

14. Ulusal Meme Hastalıkları Kongresi

19-22 Ekim 2017 Gloria Kongre Merkezi - Antalya

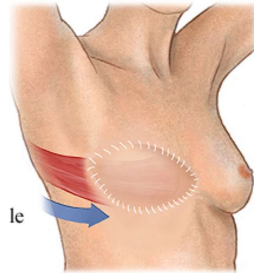
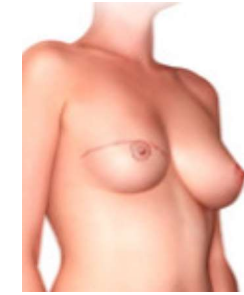
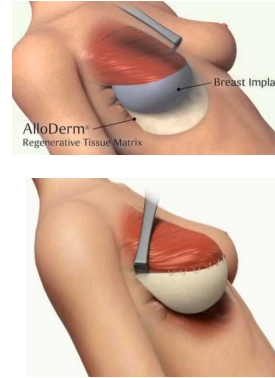


Rekonstruksiyon-RT ilişkisi

Dr. Merdan Fayda

Rekonstrüksiyon - RT

- İmplant metodolojisi RT ilişkisi
 - Geçici expander a RT sonra kalıcı implant
 - Kalıcı implanta RT
 - Otolog rekonsta RT
- İmplant KT zamanlaması
 - Adj (İmplant → KT → RT)
 - Neoadj (KT → İmplant → RT)
- Nasıl RT
 - 2D
 - 3D
 - IMRT
 - Konvansiyonel
 - Hipofraksiyone
 - Bolus + / -
 - Expander şişik - inik
- Daha önce RT görmüşlerde implant

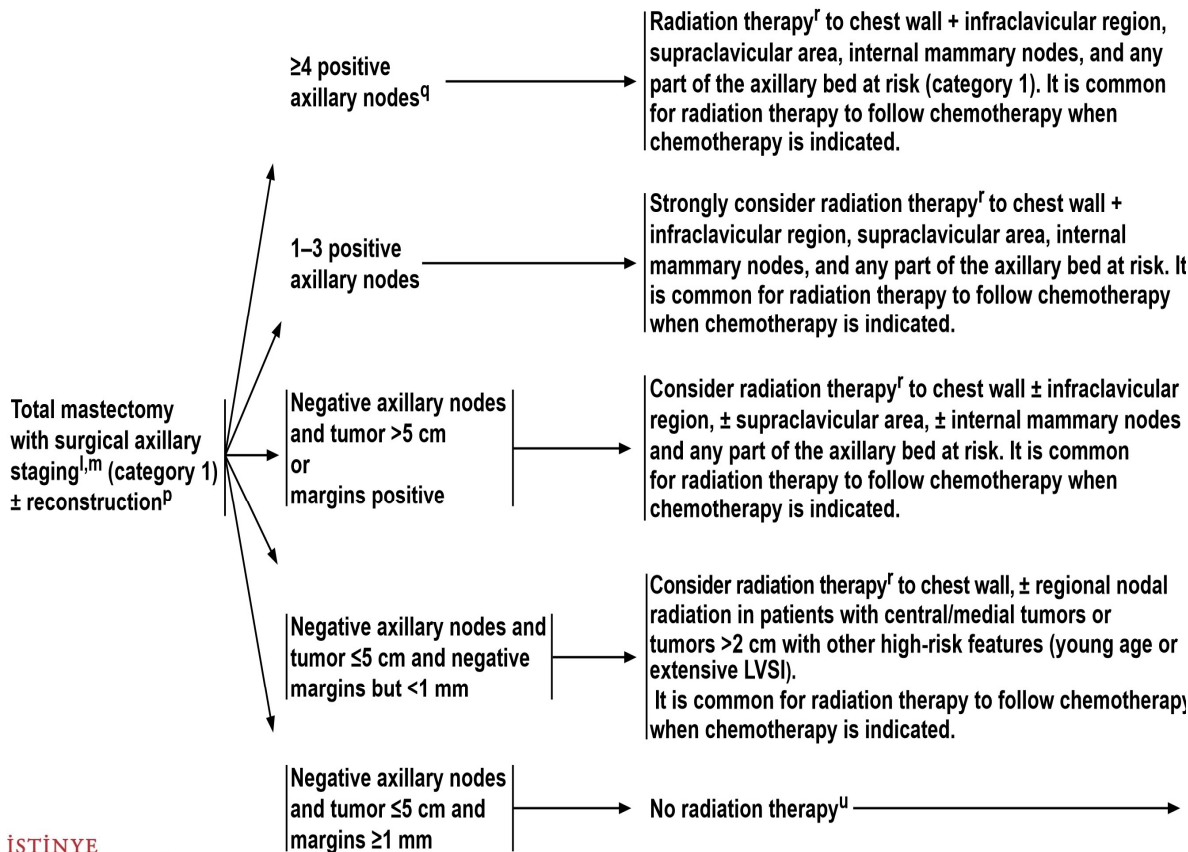


Postmastektomi RT daha fazla kullanılıyor

NCCN 2017

ESMO, 2015

LOCOREGIONAL TREATMENT OF CLINICAL STAGE I, IIA, OR IIB DISEASE OR T3, N1, M0^k

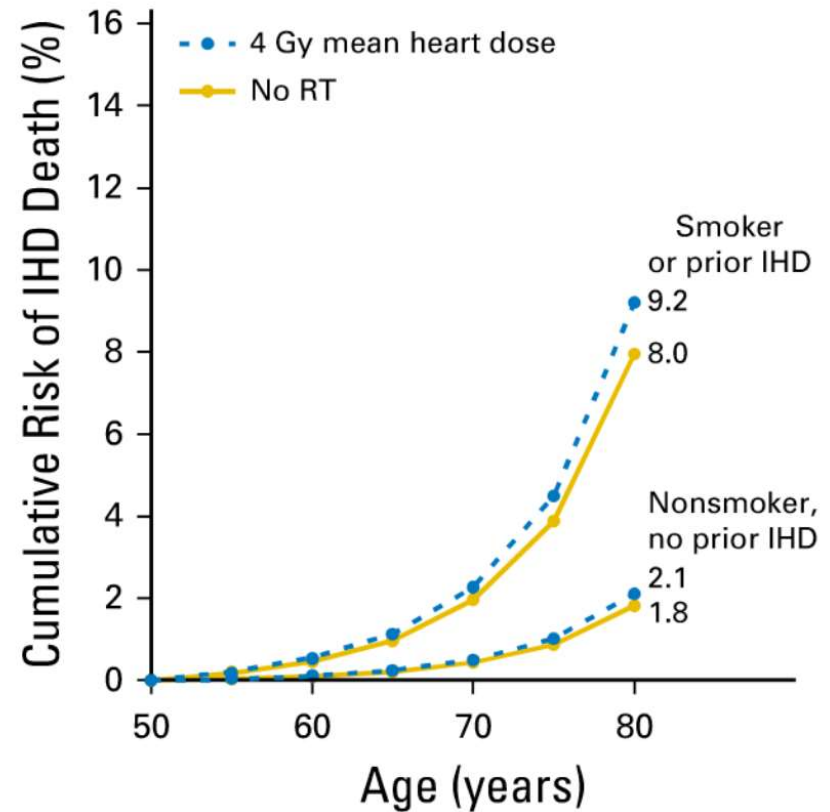
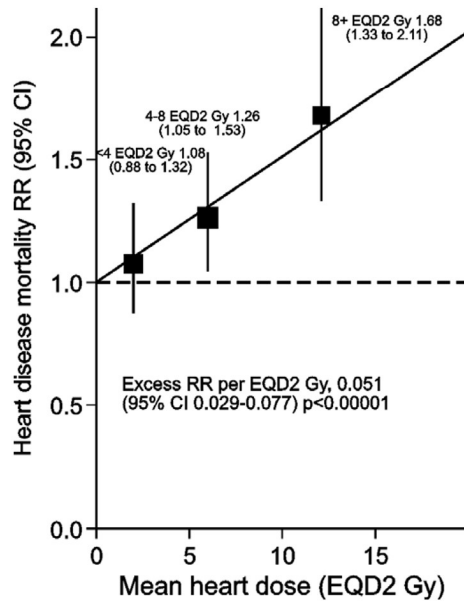


Post-mastectomy RT is recommended for patients with involved axillary nodes and/or with T3–T4 tumours, especially in the presence of additional risk factors [I, A].

Modern RT daha az toksik

Figure S14c. Heart disease mortality rate ratio (RR) by trial-specific mean radiation dose, converted to equivalent mean dose in 2 Gy fractions, to the heart

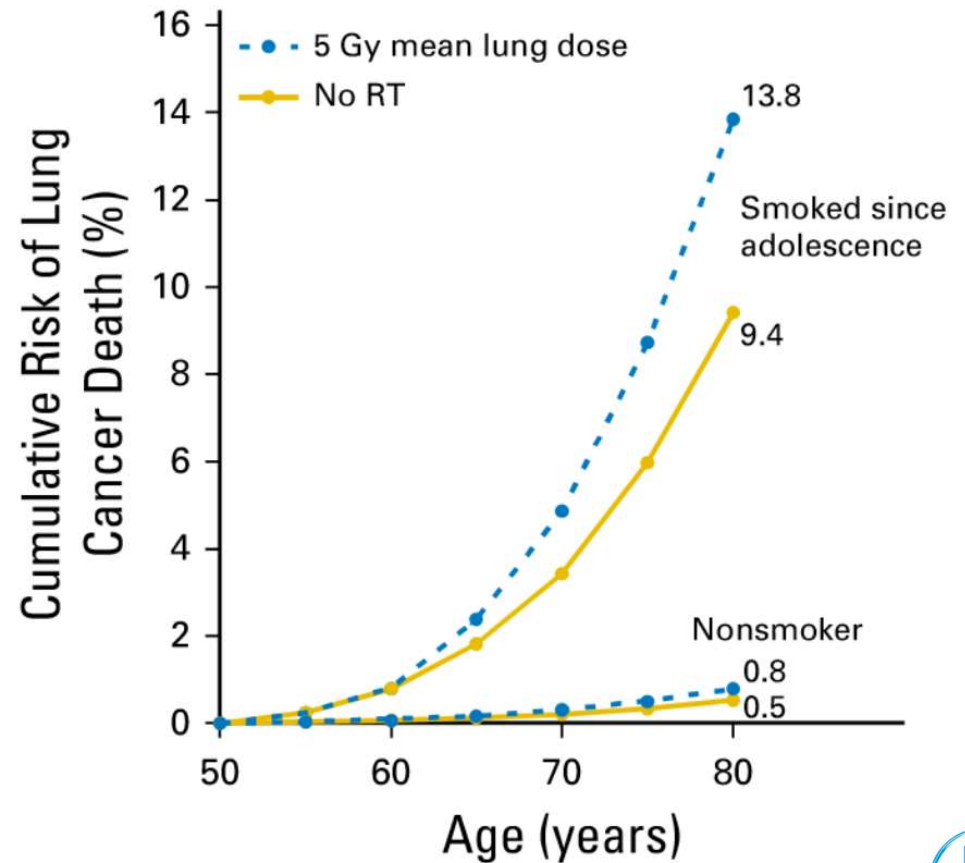
The line was estimated using doses for individual women. Squares (with areas proportional to information content) show EQD2 dose categories <4, 4-8, and 8+ Gy, with mean doses 2.0, 6.0, and 12.1 EQD2 Gy.



Taylor, JCO, 2017

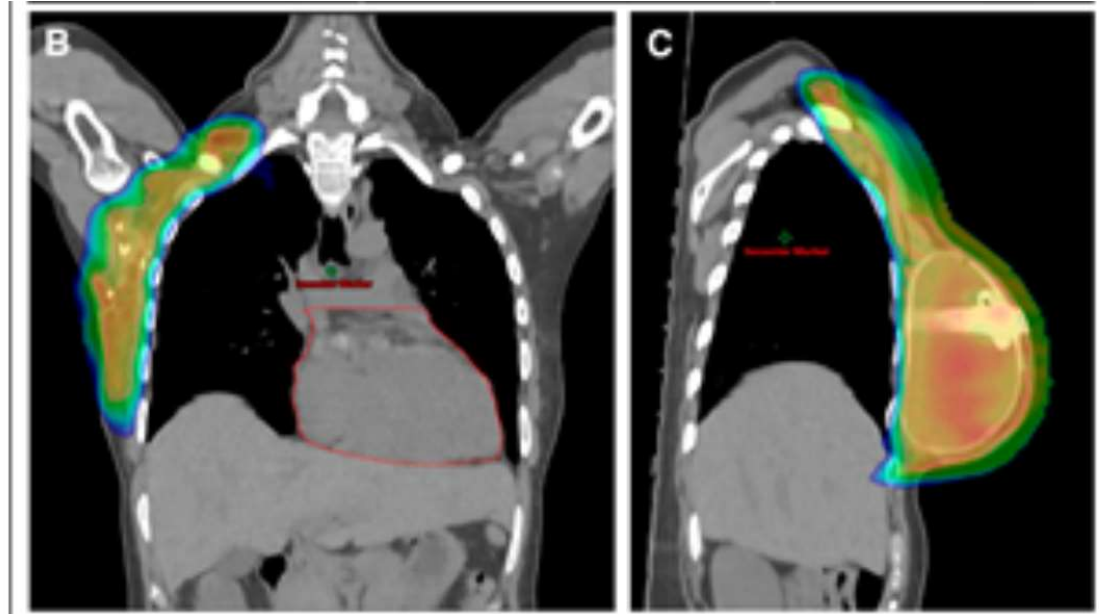
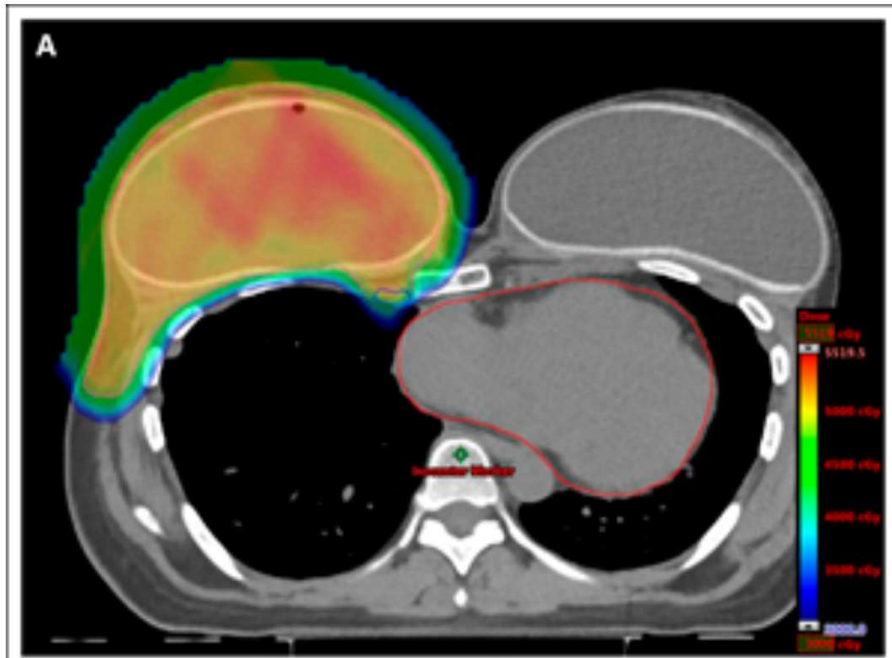
Modern RT daha az toksik

	Estimated lung cancer risk by age 80 (%)		
	RT	No RT	Excess from RT
Radiotherapy at age 50			
Never smoked, or stopped by age 30	0.8	0.5	0.3
Stopped at age 40	1.8	1.2	0.6
Stopped at age 50	3.9	2.6	1.3
Continuing smoker	13.8	9.4	4.4
Radiotherapy at age 60			
Never smoked, or stopped by age 30	0.6	0.4	0.2
Stopped at age 40	1.5	1.1	0.4
Stopped at age 50	3.4	2.4	1.0
Stopped at age 60	6.0	4.4	1.6
Continuing smoker	11.8	8.7	3.1
Radiotherapy at age 70			
Any smoking history	Various	Various	Little excess by 80



Taylor, JCO, 2017

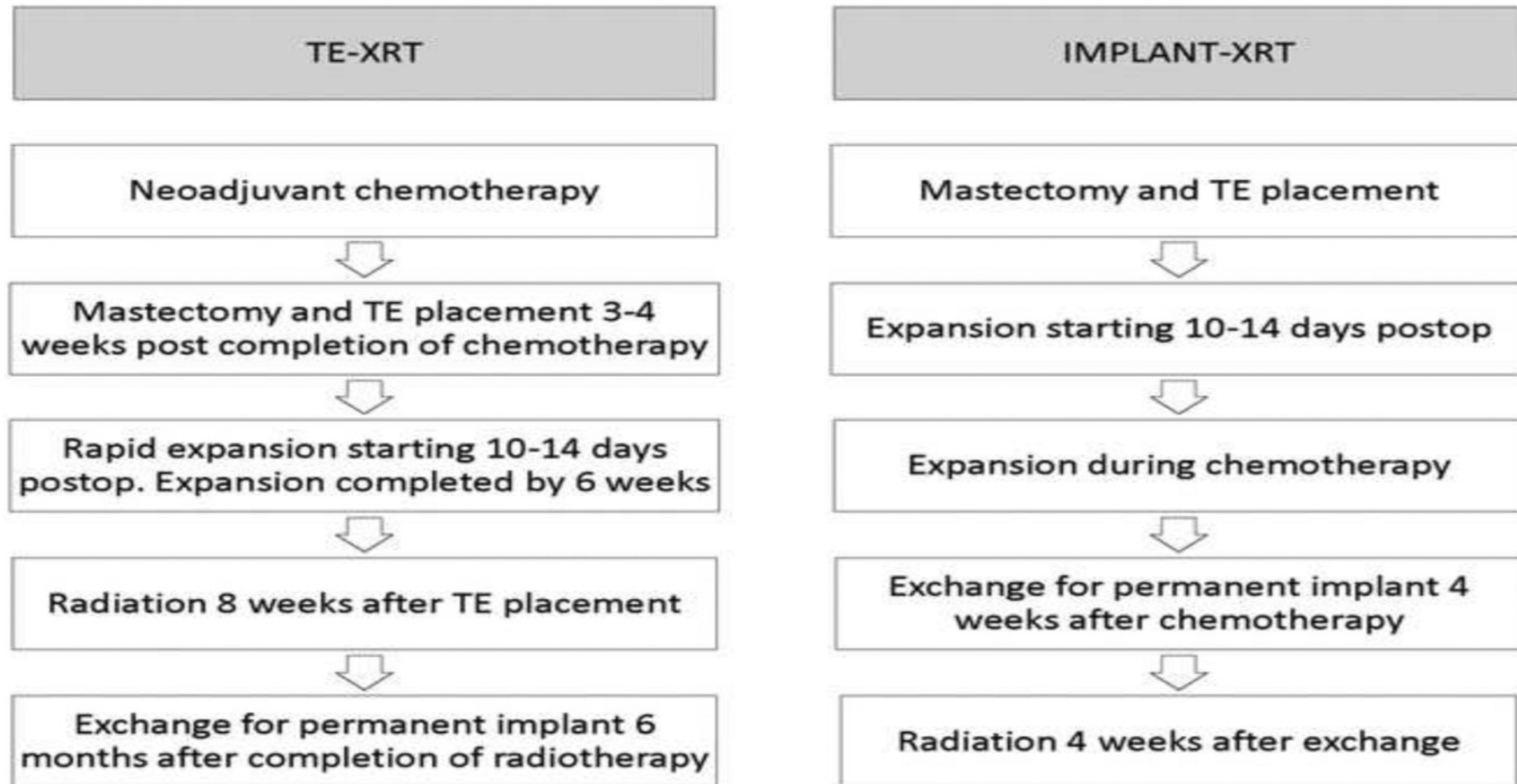
Nasil modern RT?



Kalıcı implanta PMRT

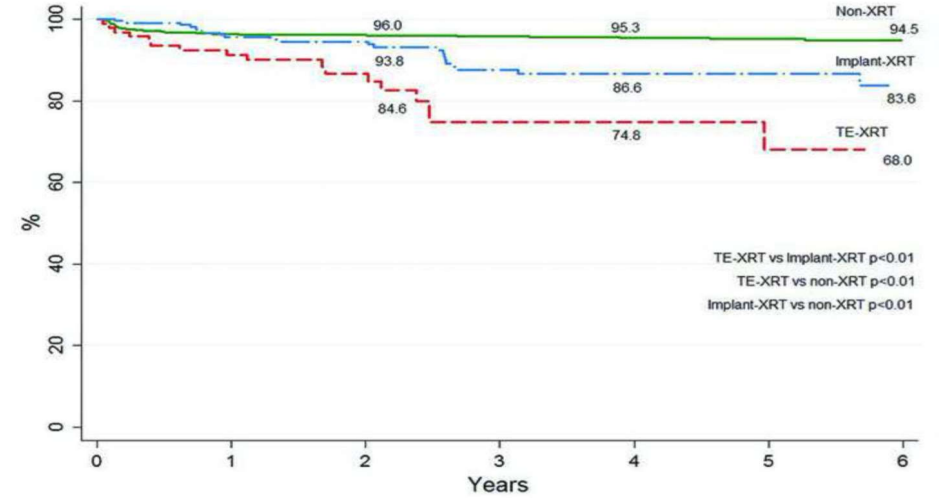
- 7 çalışmayı içeren metaanaliz
- N=2921; 520 PMRT 2401 kontrol
- Kapsül kontraktürü RR=10.21 (% 95 GA 3.7-27.9, p<0.00001)
- Revizyon cerrahisi RR=2.18 (%95 GA 1.33-3.57, p<0.002)
- Hasta tatmini (4 çalışma 138 PMRT, 294 kontrol)
RR=0.29 (0.15-0.57) p<0.0003
- Kozmetik sonuçlar (4 çalışma 238 PMRT, 1009 kontrol)
OR = 0.28 (0.11-0.67)

Ekspandera mı Kalıcı implanta RT mi daha iyi



Ekspander mı Kalıcı implanta RT mi daha iyi

- 1418 rekonstr RT yok
- 94 ekspander RT
- 210 kalıcı implant RT



- 6 yıl rekonst başarısızlık oranı % 32 Ekspander – % 16.4 kalıcı implant $p < 0.01$
- Çok iyi-mükemmel estetik sonuç % 75 Ekspander – % 67.6 kalıcı implant $p < 0.01$
- Grad 4 kapsül kontraktürü Ekspander da daha az $p < 0.01$
- Hasta tarafından raporlanan sonuçlar farksız

Ekspander mi Kalıcı implanta RT mi daha iyi- Metaanaliz

- 8 çalışma 899 hasta

TABLE 3 Pooled RRs for adverse outcomes between group receiving PMRT on tissue expander and implant

Outcome	No. of studies	No. of cases		RR	95% CI	P
		RT on TE	RT on implant			
Reconstruction failure	8	489	410	1.72	0.81–3.64	0.16
Infection	4	169	67	1.65	0.72–3.78	0.23
Severe capsular contracture	4	219	352	0.44	0.29–0.68	<0.001
Major complication	3	135	45	3.29	0.76–14.25	0.11
Minor complication	3	135	45	0.94	0.53–1.69	0.84

CI confidence interval, PMRT postmastectomy radiotherapy, RR relative risk, RT radiotherapy, TE tissue expander

Optimal zamanlama ekspander – RT – kalıcı implant

- Ekspander – RT – Kalıcı implant
Adj KT
- Kalıcı implanta erken geçenler (3 ay) – geç geçilenler (> 6 ay)
 - İmplant başarısızlık oranı yüksek %22.4 – % 7.7

Daha önce RT almış memede rekonstrüksiyon

- 20 çalışma,
 - Daha önce ışınlanmış memede protezle rekonstrüksiyon.
 - Komplikasyonları arttırır (başarısızlık dahil) (RR = 2.58 1.86 - 3.57)
 - Otolog rekonstrüksiyon ya da ot rek + protez tercih edilmeli

PostNSM+expander, pre KT



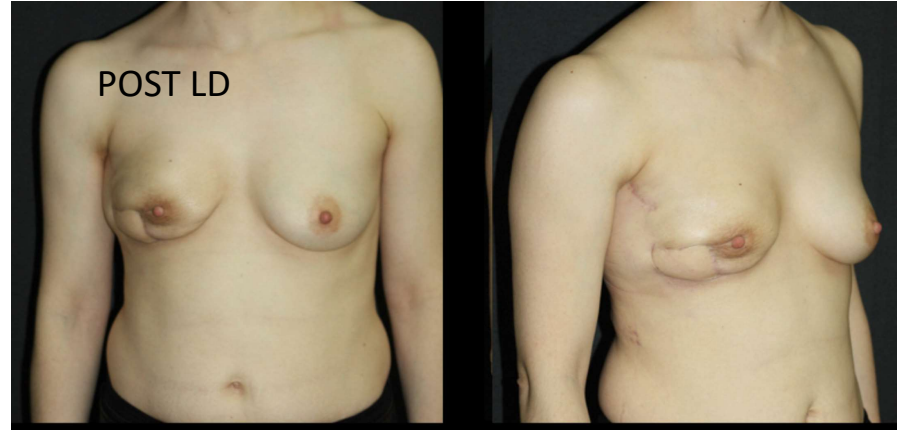
Post KT, sađ alt polde incelme



Kontrollü RT uygulandı. 5 hafta RT sonrası, LD flep öncesi



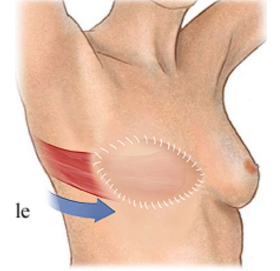
POST LD



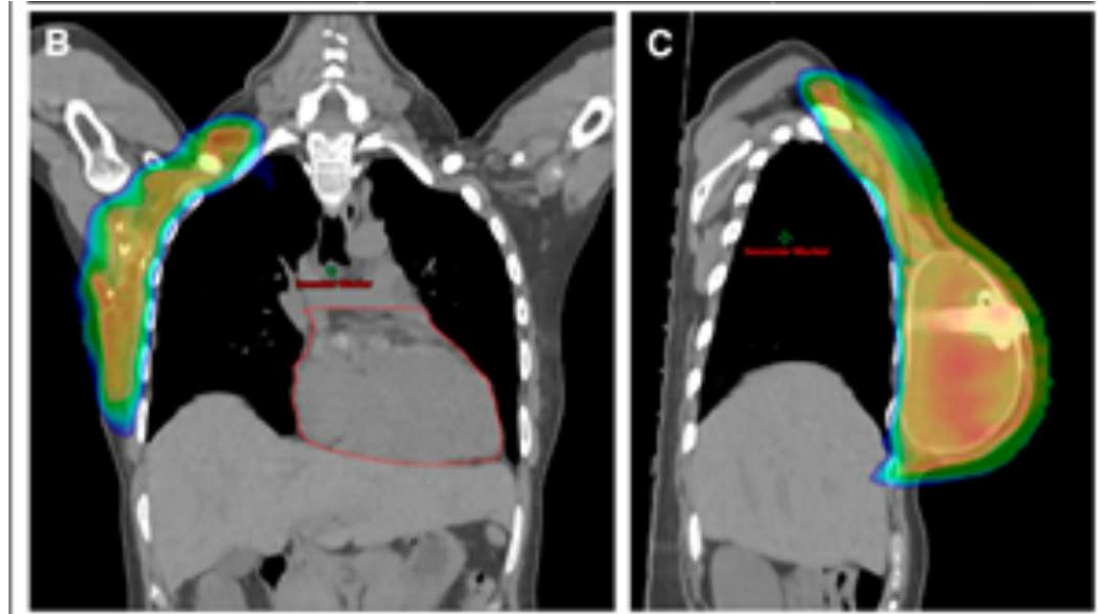
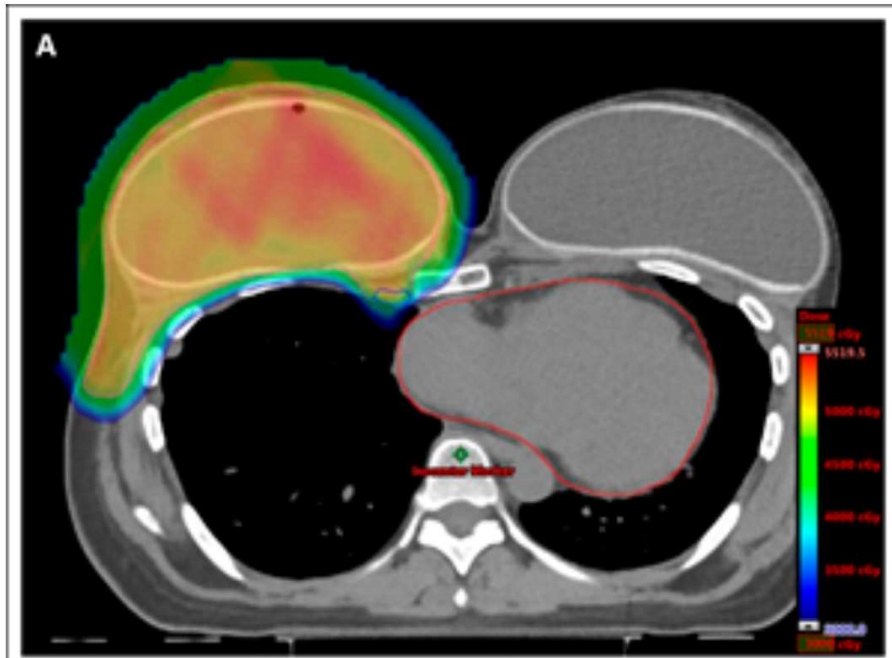
Otolog rekonstrüksiyon sonrası RT

- Daha yüksek komplikasyon oranları
 - Flep fibrozu % 30
 - Ciddi distorsiyon % 13
 - İlave flep rekonstrüksiyonu % 7
 - Kısmi flep kaybı % 4

Pek çok klavuz genellikle önermiyor.



Nasil RT



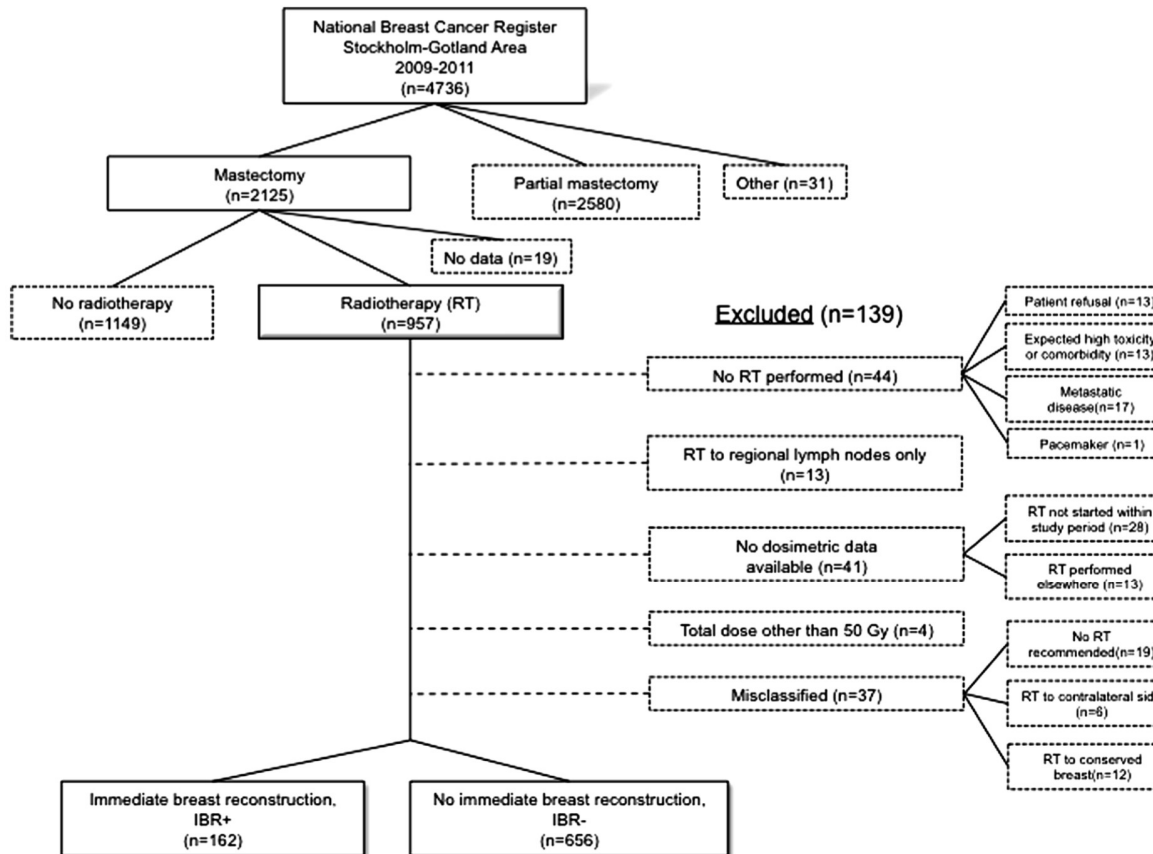
RESEARCH

Open Access

No difference in dose distribution in organs at risk in postmastectomy radiotherapy with or without breast implant reconstruction

Annelie Liljegren^{3,5†}, Dmytro Unukovych^{1,3,7*†}, Giovanna Gagliardi⁶, Judith Bjöhle^{3,5}, Marie Wickman^{1,4}, Hemming Johansson³ and Kerstin Sandelin^{1,2}

Rekonstruksiyon PMRT de normal organ dozunu deęiřtirmez



Rekonstruksiyon PMRT de normal organ dozunu deęiřtirmez

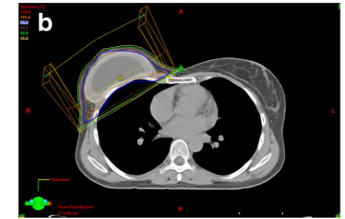


Table 2 Dosimetric and anthropometric characteristics* of ipsilateral lung and heart (n = 818)

Characteristics	Chest wall			P-value¶	Chest wall plus lymph nodes			P-value¶
	Total n = 242	IBR+ n = 80	IBR- n = 162		Total n = 576	IBR+ n = 82	IBR- n = 494	
Ipsilateral lung								
Volume, cm ³	1431.2 [330.2]	1458.6 [318.8]	1417.0 [335.8]	0.36	1369.6 [362.2]	1382.6 [407.7]	1367.4 [354.5]	0.72
Mean dose, Gy	8.9 [3.8]	8.9 [5.2]	8.9 [2.8]	0.96	14.3 [2.1]	13.8 [2.3]	14.3 [2.1]	0.05
Minimum dose, Gy	0.3 [1.0]	0.4 [1.7]	0.2 [0.1]	0.11	0.2 [0.1]	0.3 [0.2]	0.2 [0.1]	<0.001
Maximum dose, Gy	51.6 [1.3]	52.0 [1.3]	51.4 [1.3]	0.002	51.8 [1.1]	51.5 [1.5]	51.8 [1.1]	0.06
V _{20Gy} , %	16.4 [6.1]	15.8 [6.0]	16.7 [6.2]	0.30	28.7 [5.3]	28.1 [5.7]	28.8 [5.2]	0.22
Heart[‡]								
	n = 118	n = 35	n = 83		n = 309	n = 37	n = 272	
Volume, cm ³	512.2 [135]	515.9 [115.5]	510.6 [143.0]	0.85	532.2 [117.8]	572.9 [143.1]	526.6 [112.4]	0.024
Mean dose, Gy	3.3 [1.9]	3.0 [0.9]	3.4 [2.1]	0.32	3.5 [1.5]	3.8 [1.2]	3.5 [1.5]	0.29
Minimum dose, Gy	0.2 [0.1]	0.2 [0.1]	0.2 [0.1]	0.25	0.3 [0.2]	0.3 [0.02]	0.3 [0.01]	0.27
Maximum dose, Gy	48.5 [5.5]	48.7 [5.6]	48.4 [5.4]	0.81	47.4 [7.2]	48.5 [5.2]	47.3 [7.5]	0.35
V _{25Gy} , %	3.7 [2.4]	3.1 [1.7]	4.0 [2.7]	0.07	3.8 [2.6]	3.8 [2.1]	3.8 [2.7]	1.0

*All numbers in the rows indicate mean values [standard deviation].

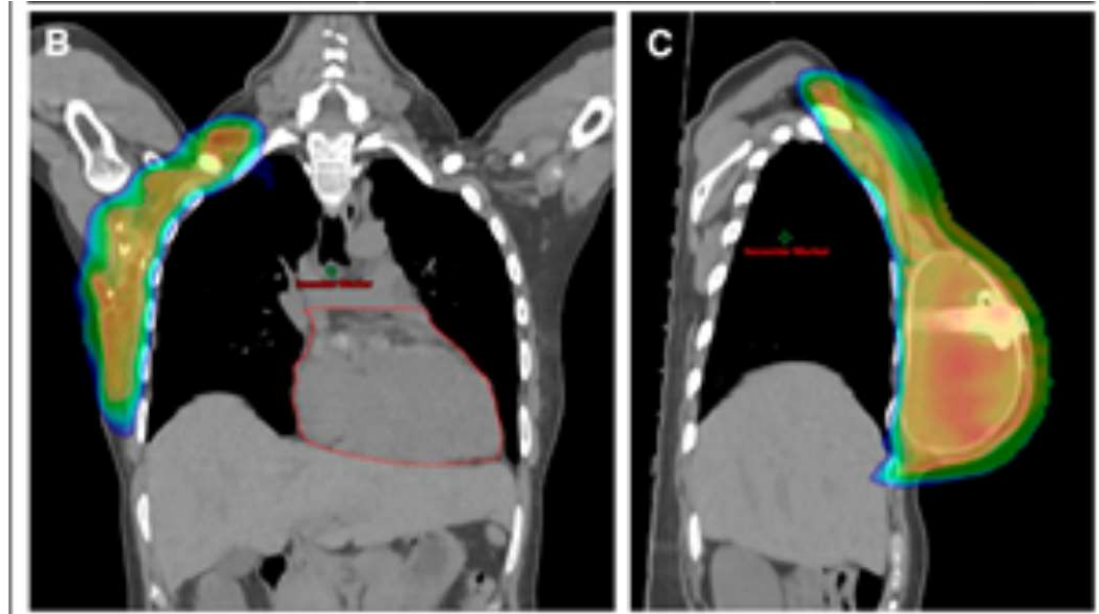
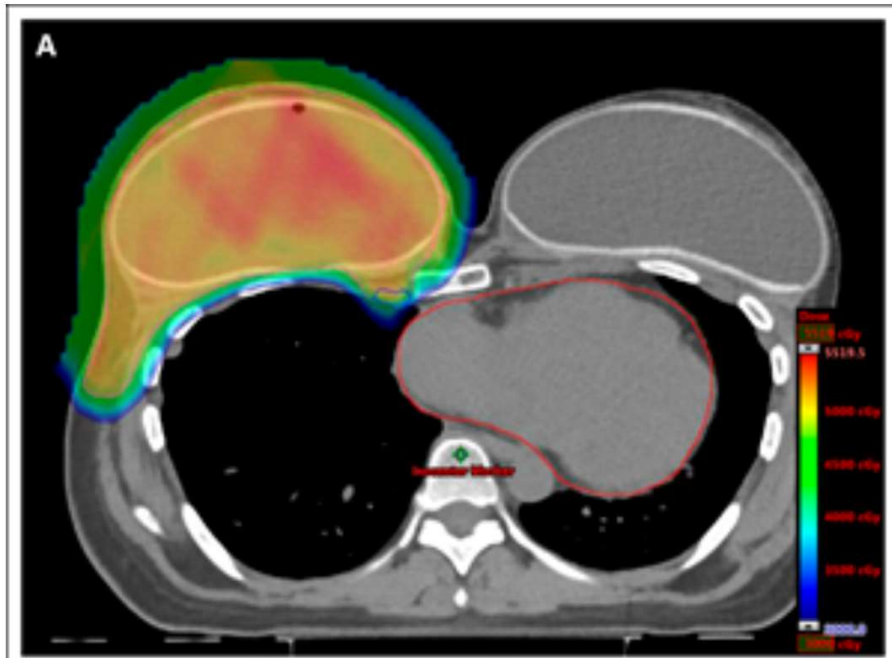
V_{20Gy} indicates volume of the ipsilateral lung irradiated with 20 Gy; V_{25Gy}, volume of heart irradiated with 25 Gy.

‡Calculated for left-sided plans only.

¶Student's independent t-test.

Liljegen, RO, 2014

Nasil RT



The Impact of Expander Inflation/Deflation Status During Adjuvant Radiotherapy on the Complications of Immediate Two-Stage Breast Reconstruction

Kyong-Je Woo¹ · Joo-Myeong Paik² · Sa Ik Bang² · Goo-Hyun Mun² ·
Jai-Kyong Pyon²



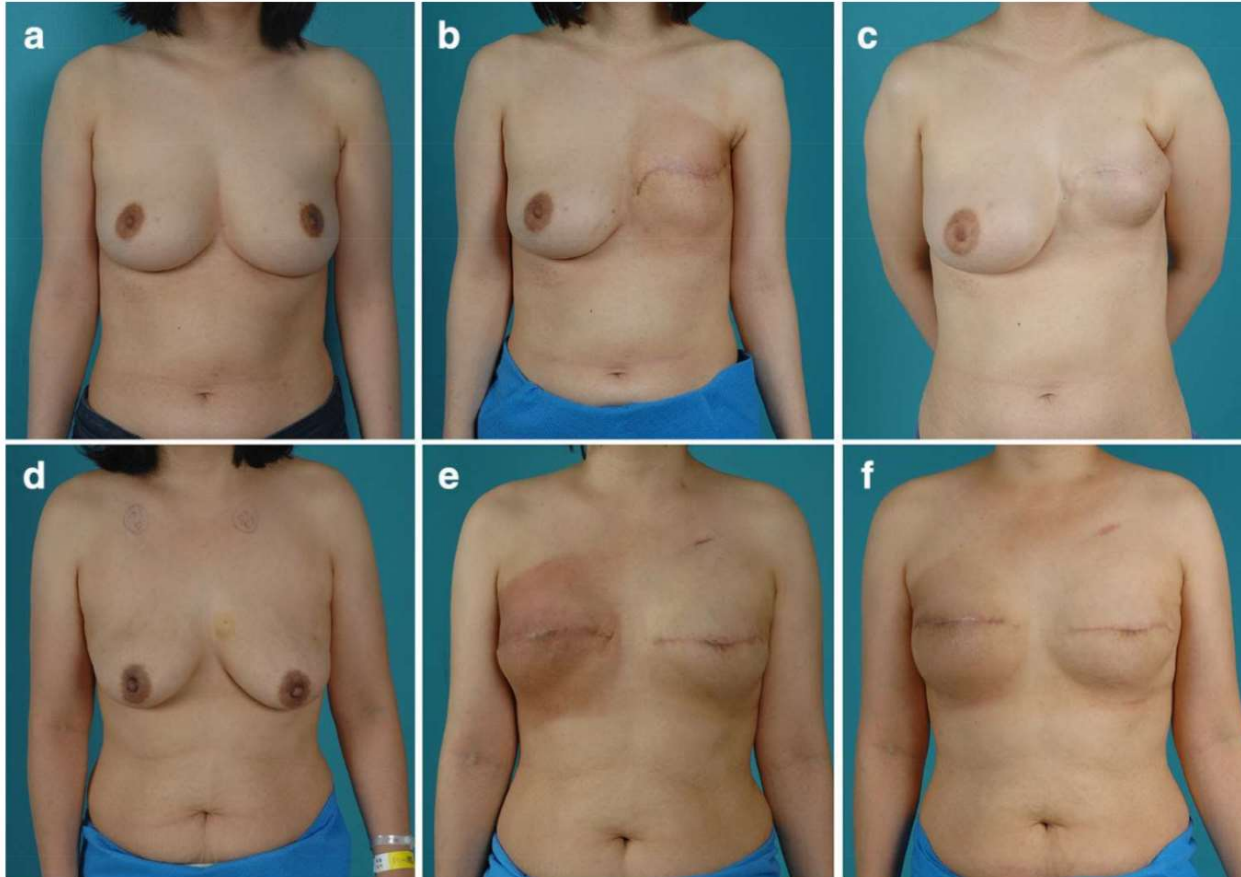
İmplantı indirelim – şişmiş hali ile RT yapalım

Table 3 Radiation-related complications of the first-stage reconstruction of immediate expander-implant breast reconstructions

	Deflation group	Inflation group	<i>p</i> value
Number of patients	20	29	
Reconstruction failure, <i>n</i> (%)	7 (35.0)	2 (6.9)	0.022
Overall complications, <i>n</i> (%)	13 (65.0)	2 (6.9)	<0.001*
Seroma	8 (40.0)	0	<0.001
Skin fibrosis and contracture	5 (25.0)	1 (3.4)	0.035
Infection	3 (15.0)	1 (3.4)	0.291
Expander exposure	3 (15.0)	0	0.062
Expander rupture	1 (5.0)	2 (6.9)	>0.999

* *P* value was obtained from Chi-square test (two-tailed). All other values were obtained from Fisher's exact test (two-tailed)

İmplantı indirerek – şişmiş hali ile RT yapalım



Woo, Aest Plast Surg, 2017

RT sırasında + sonrasında cilt kalınlaşması MKC

Landoni et al. *Journal of Experimental & Clinical Cancer Research* 2013, **32**:80
<http://www.jeccr.com/content/32/1/80>



**Journal of Experimental &
Clinical Cancer Research**

RESEARCH

Open Access

Evidence from a breast cancer hypofractionated schedule: late skin toxicity assessed by ultrasound

Valeria Landoni^{1*}, Carolina Giordano², Annelisa Marsella³, Biancamaria Saracino², Maria Grazia Petrongari², Anna Maria Ferraro², Lidia Strigari¹ and Paola Pinnarò²

Landoni, J Exp Clin Can Res, 2013

RT sonrasında cilt kalınlaşması MKC



irradiated breast



contralateral not irradiated breast

Işınlanan meme cilt kalınlık	İdantik karşı meme cilt kalınlığı	Boost cildi kalınlığı	İdantik cilt kalınlığı karşı meme
2.13 ± 0.72	1.61 ± 0.29 mm	2.25 ± 0,79 mm	1.63 ± 0.33 mm

Cilt kalınlık artışı ile Grad > 1 fibrozis arasında direk anlamlı korelasyon

Hipofraksiyone tüm meme RT cilt kalınlaşma daha az

Hypofractionated Breast Cancer Radiation Therapy Does Not Increase Cutaneous Toxicity: A Prospective Comparative Study Between Standard and Hypofractionated Radiation Therapy Using Quantitative Ultrasound Imaging

X. Yang, T. Liu, W.J. Curran, and M.A. Torres; *Emory University, Atlanta, GA*

- Konvansiyonel RT – hipofraksiyone
- 50 Gy/25 fr + 10 Gy/ 5fr (ardışık) – 40 Gy / 15 fr tüm meme 48 Gy/15 fr SIB

Hipofraksiyone tüm meme RT cilt kalınlaşma daha az

Oral Scientific Abstract 115; Table Comparison of the skin thickness ratio (irradiated breast/control-lateral breast) over time

	Prior to RT	During RT	6 weeks Post-RT	3 months Post-RT	6 months Post-RT
Skin Thickness Ratio (Standard RT)	1.26±0.27	1.48±0.41	1.58±0.36	1.62±0.38	1.57±0.36
Skin Thickness Ratio (Hypofractionated RT)	1.24±0.30	1.33±0.37	1.41±0.37	1.44±0.35	1.28±0.30
<i>P</i> value	.82	.03	.01	.02	.01

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JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Hypofractionated Postmastectomy Radiation Therapy Is Safe and Effective: First Results From a Prospective Phase II Trial

Atif J. Khan, Matthew M. Poppe, Sharad Goyal, Kristine E. Kokeny, Thomas Kearney, Laurie Kirstein, Deborah Toppmeyer, Dirk F. Moore, Chunxia Chen, David K. Gaffney, and Bruce G. Haffty

Khan, JCO, 2017

Hipofraksiyone postimplant RT ile toksisite / tolerans

- 67 hasta, 41 hastada rekonstrüksiyon var
- Göğüs duvarı ve periferik lenfatik 36.63 Gy / 11 fr (3.33 Gy /fr)
± 13.32 Gy / 4 fr skar boost
- Grad 2 akut cilt toksisitesi % 24
- 41 rekonstruksiyonlu hastanın 3 ünde RT öncesi implant çıkarılmış
 - Total Komplikasyon oranı % 32
 - İmplant kaybı % 24
 - Planlamamış cerrahi gerekliliği % 8
 - 21'inde asellüler dermal matriks kullanılmış.
 - Rekonstruksiyon komplikasyon oranı: %28

Treatment of Irradiated Expanders: Protective Lipofilling Allows Immediate Prosthetic Breast Reconstruction in the Setting of Postoperative Radiotherapy

Diego Ribuffo · Matteo Atzeni · Maristella Guerra · Stefania Bucher ·
Carola Politi · Maura Deidda · Francesco Atzori · Mariele Dessi ·
Clelia Madeddu · Giancarlo Lay



RT sonrası protez çevresine koruyucu lipofil enjeksiyonu

Table 2 Complication rates for patients undergoing IIBR+PMRT with or without lipofilling

	IIBR+PMRT without lipofilling	IIBR+PMRT with lipofilling
No. of patients	16	16
Infection	1 (6.25 %)	0
Ulceration	4 (25 %)	0
Contracture (Baker 4)	2 (12.5 %)	0
Total	7 (43.75 %)	0

PMRT postmastectomy radiotherapy, *IIBR* immediate implant-based reconstruction

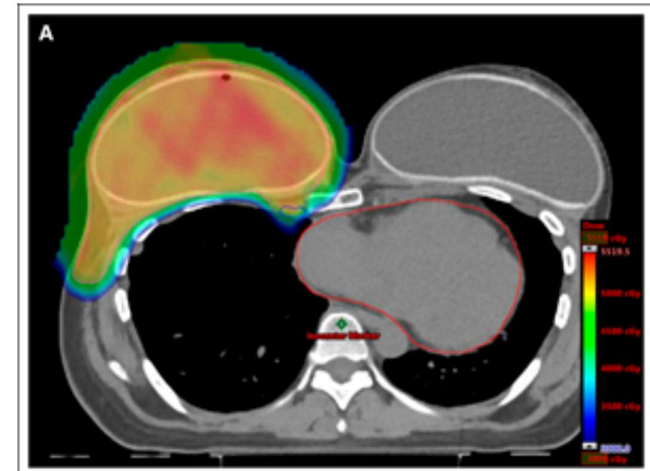
Table 3 Baker capsular contracture rates

Baker scale	IIBR+PMRT with lipofilling	IIBR+PMRT without lipofilling
1	14 (87.5 %)	2 (12.5 %)
2	2 (12.5 %)	5 (31.25 %)
3	0	7 (43.75 %)
4	0	2 (12.5 %)

IIBR immediate implant-based reconstruction, *PMRT* postmastectomy radiotherapy

Nasıl RT

- 3 boyutlu konformal
- FINF – forward IMRT
- IMRT
- Bolusten kaçınarak



IMRT-cilt reaksiyonu



Özet

- Postmastektomi RT gerekli endikasyonda yapılmaktadır.
- Kalıcı implanta RT daha çok kapsül Kontraktürüne yol açar.
- Eğer ekspandera RT yapılmış ise > 6 aydan sonra kalıcı implanta geçmek daha sağlıklıdır.
- Onkolojik prensipler içerisinde NAKM ile PMRT yapılabilir.

Özet

- RT de cilt dozlarını arttıracak bolus uygulamalarından kaçınılmalıdır
- Hipofraksiyonasyon açısından daha çok çalışma gereklidir.
- Multidisipliner yaklaşım önemli

- Teşekkürler