97,3)	1.510 (100)
2012	34 (2,2)	42 (2,7)	1.455 (95,0)	1.531 (100)
2013	32 (2,1)	78 (5,0)	1.448 (92,9)	1.558 (100)
2014	40 (2,6)	67 (4,4)	1.422 (93,0)	1.529 (100)
2015	26 (1,8)	107 (7,5)	1.285 (90,6)	1.418 (100)
2016	21 (1,6)	107 (8,2)	1.184 (90,2)	1.312 (100)
Totale	**248 (2,1)**	**472 (3,9)**	**11.258 (94,0)**	**11.978 (100)**

Distribuzione degli interventi effettuati in donne con diagnosi di POP in ospedali toscani anni 2009-2016 - Suddivisione per via d'accesso

PELVIC ORGAN PROLAPSE



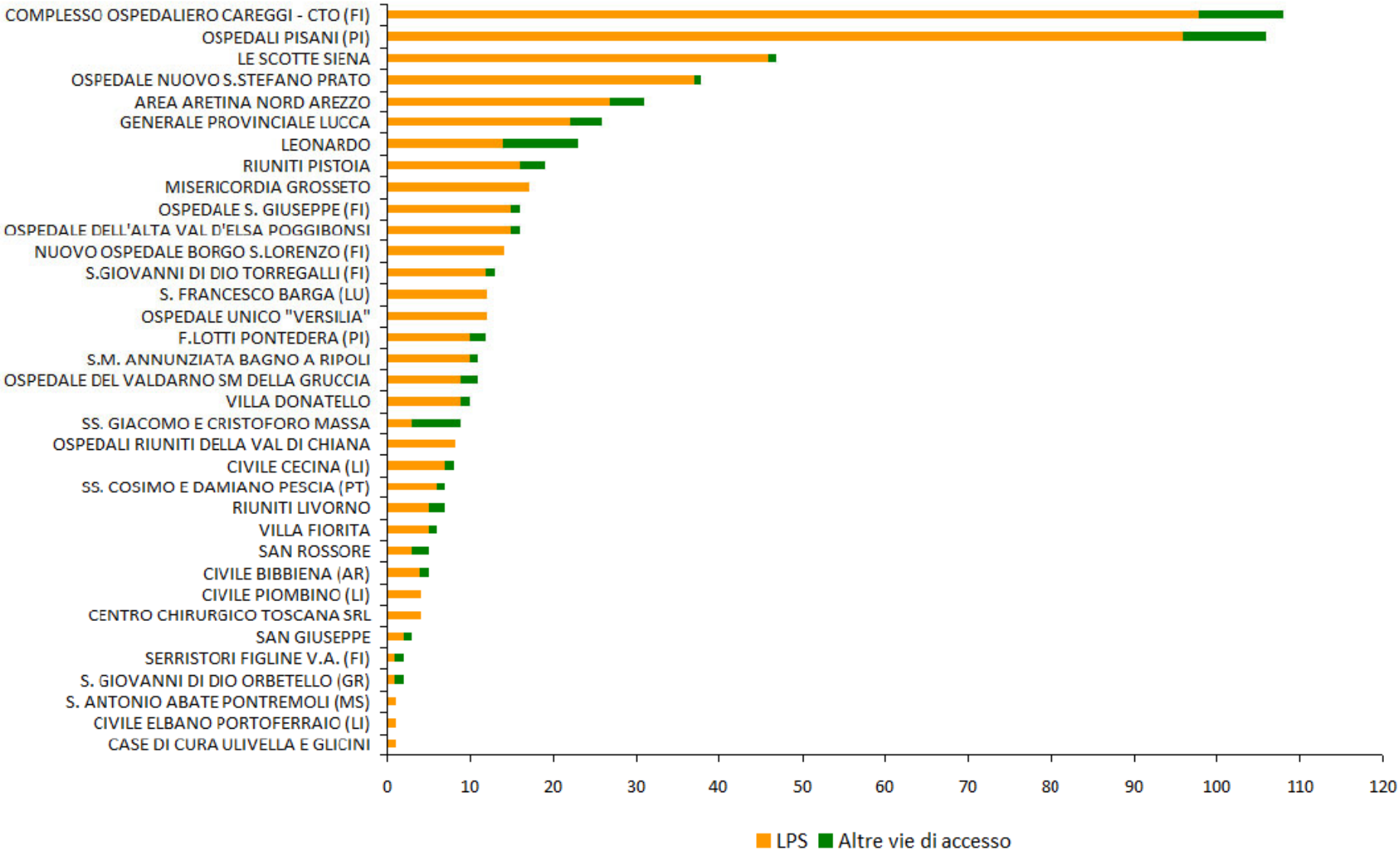
La chirurgia ginecologica per patologia benigna in Toscana, agenzia regionale di sanità, febbraio 2018

1. Percentuale di cisti ovariche effettuate in laparoscopia in donne di età 20-45 anni

Dato complessivo regionale

Anno	Totale Interventi	LPS	%
2009	970	788	81,24
2010	991	859	86,68
2011	940	811	86,28
2012	855	755	88,30
2013	771	683	88,59
2014	709	643	90,69
2015	610	556	91,15
2016	613	547	89,23
Totale	**6459**	**5642**	**87,35**

Distribuzione per presidio – Volumi anno 2016



ARS TOSCANA
agenzia regionale di sanità

Contents lists available at ScienceDirect

Maturitas

journal homepage: www.elsevier.com/locate/maturitas

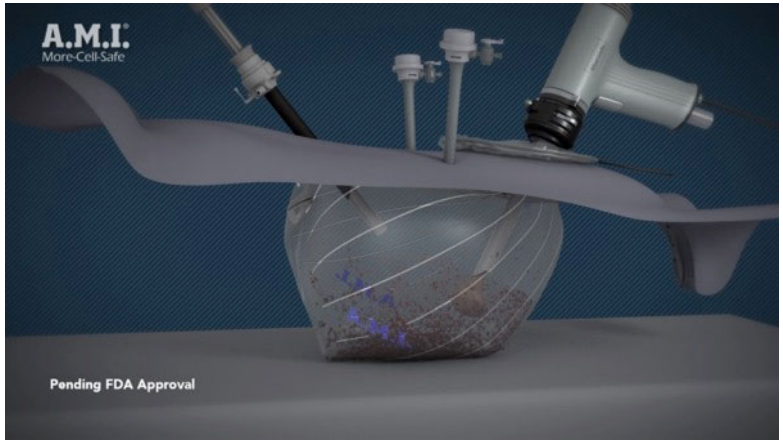
2018 June

Surgical management of fibroids: Putting morcellation into perspective

A. Giannini, T. Simoncini
Department of Clinical and Experimental Medicine , University of Pisa

FDA Updated Assessment of The Use of Laparoscopic Power Morcellators to Treat Uterine Fibroids

December 2017



Fertility and Sterility®

2014

Laparoscopy for ureteral endometriosis: surgical details, long-term follow-up, and fertility outcomes

Stefano Uccella, M.D., Ph.D., Antonella Cromi, M.D., Ph.D., Jvan Casarin, M.D., Giorgio Bogani, M.D., Ciro Pinelli, M.D., Maurizio Serati, M.D., and Fabio Ghezzi, M.D.

Department of Obstetrics and Gynecology, University of Insubria, Del Ponte Hospital, Varese, Italy

Outcomes of patients with >1 year follow-up.

Patients with complete available data	80 (73.4)
Median (range) follow-up, mo	52 (15–109)
Recurrence of symptoms	22 (27.5)
Dysmenorrhea	8 (36.4)
Pelvic pain	13 (59.1)
Dysuria	4 (18.2)
Dyschezia	2 (9.1)
Hormonal therapy	25 (31.2)
Oral hormonal therapy	24 (96)
GnRh analogues	5 (20)
Medicated IUD	1 (4)
Pregnancy	26 in 20 women
>1 pregnancy in same woman	4 in 20 women (20)
Ongoing pregnancy >20 wk	2/26 (7.7)[a]
IVF/IUI	9/26 (34.6)[b]
Miscarriages	4/26 (15.4)
Live births	22 in 20 pregnancies[c]
Surgical procedures of subsequent operations:	
Ureteral resection	2 (2.5)
Recto-vaginal nodule resection	3 (3.7)
Resection of the uterosacral ligament	1 (1.2)
Parametrectomy	1 (1.2)
Ovarian cystectomy	8 (10)
Adnexectomy	8 (10)
Salpingectomy	4 (5)
Total hysterectomy	6 (7.5)
Bowel resection	4 (5)
Bladder resection	0
Ureterolysis	5 (6.2)
Left	2 (40)
Right	0
Bilateral	3 (60)

Note: Values are number (percentage) unless otherwise noted.
[a] One twin pregnancy is still ongoing.
[b] Six women had successful IVF/IUI for a total of nine pregnancies (one had three pregnancies, and one had two pregnancies from IVF/IUI).
[c] In two cases twins were delivered; two pregnancy are still ongoing; four miscarriages occurred.

Uccella. Laparoscopic ureterolysis: late outcomes. Fertil Steril 2014.

Women who attempted to conceive.

	Conception		
Parameter	**Yes**	**No**	***P* value**
n (%)	20 (55.6)	16 (44.4)	
Age, y	31.3 ± 2.6	31.6 ± 5.8	.86
BMI, kg/m^2	20.8 ± 2.3	21.9 ± 2.8	.21
Nulliparous	19 (95)	16 (100)	1.00
rAFS score	83.9 ± 31.8	90.6 ± 45.3	.67
IVF[a]/IUI[b]	9 (45)[c]	10 (62.5)	.74
Hydronephrosis	11 (55)	12 (75)	.30
Surgical characteristics			
Ovarian cystectomy	10 (50)	6 (37.5)	.52
Salpingectomy	6 (30)	4 (25)	.89
Salpingo-oophorectomy	1 (5)	3 (18.7)	.42
Monolateral ureterolysis	16 (80)	11 (68.7)	.47
Bilateral ureterolysis	4 (20)	5 (31.2)	.47
Ureteral stenting	1 (5)	1 (6.2)	1.00
Bowel nodule removal	17 (85)	11 (68.7)	.42
Bowel resection	2 (10)	8 (50)	.01
Utero-sacral ligament resection	4 (20)	5 (31.2)	.47
Parametrectomy	3 (15.7)	4 (25)	.67
Medical therapy after surgery	4 (25)	10 (62.5)	.01
Remission of symptoms after surgery	11 (55)	5 (31.2)	.19

Note: Values are number (percentage) or mean ± SD.
[a] In vitro fertilization.
[b] Intrauterine sperm injection.
[c] Six had successful IVF/IUI, whereas three had failure of IVF/IUI and following spontaneous pregnancy.

Uccella. Laparoscopic ureterolysis: late outcomes. Fertil Steril 2014.

GYNECOLOGICAL SURGERY FOR ENDOMETRIAL CANCER

J Clin Oncol. 2009 Nov 10;27(32):5331-6. doi: 10.1200/JCO.2009.22.3248. Epub 2009 Oct 5.

Laparoscopy compared with laparotomy for comprehensive surgical staging of uterine cancer: Gynecologic Oncology Group Study LAP2.

Walker JL[1], Piedmonte MR, Spirtos NM, Eisenkop SM, Schlaerth JB, Mannel RS, Spiegel G, Barakat R, Pearl ML, Sharma SK.

(Long-term outcomes of the randomised controlled LAP2 trial were published in 2012)

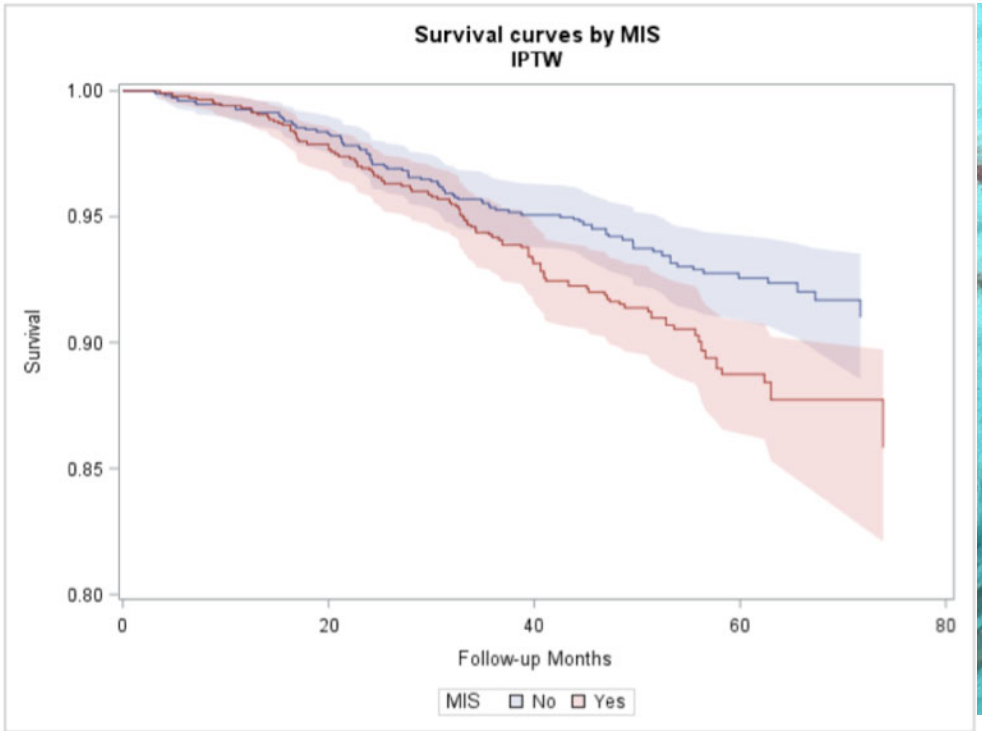
2616 uterine cancers (stage I-IIA) randomly assigned to laparoscopy (n= 1696) or open laparotomy (n= 920)

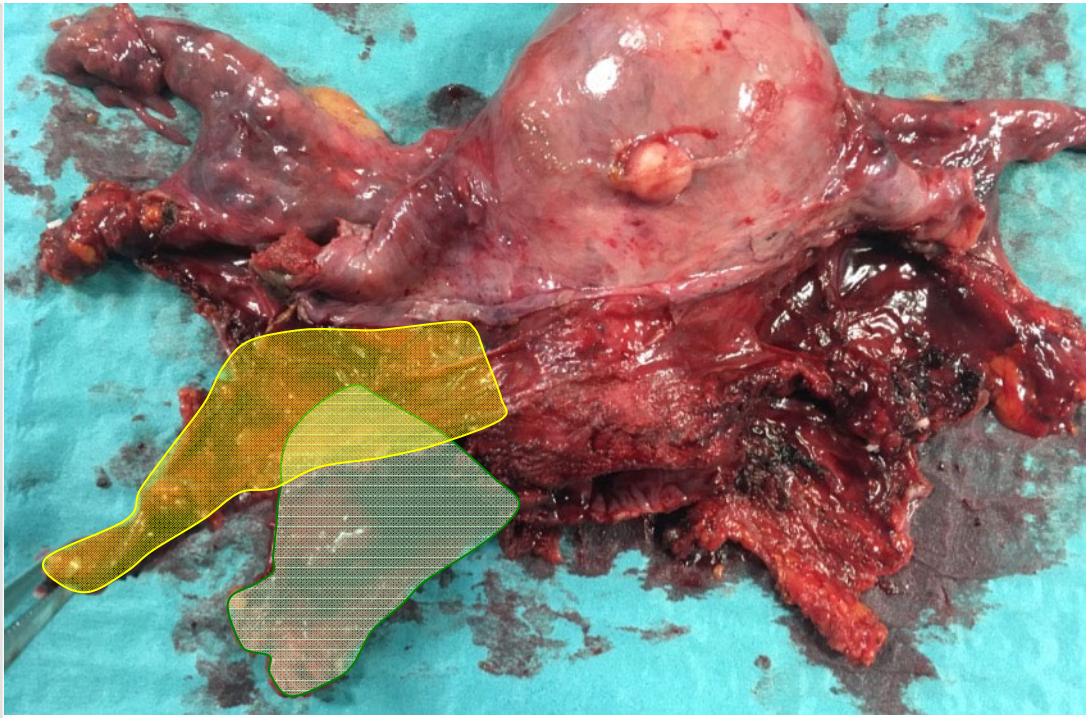
- ✓ Significantly fewer **post operative adverse events** (14% vs 21%)
- ✓ Lower frequency of **hospitalisations** of more than 2 days (52% vs 94%)
- ✓ Longer operative time in laparoscopic group
- ✓ Estimated **5-year OS** was almost identical in both arms (89.8%)

Laparoscopic Approach to Cervical Cancer (LACC)

Phase III randomized trial of laparoscopic or robotic versus abdominal radical hysterectomy in patients with early-stage cervical cancer: LACC Trial (631 patients)

27 recurrences in the MIS arm versus seven with open surgery.
The difference translated into a DFS hazard ratio of 3.74 (95% CI 1.63 to 8.58, *P*=0.002).
The MIS group had 19 locoregional recurrences -- a sixfold difference versus the three that occurred in the open-surgery group (95% CI 1.77 to 20.3, *P*=0.004).
The hazard ratio for disease-specific survival was 6.74 for MIS versus open surgery (95% CI 1.48 to 29.0, *P*=0.013).





P.T. Ramirez et al. 2018 49th Annual Meeting of the Society of Gynecologic Oncology

Laparoscopic Approach to Early Stage Ovarian Cancer

ELSEVIER

Available online at www.sciencedirect.com
SCIENCE DIRECT®

Gynecologic Oncology 93 (2004) 199–203

Gynecologic Oncology

www.elsevier.com/locate/ygyno

Laparoscopic treatment of early ovarian cancer: surgical and survival outcomes

Roberto Tozzi, Christhardt Köhler, Alfonso Ferrara, and Achim Schneider*

Department of Gynecology, Friedrich Schiller University, Jena, Germany

Received 22 September 2003

Objectives. To investigate the feasibility and safety of laparoscopic surgery in patients with early ovarian cancer.

Patients and methods. Between 05-1996 and 06-2003, 24 patients with ovarian cancer FIGO stage IA–B underwent either primary treatment or completion of staging by laparoscopy. Laparoscopic staging was performed according to the FIGO guidelines, which entails one-sided oophorectomy or bilateral salpingo-ophorectomy with laparoscopic-assisted vaginal hysterectomy, pelvic lymphadenectomy, infrarenal para-aortic lymphadenectomy, complete resection of the infundibulo-pelvic ligament, appendectomy and partial omentectomy.

Results. Eleven out of 24 patients (45.8%) underwent completion of staging after a mean of 12 days (range 4–21) after primary surgery, while 13 patients out of 24 (54.2%) underwent primary laparoscopic management of an adnexal mass, diagnosed as ovarian cancer by frozen section. Mean operative time was 166 min (range 118–206) for completion of staging and 182 min (range 141–246) for primary surgery. No major intraoperative complication occurred. One out of 24 patients (4.1%) developed chylos ascites postoperatively, which was managed conservatively. Five out of 24 patients (20.8%) received adjuvant chemotherapy after a median time of 7 days (mean 5–14) following surgery. No trocar metastasis occurred. Median follow-up is 46.4 months (range 2–72). Two out of 24 patients (8.3%) developed recurrence, which was treated with resurgery and chemotherapy. After a median follow-up of 46 months, disease-free survival is 91.6% and overall survival 100%.

Conclusions. Laparoscopic management of early ovarian cancer is safe and effective and survival outcome seems acceptable.

EVOLUTION OF SURGERY IN GYNECOLOGY

Multicenter analysis comparing robotic, open, laparoscopic, and vaginal hysterectomies performed by high-volume surgeons for benign indications

Peter C. Lim [a,*], John T. Crane [b], Eric J. English [c], Richard W. Farnam [d], Devin M. Garza [e], Marc L. Winter [f], Jerry L. Rozeboom [g]

International Journal of Gynecology and Obstetrics 133 (2016) 359–364

Hysterectomies performed for <u>benign indications</u> between January 1, 2010 and September 30, 2013

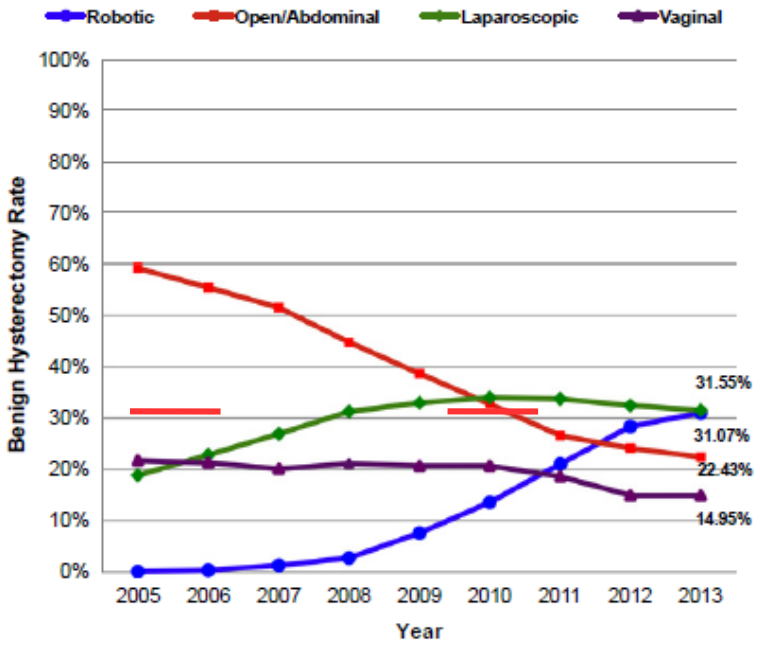
TOT n=32118

n=2300
robotic hysterectomy

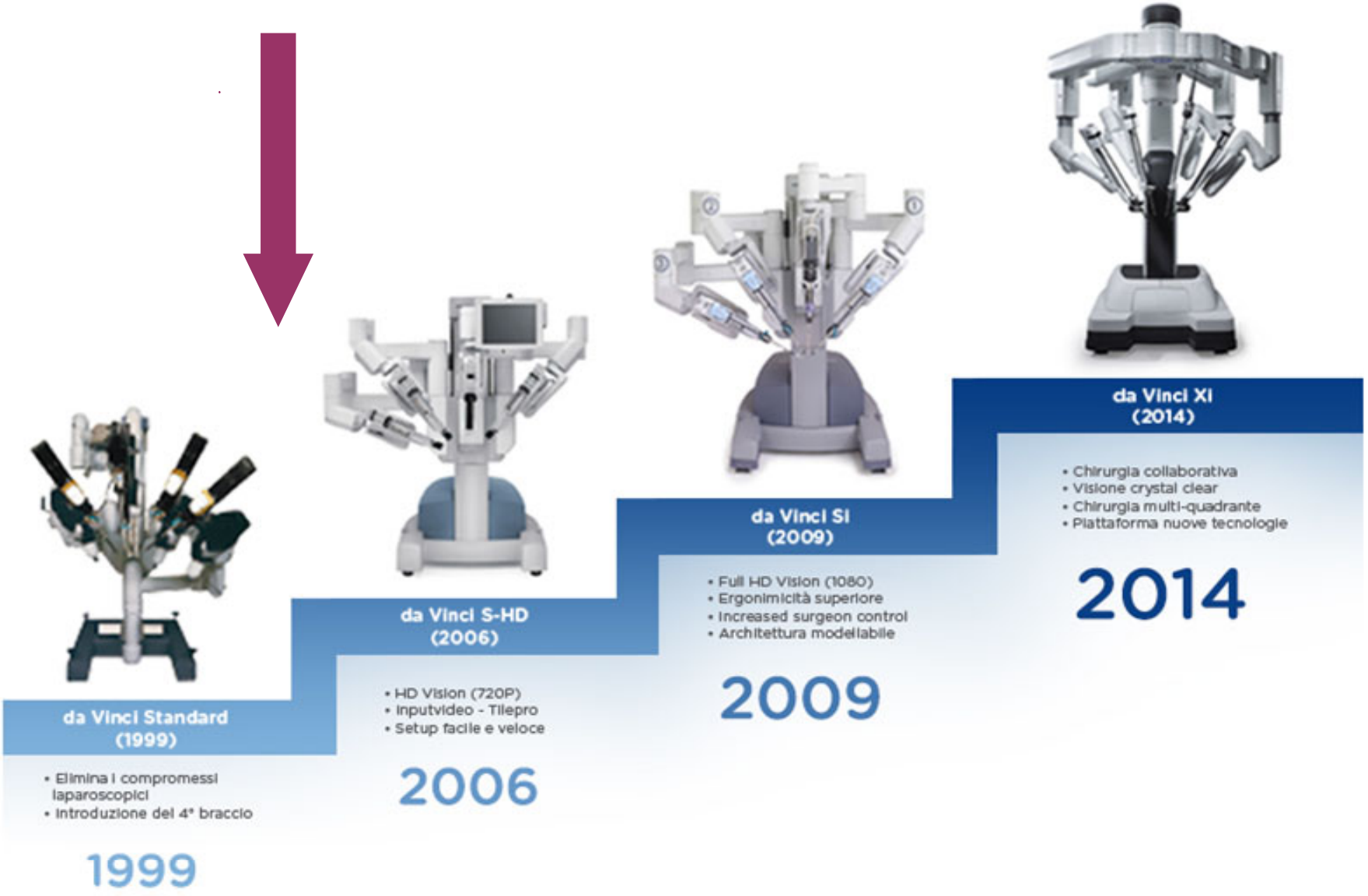
n=9745
abdominal hysterectomy

n=8121
vaginal hysterectomy

n=11952
laparoscopic hysterectomy



EVOLUTION OF SURGERY IN GYNECOLOGY



The FDA approved ***da Vinci*® surgical system** for use in gynecological and urogynaecological surgery in April 2005.

ROBOTIC PLATFORM

- 3D vision, magnification 10 X, binocular vision, stereoscopic camera, depth perception, high-definition video, higher resolution
- Absence of fulcrum effect: motion is in the normal "natural" direction
- Motion amplification and tremor filtering due to robotic system algorithm
- 7 degrees of freedom of instruments: an articulating wrist provides an additional degree of freedom, 90 degrees of articulation
- Ergonomic designed console

RESULT IN…

- Precise identification of anatomical structures
- Accurate dissection and fast suturing in narrow spaces
- Reduction of fatigue during complex cases
- Reduction of surgeon's tiring and anxiety during operation

Improvement of **accuracy** , **dexterity** and **skills**

Short learning curve

Widespread diffusion of technique

Bhayani 2005, Hubert 2013, Schatte Olivier 2009

ARE COSTS OF ROBOT-ASSISTED SURGERY JUSTIFIED FOR GYNECOLOGICAL PROCEDURES?

ROBOT-ASSISTED SURGERY IN GYNECOLOGY

- Endometrial cancer
- Cervical cancer
- Myomectomy
- Hysterectomy
- Endometriosis
- Fertility preservation
- Pelvic floor surgery

6 RCT

371 Hysterectomy

146 Sacrocolpopexy

Cochrane Library

Cochrane Database of Systematic Reviews

Robot-assisted surgery in gynaecology (Review)

Liu H, Lawrie TA, Lu D, Song H, Wang L, Shi G

Authors' conclusions

We are uncertain as to whether RAS or CLS has lower intraoperative and postoperative complication rates because of the imprecision of the effect and inconsistency among studies when they are used for hysterectomy and sacrocolpopexy. Moderate-quality evidence suggests that these procedures take longer with RAS but may be associated with a shorter hospital stay following hysterectomy. We found limited evidence on the effectiveness and safety of RAS compared with CLS or open surgery for surgical procedures performed for gynaecological cancer; therefore its use should be limited to clinical trials. Ongoing trials are likely to have an important impact on evidence related to the use of RAS in gynaecology.

SO… WHICH PATIENTS SHOULD BE CANDIDATES FOR ROBOTIC GYNECOLOGICAL SURGERY?

- OBESE PATIENTS
- ENDOMETRIAL CANCER
- PELVIC ORGAN PROLAPSE
- DEEP ENDOMETRIOSIS
- LARGE UTERI
- CERVICAL CANCER

Procedures that can be done in laparoscopy SHOULD NOT BE MADE WITH ROBOTIC SURGERY!

Lateral Suspension with mesh for apical and anterior Pelvic Organ Prolapse: a prospective double center study with 2-year follow up

	All patients (n = 125)
Age (years), mean ± SD (median)	60 ± 9.85 (61)
BMI (kg/m^2) < 25, *n (%)*	66 (52.8)
BMI (kg/m^2) > 25, *n (%)*	59 (47.2)
Parity, *n (%)*	
Nulliparous	1 (0.8)
Multiparous	*124 (99.2)*
Number of vaginal deliveries, *n (%)*	
One	42 (33.6)
Two or more	81 (64.8)
Menopausal, n (%)	101 (80.8)
HRT, n (%)	7 (5.6)
Sexual activity, n (%)	96 (76.8)
Dyspareunia, n (%)	11 (8.8)
Voiding obstruction, n (%)	4 (3.2)
Fecal incontinence, n (%)	0 (0)
Stress incontinence, n (%)	9 (7.2)
Urge incontinence, n (%)	0 (0)
Constipation, n (%)	0 (0)
Prior POP surgery, n (%)	13 (10.4)
Prior urinary incontinence surgery, n (%)	3 (2.4)
Prior hysterectomy, n (%)	7 (5.6)

POP-Q stage	Preoperative n (%)	Postoperative at an average of 19.0 months n (%)	*p*-value Fisher's Exact test
Anterior compartment			
0	1 (0.8)	90 (72.0)	<0.0001
I	7 (5.6)	156 (12.8)	
II	21 (16.8)	12 (9.6)	
III	72 (57.6)	6 (4.8)	
IV	24 (19.2)	1 (0.8)	
Apical compartment			
0	0 (0.0)	113 (90.4)	<0.0001
I	1 (0.8)	4 (3.2)	
II	38 (30.4)	2 (1.6)	
III	50 (40.0)	6 (4.8)	
IV	36 (28.8)	0 (0.0)	
Posterior compartment			
0	78 (62.4)	75 (60.0)	0.01
I	42 (33.6)	289 (23.2)	
II	5 (4.0)	20 (16.0)	
III	0 (0.0)	1 (0.8)	
IV	0 (0.0)	0 (0.0)	

T. Simoncini et al. Under submission to Eur. Urol.

DEEP ENDOMETRIOSIS

frontiers in Surgery

2018

ORIGINAL RESEARCH
published: 04 September 2018
doi: 10.3389/fsurg.2018.00051

Robotic Approach to Ureteral Endometriosis: Surgical Features and Perioperative Outcomes

*Andrea Giannini[1], Silvia Pisaneschi[1], Elisa Malacarne[1], Vito Cela[1], Franca Melfi[2], Alessandra Perutelli[1] and Tommaso Simoncini[1]**

TABLE 1 | Patients characteristics.

	n (%)
N. of case	31
Age (years ± SD)	39.1 ± 4.56
BMI (kg/m² ± SD)	22.97 (21.75%)
History of endometriosis surgery	12 (38.7%)
PARITY	
Nulliparus	20 (64.5%)
Primiparus or multiparus	11 (35.4%)
SYMPTOMS	
Dysmenorrhea	21 (67.7%)
Dyspareunia	20 (64.5%)
Urinary tract signs	13 (41.9%)
Digestive signs	8 (25.8%)
ASA SCORE	
I	2 (6.4%)
II	25 (80.6%)
III	4 (12.9%)
IV	0
Perioperative hormonal treatment	20 (64.5%)
Preoperative stenting	9 (29%)

ASA, American Society of Anesthesiologists.

TABLE 2 | Perioperative results.

	Patients *n* 31 (%)
Operating time (min)	184.8 ± 81
Estimated blood loss	207 ± 142
Hospital stay (days)	4.02 ± 3
Full robotic technique	31 (100%)
ROBOTIC ARMS	
Three arms	28 (90.3%)
Four arms	3 (9.7%)
Side Docking	29 (93.5%)
Right side	22 (75.8%)
Left side	7 (24.2%)
Central docking	2 (6.5%)
ASSOCIATED SURGERY	
Rectovaginal nodules	6 (19.3%)
Uterosacral ligaments	24 (77.4%)
Endometriomas	7 (22.6%)
URETERAL ENDOMETRIOSIS	
Left	21 (67.7%)
Right	10 (32.3%)
MAIN COMPLICATIONS	
Ureteral fistula	2 (6.4%)
Hydronephrosis	1 (3.2%)
Vaginal hematoma	1 (3.2%)
Ureterovescical reimplantation	1 (3.2%)
Histopathology confirmation	31 (100%)

metriotic nodule involved

AOUP - DRG PIU' NUMEROSI

Classifica del 20% dei DRG più numerosi	2015	2016	2017
359-Interventi su utero e annessi non per neoplasie maligne senza CC	356	379	452
373-Parto vaginale senza diagnosi complicanti	413	382	371
371-Parto cesareo senza CC	172	160	202
381-Aborto con dilatazione e raschiamento, mediante aspirazione o isterotomia	144	162	126
383-Altre diagnosi preparto con complicazioni mediche	83	62	86
379-Minaccia di aborto	42	80	93
370-Parto cesareo con CC	41	94	65
356-Interventi ricostruttivi dell'apparato riproduttivo femminile	31	57	75
369-Disturbi mestruali e altri disturbi dell'apparato riproduttivo femminile	56	46	36
360-Interventi su vagina, cervice e vulva	78		40
384-Altre diagnosi preparto senza complicazioni mediche	41	31	33
364-Dilatazione e raschiamento, conizzazione eccetto per neoplasie maligne	38		54
372-Parto vaginale con diagnosi complicanti	35		

Tipo DRG	2015	Incidenza % su Totale	2016	Incidenza % su Totale	2017	Incidenza % su Totale	Delta nr. Ricoveri 2017 - 2016	Delta nr. Ricoveri 2017 - 2015
CHIRURGICO	1.014	56,65%	1.075	58,71%	1.171	60,55%	96	157
MEDICO	776	43,35%	756	41,29%	731	37,80%	-25	-45

DEGENZA MEDIA

		Dettaglio di Periodo 2018					
		Numero di Ricoveri	C2A.1 GG deg Media Rif. 2016	GG Deg Osservate	GG deg. Attese	▲ (GG deg Osservate - Attese)	DM
3704-UO Ostetricia	359-Interventi su utero e annessi non per neoplasie maligne senza CC	145	3,01	262	436,14	- 174,14	1,81
	356-Interventi ricostruttivi dell'apparato riproduttivo femminile	48	2,94	73	141,35	- 68,35	1,52
	371-Parto cesareo senza CC	36	4,05	144	145,71	- 1,71	4,00
	373-Parto vaginale senza diagnosi complicanti	18	3,52	86	63,38	22,62	4,78
	353-Eviscerazione pelvica, isterectomia radicale e vulvectomia radicale	12	7,53	53	90,36	- 37,36	4,42
	360-Interventi su vagina, cervice e vulva	9	3,82	35	34,39	0,61	3,89
	355-Interventi su utero e su annessi per neoplasie maligne non dell'ova	8	4,43	23	35,42	- 12,42	2,88
	358-Interventi su utero e annessi non per neoplasie maligne con CC	7	4,92	20	34,42	- 14,42	2,86
	467-Altri fattori che influenzano lo stato di salute	7	1,63	18	11,41	6,59	2,57
	408-Alterazioni mieloproliferative o neoplasie poco differenziate con alt	6	2,93	6	17,61	- 11,61	1,00
	461-Intervento con diagnosi di altro contatto con i servizi sanitari	6	3,24	9	19,42	- 10,42	1,50
	383-Altre diagnosi preparto con complicazioni mediche	6	4,09	26	24,53	1,47	4,33
	361-Laparoscopia e occlusione laparotomica delle tube	6	2,45	9	14,68	- 5,68	1,50
	381-Aborto con dilatazione e raschiamento, mediante aspirazione o ist	5	1,77	10	8,84	1,16	2,00
	357-Interventi su utero e annessi per neoplasie maligne dell'ovaio o de	4	6,00	12	24,00	- 12,00	3,00
	370-Parto cesareo con CC	3	6,38	16	19,15	- 3,15	5,33
	364-Dilatazione e raschiamento, conizzazione eccetto per neoplasie m	3	1,38	5	4,13	0,88	1,67
	326-Segni e sintomi relativi a rene e vie urinarie, eta' > 17 anni senza C	3	2,60	3	7,80	- 4,80	1,00
	369-Disturbi mestruali e altri disturbi dell'apparato riproduttivo femminil	2	2,07	2	4,13	- 2,13	1,00
	151-Lisi di aderenze peritoneali senza CC	2	4,33	3	8,67	- 5,67	1,50
	366-Neoplasie maligne apparato riproduttivo femminile con CC	2	6,55	3	13,10	- 10,10	1,50
	469-Diagnosi principale non valida come diagnosi di dimissione	2		5		5,00	2,50
	171-Altri interventi sull'apparato digerente senza CC	1	4,24	4	4,24	- 0,24	4,00
	365-Altri interventi sull'apparato riproduttivo femminile	1	5,65	1	5,65	- 4,65	1,00
	367-Neoplasie maligne dell'apparato riproduttivo femminile senza CC	1	7,60	2	7,60	- 5,60	2,00
	270-Altri interventi su pelle, tessuto sottocutaneo e mammella senza C	1	1,82	1	1,82	- 0,82	1,00
	102-Altre diagnosi relative all'apparato respiratorio senza CC	1	3,15	1	3,15	- 2,15	1,00
	167-Appendicectomia con diagnosi principale non complicata senza C	1	2,42	2	2,42	- 0,42	2,00
	183-Esofagite, gastroenterite e miscellanea di malattie dell'apparato di	1	3,46	2	3,46	- 1,46	2,00
	313-Interventi sull'uretra, eta' > 17 anni senza CC	1	2,55	1	2,55	- 1,55	1,00
	316-Insufficienza renale	1	6,39	2	6,39	- 4,39	2,00
	376-Diagnosi relative a postparto e postaborto senza intervento chirurg	1	3,90	4	3,90	0,10	4,00
3704-UO Ostetricia e ginecologia 1 U Univ		**350**	**- 1,02**	**843**	**1.199,81**	**- 356,81**	**2,41**

2. Percentuale di isterectomie effettuate in laparoscopia

Dato complessivo regionale

Anno	Fibromi			Cisti ovariche			Endometriosi		
	Tot. Isterectomie	LPS	%	Tot. Isterectomie	LPS	%	Tot. Isterectomie	LPS	%
2009	825	162	19,6%	72	16	22,2%	22	3	13,6%
2010	937	143	15,3%	55	8	14,5%	37	13	35,1%
2011	865	132	15,3%	61	8	13,1%	40	15	37,5%
2012	808	164	20,3%	70	23	32,9%	22	11	50,0%
2013	786	173	22,0%	62	16	25,8%	41	17	41,5%
2014	800	179	22,4%	57	14	24,6%	45	22	48,9%
2015	776	168	21,6%	49	15	30,6%	45	23	51,1%
2016	751	158	21,0%	73	19	26,0%	46	18	39,1%
Totale	**6548**	**1279**	**19,5%**	**499**	**119**	**23,8%**	**298**	**122**	**40,9%**

ARS TOSCANA
agenzia regionale di sanità

UNIVERSITÀ DI PISA

management e sanità
Laboratorio di ricerca e formazione per il Management dei Servizi alla Salute

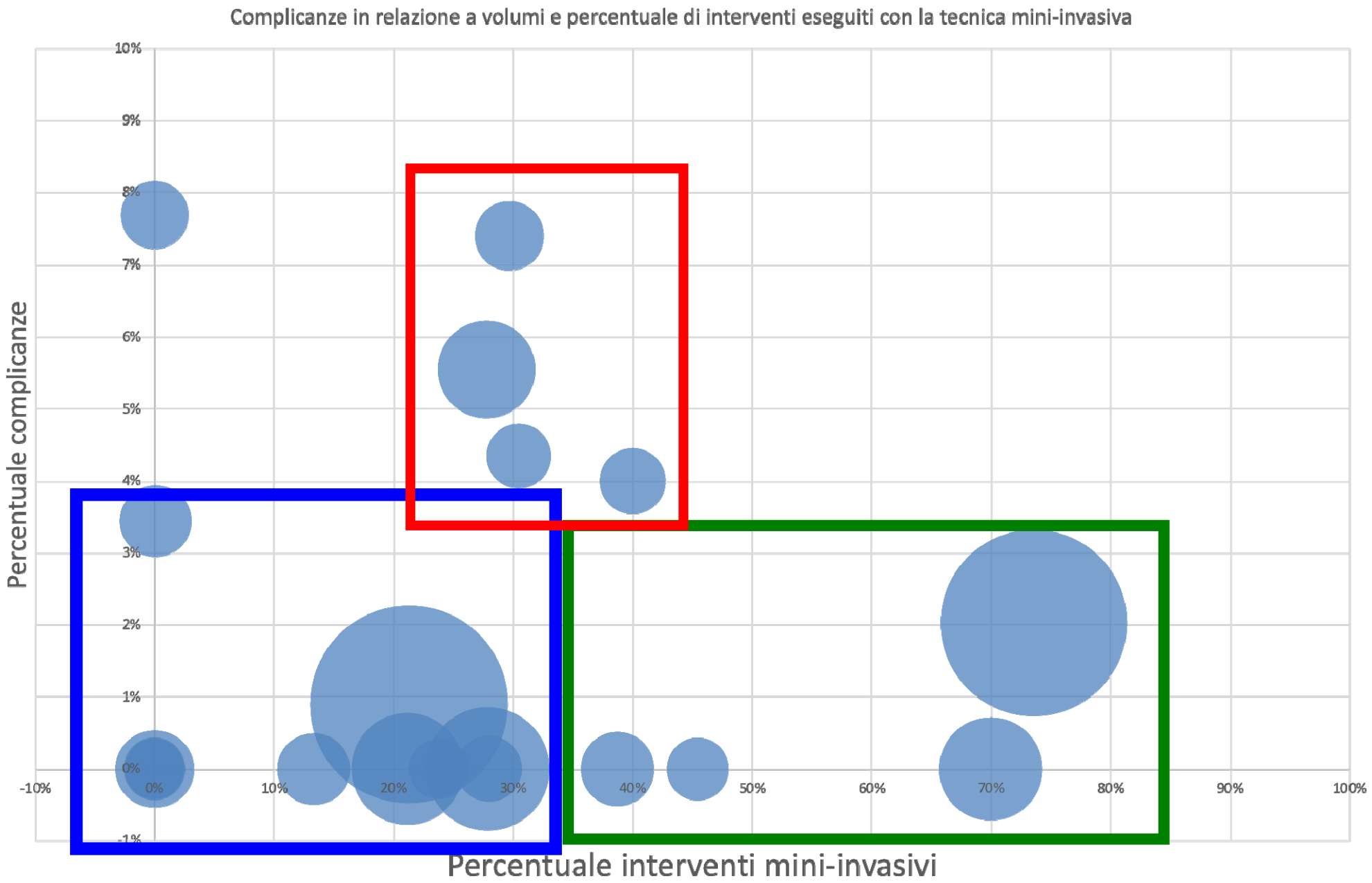
Isterectomia per patologia benigna: evidenze dalla regione Toscana

Laboratorio Management e Sanità
Istituto di Management
Scuola Superiore Sant'Anna, Pisa

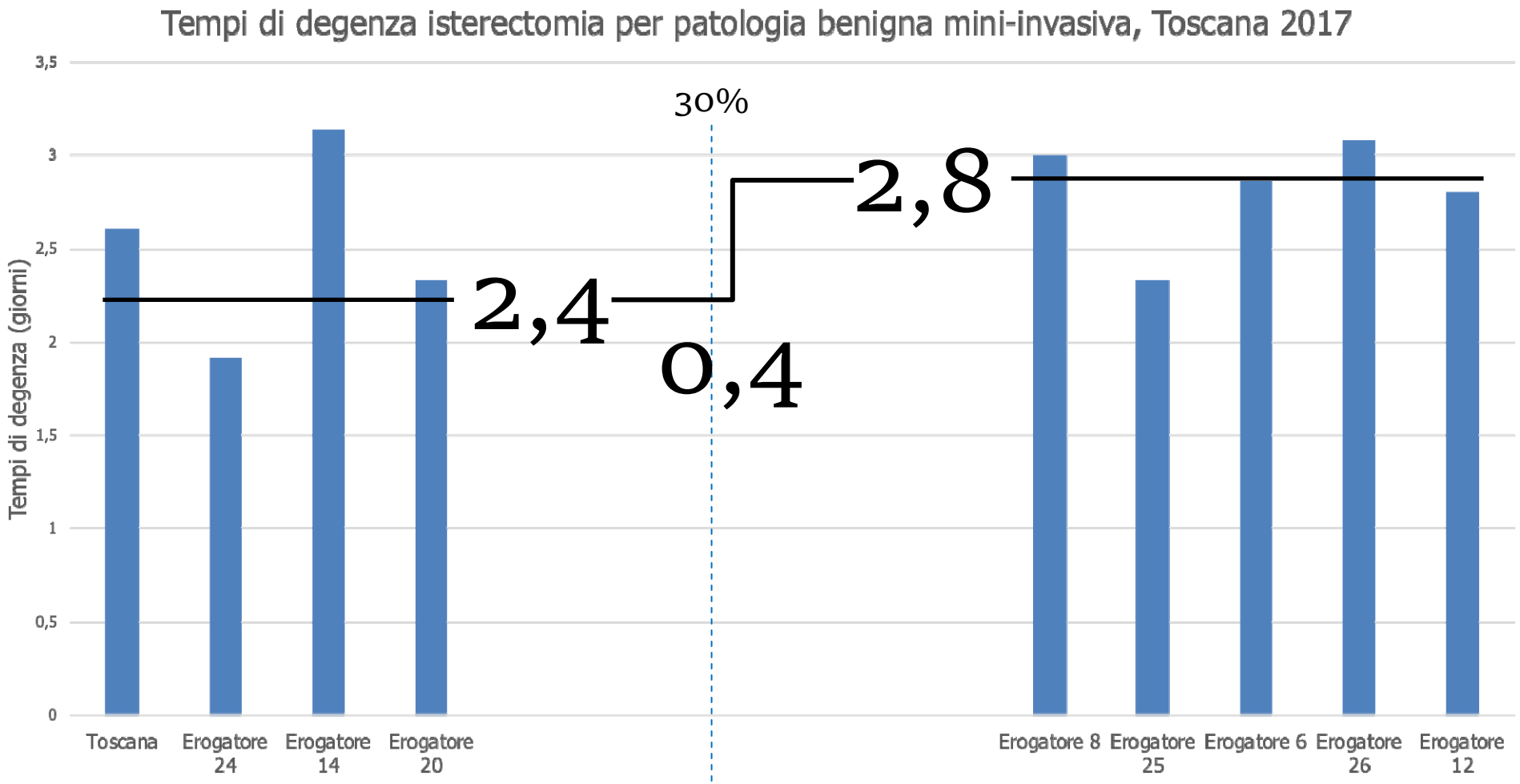
Dipartimento di Medicina Clinica e Sperimentale
Università di Pisa

REGIONE TOSCANA

SCUOLA SUPERIORE SANT'ANNA PISA

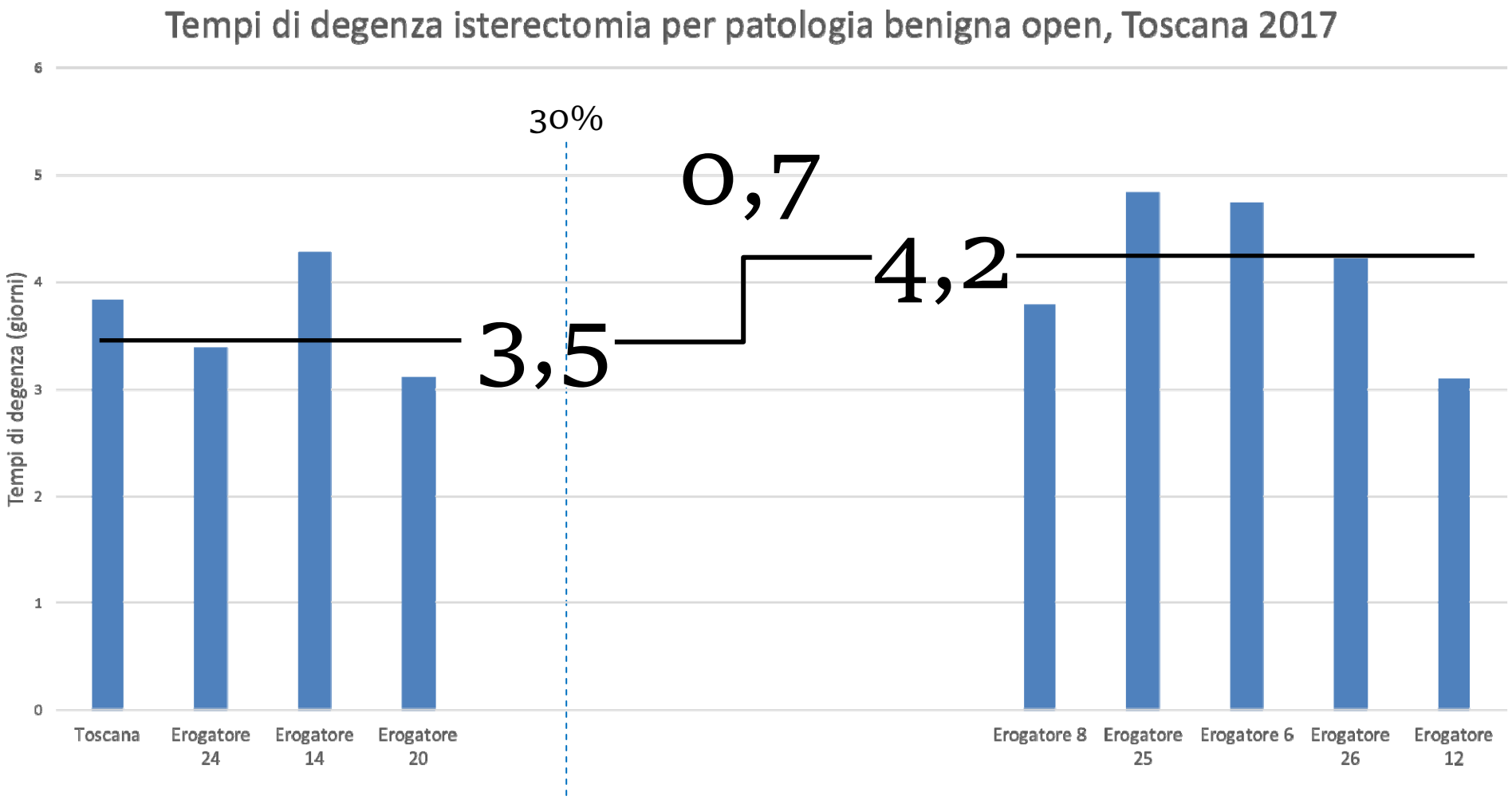

Complicanze in relazione a volumi e percentuale di interventi eseguiti con la tecnica mini-invasiva
Percentuale complicanze
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
-1%
-10%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percentuale interventi mini-invasivi

Focus sugli erogatori toscani: tempi di degenza



* cut-off: almeno 10 interventi mini-invasivi/anno

Focus sugli erogatori toscani: tempi di degenza



* cut-off: almeno 10 interventi mini-invasivi/anno

Scenario possibile

Se:

a) tutti gli erogatori eseguissero il 75% delle isterectomie per patologia benigna con tecnica mini-invasiva

b) con una degenza pari alla *best practice* regionale (1,9 giorni)

si potrebbero «risparmiare» **988** giornate di degenza

Necessità di un nuovo benchmark

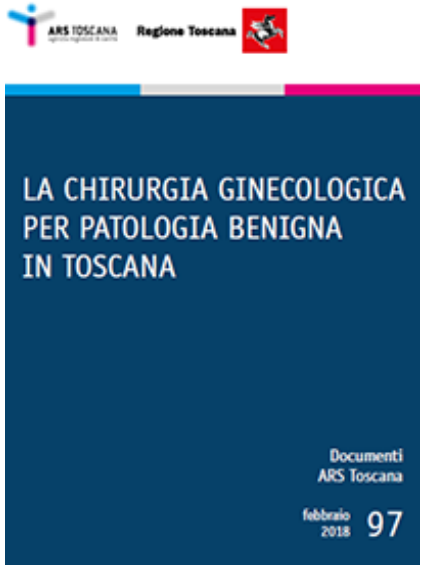
Necessità di identificare un marcatore utile per spazio di intervento a scopo di:

✓formazione
✓investimento di spazi
✓investimento di risorse

con lo scopo di dare benefici:

✓alla paziente
✓al servizio sanitario regionale

LA CHIRURGIA GINECOLOGICA IN TOSCANA



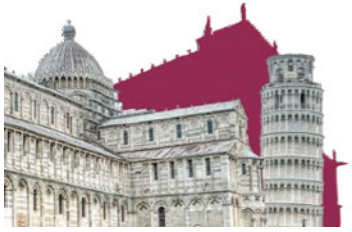
l'**esperienza delle equipe chirurgiche** - gli strumenti e l'organizzazione dei servizi sono elementi chiave per consentire a team di professionisti esperti di praticare procedure chirurgiche precise e secondo indicazioni certe, che provochino minore entità di risposte infiammatorie dell'organismo, aderenze e complicanze;

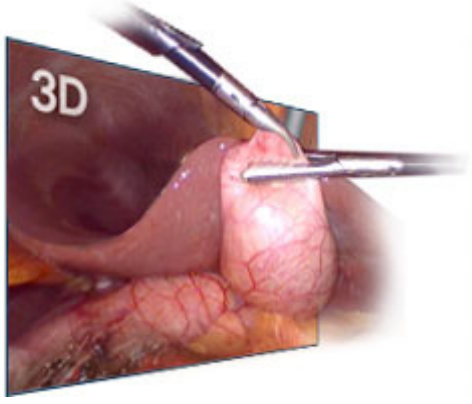
la **circolazione delle conoscenze**;

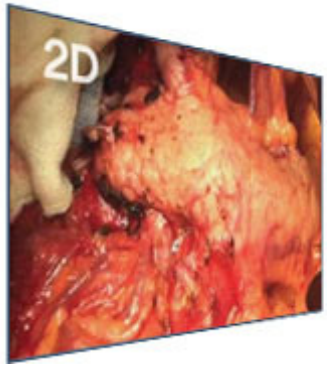
gli **sviluppi della tecnologia** - dispositivi endoscopici e di sutura avanzati, oltre a migliore accessibilità e sostenibilità della chirurgia robotica, comporteranno minori perdite ematiche e un ottimale controllo della coagulazione.

La chirurgia ginecologica per patologia benigna in Toscana, agenzia regionale di sanità, febbraio 2018

Need for technical implementations



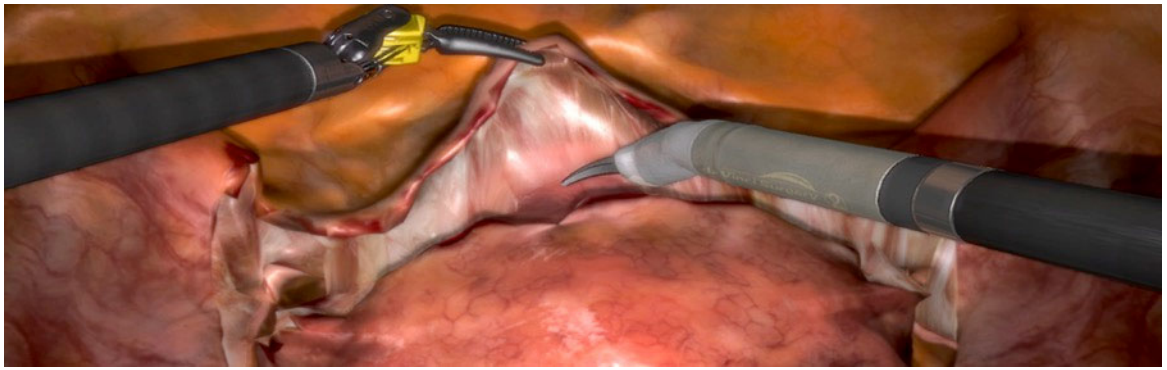


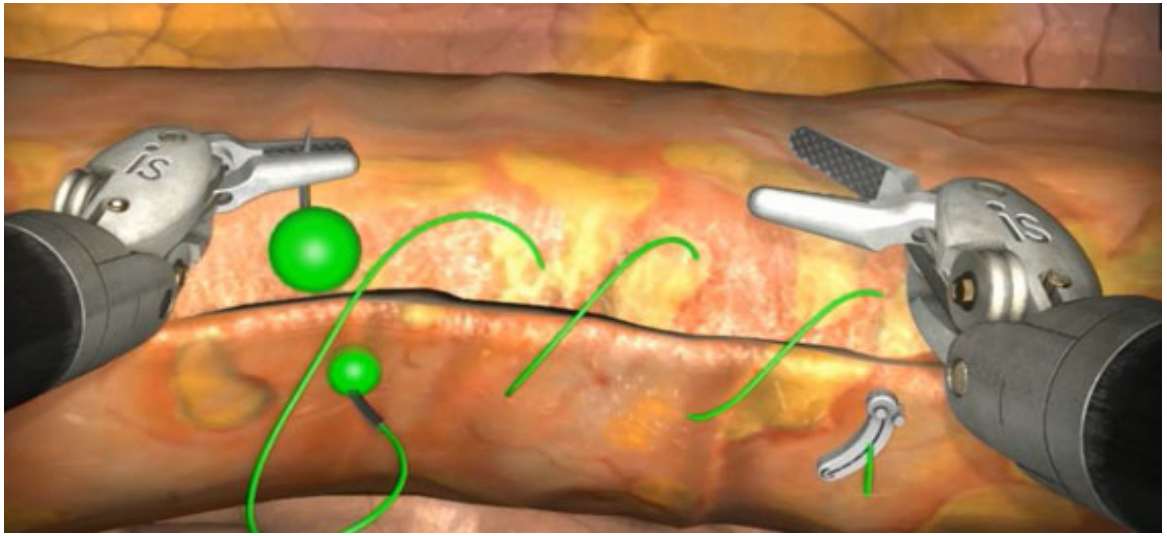



Applied
Medical


Applied
Medical

NEW FRONTIERS: training & simulating programs in mini-invasive surgery





AAGL robotic surgery credentialing and privileging guidelines

Indications fo robotic training
Train only surgeons who have an adequate case volume (at least 20 major cases per year).

Annual currency
Surgeons should perform at least 20 major cases per year, with at least one case every 8 weeks.

If surgeons operate less frequently, proficiency should be verified on a simulator before operation on a live patient.

Annual recertification
All surgeons should demonstrate competency annually on a simulator, regardless of case volume.

J Minim Invasive Gynecol. 2014;21(2):157–167

NEW FRONTIERS: table motion

Surg Endosc (2017) 31:3405–3410
DOI 10.1007/s00464-016-5331-x

NEW TECHNOLOGY

First series of total robotic hysterectomy (TRH) using new integrated table motion for the da Vinci Xi: feasibility, safety and efficacy

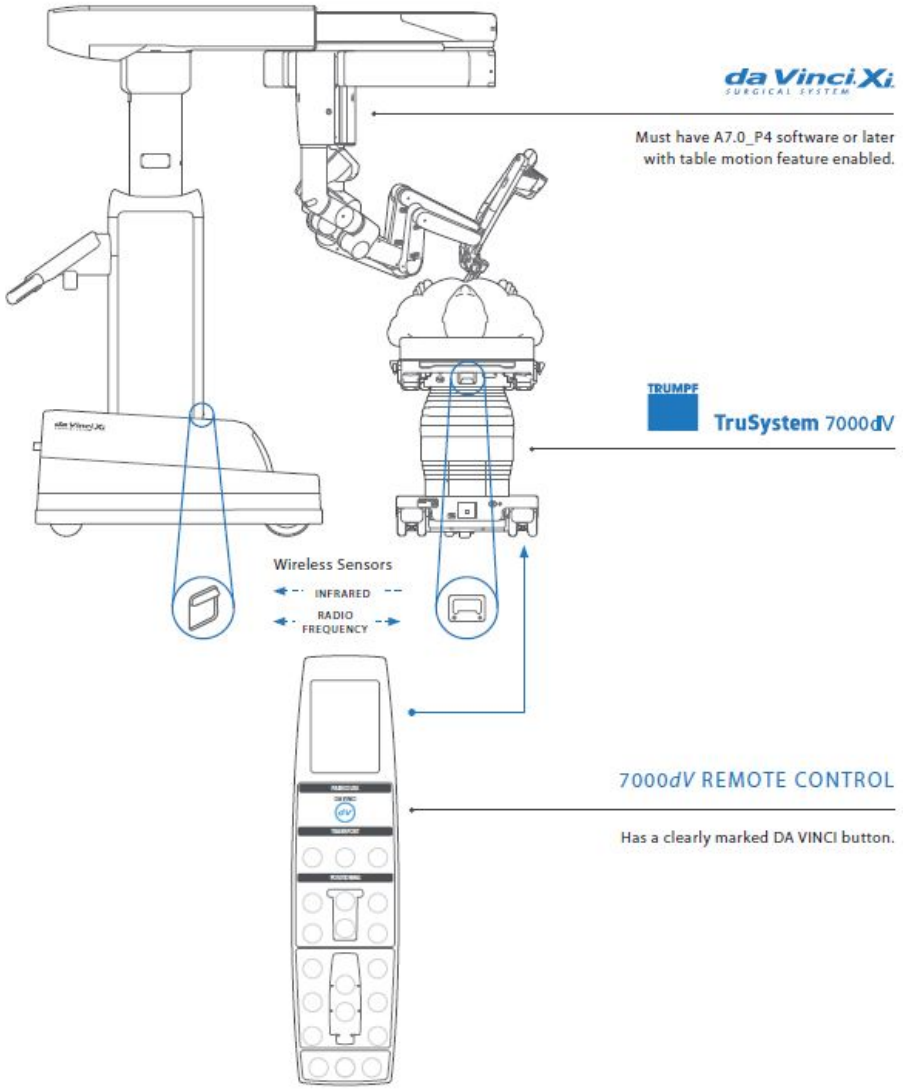
Andrea Giannini[1] · Eleonora Russo[1] · Paolo Mannella[1] · Giulia Palla[1] · Silvia Pisaneschi[1] · Elena Cecchi[1] · Michele Maremmani[1] · Luca Morelli[2] · Alessandra Perutelli[1] · Vito Cela[1] · Franca Melfi[3] · Tommaso Simoncini[1]

Table 1 Characteristics of patients, intra- and postoperative data of total robotic hysterectomy (TRH) using integrated table motion

Baseline characteristics	
Patients, number	10
Age, mean (range)	58.6 years (41–77)
Body mass index, mean (range)	25.3 kg/m^2 (18–37)
ASA physical status classification, number (%)	
II	9 (90%)
III	1 (10%)
Comorbidities, number (%)	7 (70%)
Previous abdominal surgery, number (%)	6 (60%)
Intra-operative and postoperative data	
Robotic operating time, minutes mean (range)	152 (120–240)
ITM moves, mean number (range)	3.3 (1–6)
Instance of ITM moves, total number	31
Internal exposure (%)	28 (90%)
Endoscopic observation (%)	2 (6%)
Improve external access (%)	1 (4%)
ITM duration, minutes mean (range)	32 (6–73)
Instruments left inside during ITM (%)	27/31 (87%)
Port-site condition with damage (%)	0 (0%)
In hospital morbidity (%)	0 (0%)
Type of surgical technique, number (%)	
Full robotic technique	10 (100%)
Hybrid technique	0 (0%)

ASA American Society of Anesthesiologists, *TRH* total robotic hysterectomy, *ITM* integrated table motion

COMPATIBLE EQUIPMENT:
SYSTEM, TABLE, AND REMOTE CONTROL



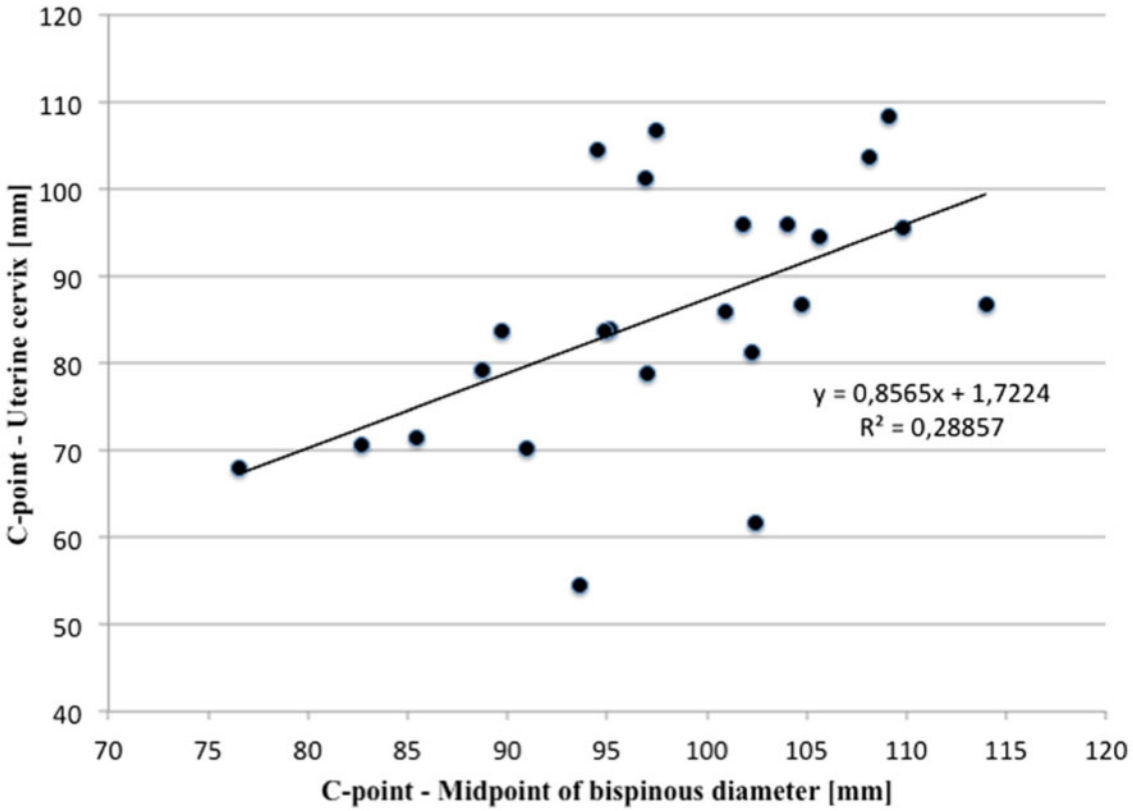
International Urogynecology Journal
https://doi.org/10.1007/s00192-018-3706-3

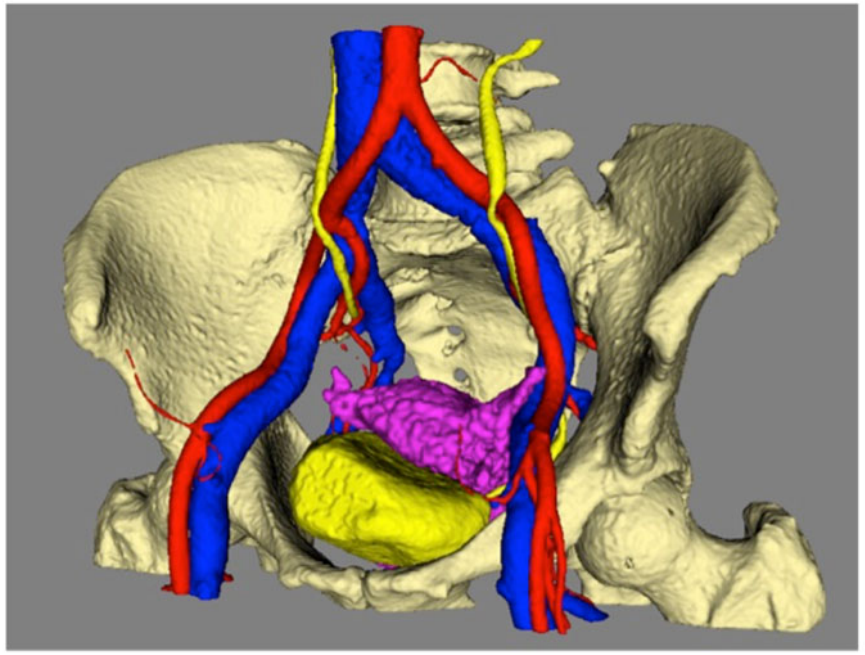
ORIGINAL ARTICLE

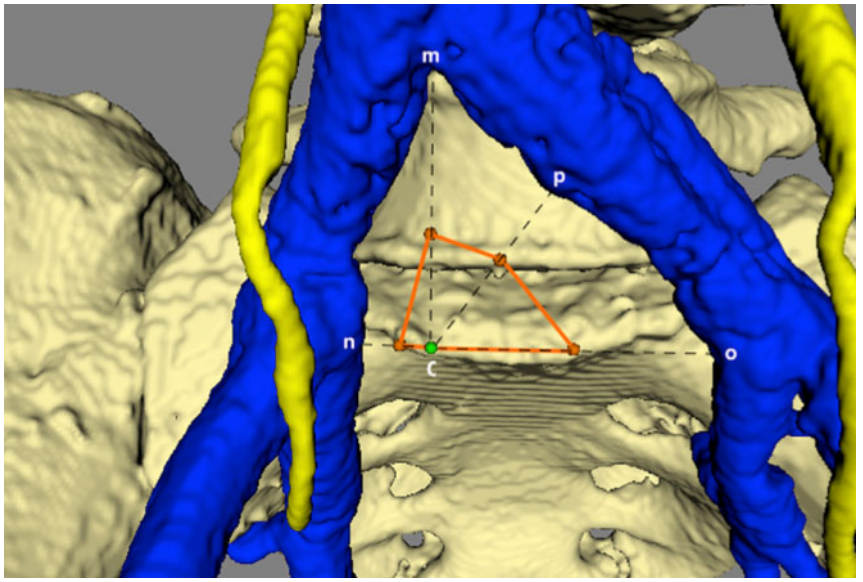
Computed-tomography image segmentation and 3D-reconstruction of the female pelvis for the preoperative planning of sacrocolpopexy: preliminary data

Gianluca Albanesi[1] · Andrea Giannini[1] · Marina Carbone[2] · Eleonora Russo[1] · Paolo Mannella[1] · Vincenzo Ferrari[2] · Tommaso Simoncini[1]

Received: 4 March 2018 / Accepted: 19 June 2018







NEW FRONTIERS: single site

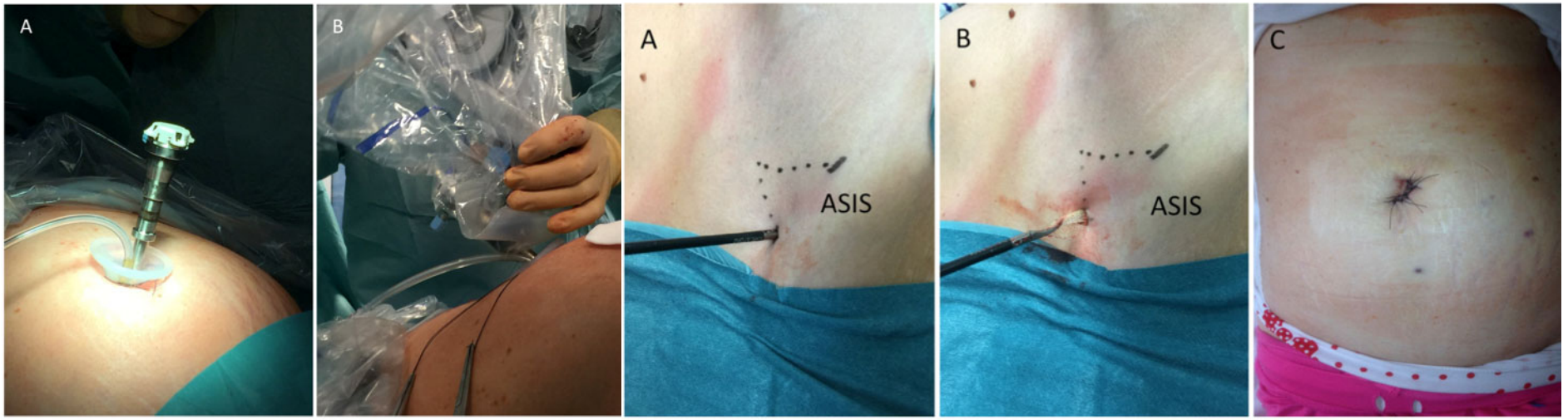
J Robotic Surg
DOI 10.1007/s11701-016-0665-x

CASE REPORT

Single site robotic-assisted apical lateral suspension (SS R-ALS) for advanced pelvic organ prolapse: first case reported

2016

Andrea Giannini[1] · Eleonora Russo[1] · Paolo Mannella[1] · Tommaso Simoncini[1]



- ✓ 4 single port R-ALS for advanced symptomatic anterior and apical prolapse (POP- Q stage III/IV)
- ✓ Mean operating time of 138 ± 12 minutes, including the docking time (mean 15 ± 3 minutes)
- ✓ No surgical complications
- ✓ No conversion to laparotomy or additional trocars were required

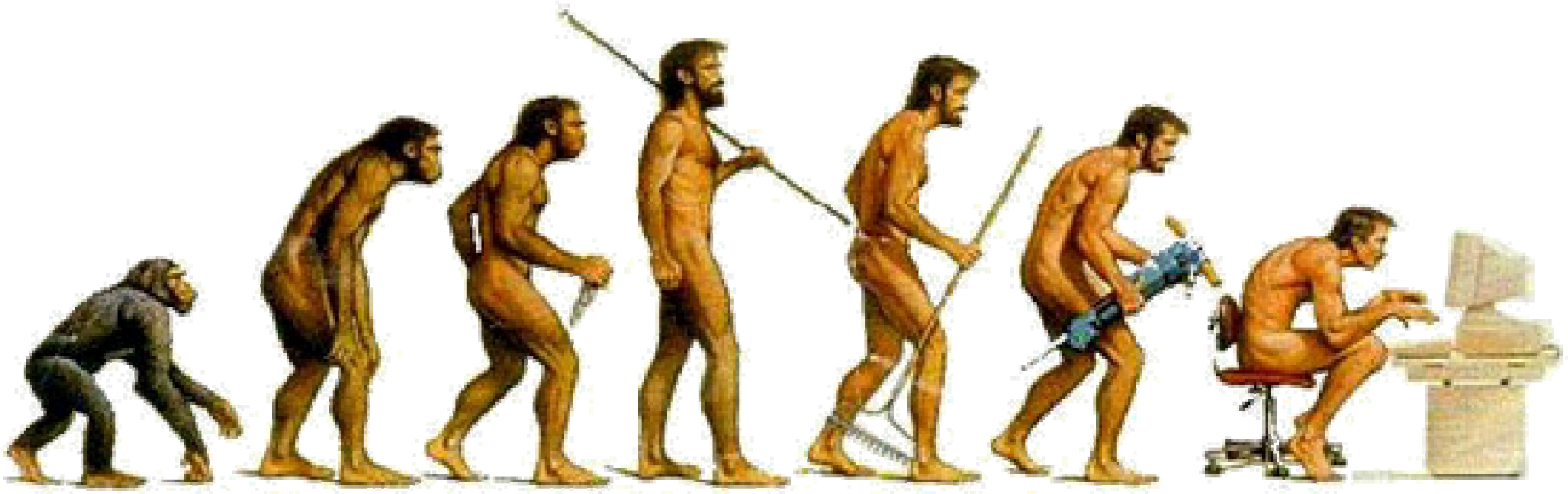
2016-2017

Intuitive Surgical Announces Innovative Single Port Platform — the da Vinci SP® Surgical System

Thu May 31, 2018 4:59 PM | GlobeNewswire | About: ISRG

NEW FRONTIERS: ARTIFICIAL INTELLIGENCE

EVOLUTION OF SURGERY



Vaginal

Laparotomy

Laparoscopy

Robotic

EVOLUTION OF SURGERY: back to the past?

✓ When feasible, **vaginal hysterectomy recommended as first line hysterectomy approach**

✓ Benefits are shorter operating time and better cosmetic outcomes than laparoscopic or abdominal approaches; faster recovery, earlier discharge, decreased pain, less febrile and infectious morbidity and fewer complications than abdominal approach

-ACOG Committee Opinion No. 444: choosing the route of hysterectomy for benign disease. Obstet Gynecol. 2009 Nov;114(5):1156-8., reaffirmed 2011 Nov, commentary can be found in ACOG news release 2009, Oct 21

-Clarke-Pearson DL, Geller EJ. Complications of hysterectomy. Obstet Gynecol. 2013 Mar;121(3):654-73. doi: 10.1097/AOG.0b013e3182841594. Review.

- Orady M, Aslanova R, Fidela Paraiso M. Minimally invasive hysterectomy for benign indications. Minerva Ginecol. 2014 Feb;66(1):13-21. Review.


THERE IS NO FUTURE WITHOUT
HYSTORY

LA RIVOLUZIONE TECNOLOGICA IN CHIRURGIA GINECOLOGICA

Tra sostenibilità e beneficio per la donna

Presidente del Corso
Prof. Tommaso Simoncini

Co-Presidente
Prof. Felice Petraglia

Firenze - Hotel Baglioni

1 Febbraio 2019

PROVIDER ECM e SEGRETERIA ORGANIZZATIVA

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