Immediate radical trachelectomy versus neoadjuvant chemotherapy followed by radical trachelectomy for patients with stage IB1 cervical cancer with tumors 2 cm or larger: a literature review and analysis of oncological and obstetrical outcomes

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Abstract

Radical trachelectomy is the treatment of choice in women with early-stage cervical cancer wishing to preserve fertility. Radical trachelectomy can be performed with a vaginal, abdominal, or laparoscopic/robotic approach. Radical trachelectomy (VRT) is generally not offered to patients with tumors 2 cm or larger because of a high recurrence rate. There are no conclusive recommendations regarding the safety of abdominal (ART) or laparoscopic radical trachelectomy (LRT) in such patients. Several investigators have used neoadjuvant chemotherapy in patients with tumors 2 to 4 cm to reduce tumor size so that fertility preservation may be offered. However, to our knowledge, no published study has compared outcomes between patients with cervical tumors 2 cm or larger who underwent immediate radical trachelectomy and those who underwent neoadjuvant chemotherapy followed by radical trachelectomy. We conducted a literature review to compare outcomes with these 2 approaches. Our main endpoints for evaluation were oncological and obstetrical outcomes. The fertility preservation rate was 79%, 85.1%, 89%; and 91.1% for ART (tumors larger than >2 cms), ART (all sizes), NACT followed by surgery and VRT (all sizes); respectively. The global pregnancy rate was 16.2%, 24% and 30.7% for ART, VRT, and NACT followed by surgery; respectively.

The recurrence rate was 3.8%, 4.2%, 6%, 7.6% and 17% for ART (all sizes), VRT (all sizes), ART (tumors >2 cms), NACT followed by surgery, and VRT (tumors > 2 cms. These outcomes must be considered when offering a fertility sparing technique to patients with a tumor larger than 2 cms.

Table 1

Reported outcomes of immediate abdominal radical trachelectomy in patients with cervical tumors larger than 2 cm.

	No. of patients with			
First author (year)	Planned surgery	Relapse	Death	Fertility preserved
Nishio (2009)	13	5	NR	13 (100%)
Cibula (2009)	6	0	0	5 (83%)
Karateke (2010)	5	0	0	5 (100%)
Du (2011)	12	2	NR	12 (100%)
Saso (2012)	5	1	NR	5 (100%)
Testa (2013)	4	0	0	4 (100%)
Cao (2013)	19	0	0	19 (100%)
Li (2013)	62	0	0	55 (89%)
Lintner (2013)	45	4	2	31 (69%)
Wethington (2013)	22	0	0	9 (41%)
Total	**191**	**12 (6.2%)**	**2 (1%)**	**158 (82.7%)**

Abbreviation: NR: not reported.

Table 2

Reported outcomes of immediate vaginal radical trachelectomy in patients with cervical tumors larger than 2 cm.

First author (year)	Planned surgeries	Relapse	Death
Beiner (2007)	8	1	0
Marchiole (2007)	27	6	0
Pahisa (2008)	3	1	1
Chen (2008)	7	0	0
Lanowska (2011)	6	1	0
Plante (2011)	19	3	1
Wethington (2013)	6	0	0
Cao (2013)	23	5	2
Total	**99**	**17 (17%)**	**4 (4%)**

Table 3

Studies on neoadjuvant chemotherapy in tumors larger than 2 cm.

First author (year)	N	Stage	Surgery	Disease-free survival, median (range), mo	Relapses	Deaths	Pregnancies	Miscarriages	Births
Plante (2006)	3	IB1	Laparoscopic PND and VRT	(48-57)	0	0	0	0	0
Kobayashi (2006)	1	IB1	Cold-knife conization	48	0	0	1	0	1
Landoni (2007)	2	IB1	Laparoscopic PND and laser conization	ND	0	0	0	0	0
Maneo (2008)	8	IB1	Cold-knife conization and PND	69 (10-124)	0	0	NR	NR	NR
Liu (2008)	1	IB1	Transabdominal PND and ART	ND	0	0	1	0	1
Palaia (2011)	1	IB2	Laparoscopic PND and vaginal simple trachelectomy	18	0	0	0	0	0
Marchiole (2011)	7	IB-IIA1	Laparoscopic PND and VRT	22 (5-49)	0	0	1	0	0
Singh (2011)	1	IB1	Laparoscopic PND and VRT	14	0	0	0	0	0
Hamed (2012)	1	IB1	RRT, PND, periaortic lymph node dissection, and tubal anastomosis	16	0	0	0	0	0
Wang (2013)	2	IB1	Laparoscopic PND and VRT	84	0	0	0	0	0
Lanowska (2014)	18	IB1, IB2, IIA	PND, para-aortic node dissection, and VRT	23.1 (1-88)	1	0	7	2	4
Robova (2014)	28	IB1	SLN identification, PND, simple trachelectomy	NR	4	2	10	2	10
Total	73				5/65 (7.6%)	2/65 (3%)	20/65 (30.7%)	4/65 (6.1%)	16/65 (24.61%

Table 4

Results of radical trachelectomy for cervical cancer according to treatment modality.

Treatment	Fertility preservation rate, %	Pregnancy rate (overall), %	Recurrence rate, %	Death rate, %
ART (all sizes)	85.1+	16.2+	3.8+	0.4+
VRT (all sizes)	91.1*	24+	4.2+,*	2.9+,*
NACT	89.6	30.6	7.6	1.7
ART, tumor ≥2 cm	79	NC	6	1
VRT, tumor ≥2 cm	NC	NC	17.1	4

NC, not calculable, because reference articles values are composite of the entire cohort
+ [50]
* [51]

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