Accelerated Partial Breast Irradiation
APBI

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What is APBI?
Accelerated Partial Breast Irradiation

Breast Conservation Surgery

- Clear pathological margin
- Sentinel lymph nodes negative (or minimal)

Radiation target is part (not whole) breast

- Reduce treatment time to 5 days
- Treat 1-2 cm beyond resection margin

APBI Rationale

Most recurrences occur in tumor bed

Major effect of Radiation is to reduce tumor bed recurrence

Partial Breast Irradiation is sufficient therapy in selected cases of early breast cancer

Pathologic Studies - patterns of spread

Ohtake Cancer 1995

- Contiguous spread

Faverly Cancer 2001

- Radiol-Path studies can predict extent of disease

Vicini, IJRBP 2004

- Re-excision Stage I-II demonstrate 1cm margin usually sufficient

Imamura Breast Ca Res Treat 2000

- Younger patients more spread

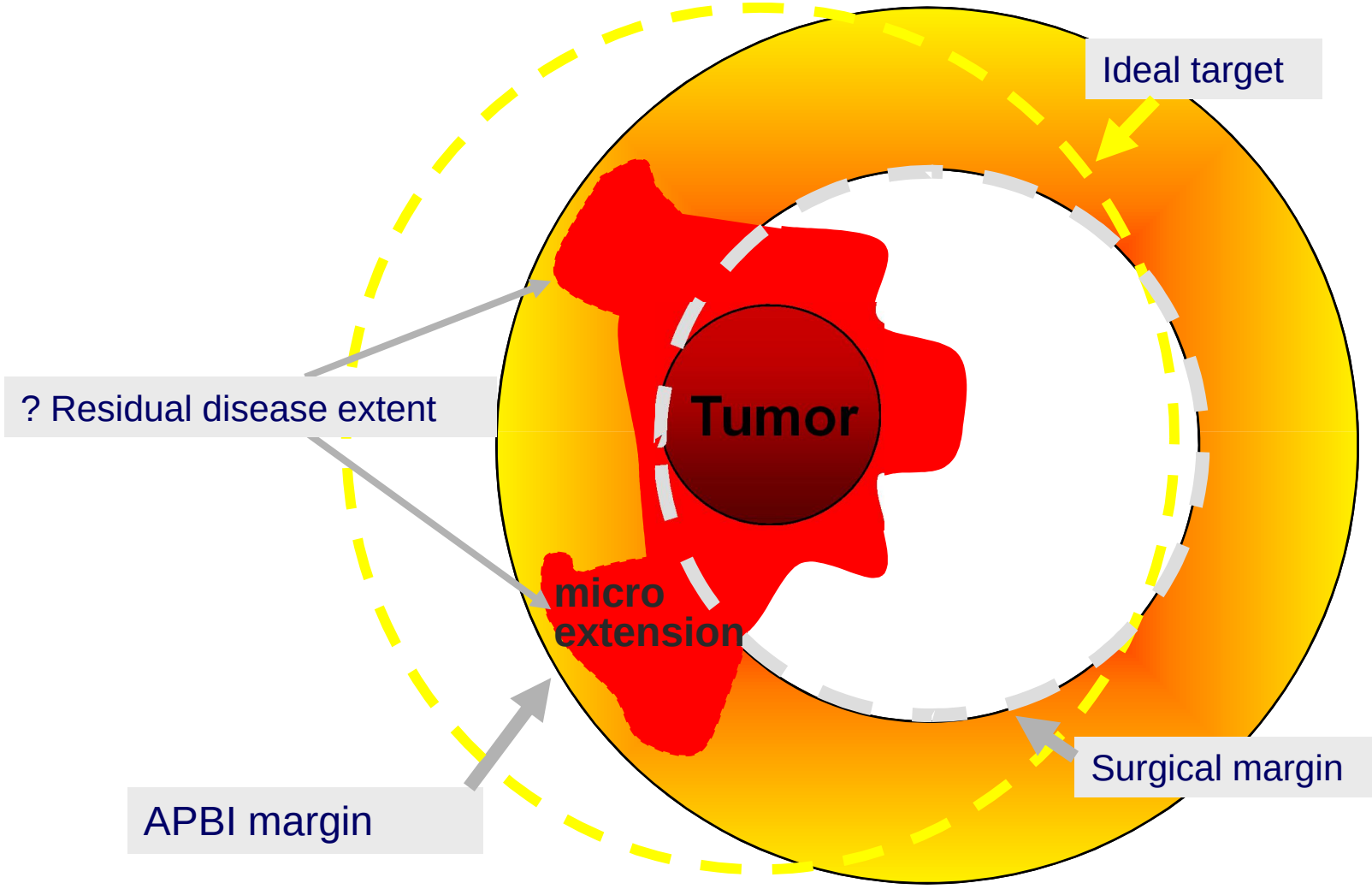
Patterns of Failure

20 Year Data NEJM 2002 V347 (16)

		Local control	
	Tumor	with RT	without RT
Fisher B06	<4cm	84%	61%
Veronesi	>2cm	98%	92%

Whole breast RT does NOT protect against new cancer in treated breast

Target Definition from Pathological and Clinical data



Courtesy Douglas Arthur M.D. Virginia Commonwealth Univ.

APBI - 3 Treatment Methods

Multi-Catheter Tube and Button

MammoSite-Catheter Balloon

External Beam - Dr. Patrick Swift

Brachytherapy Protocol

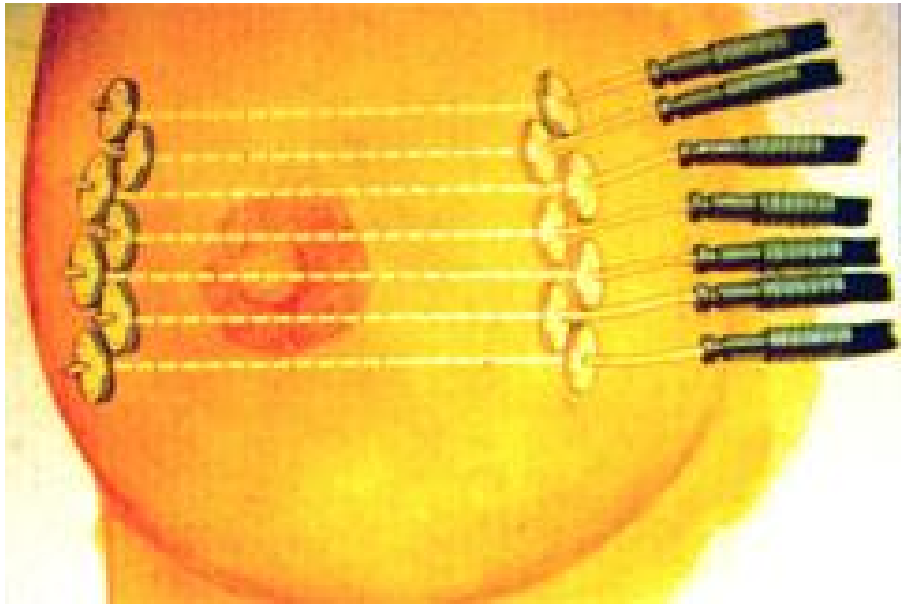
Applicator Insertion

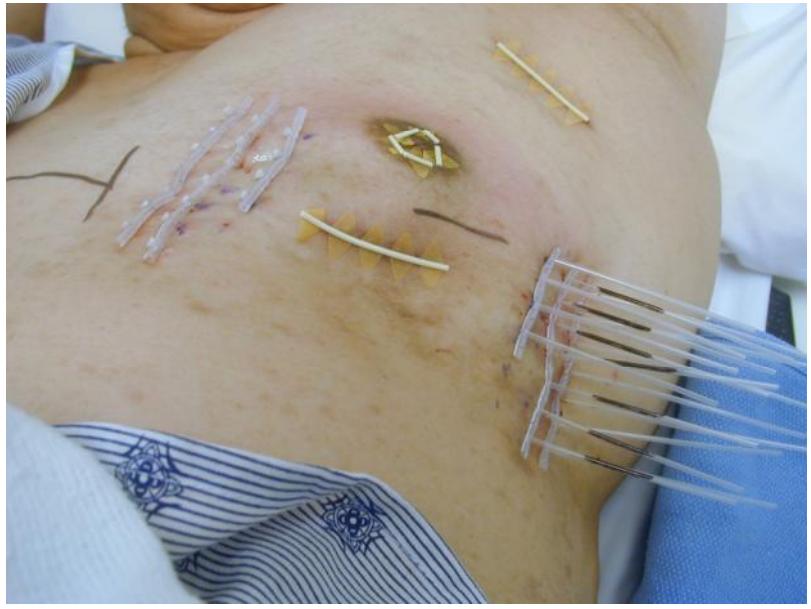
Radiation bid for 5 days

Total dose = 34 Gy

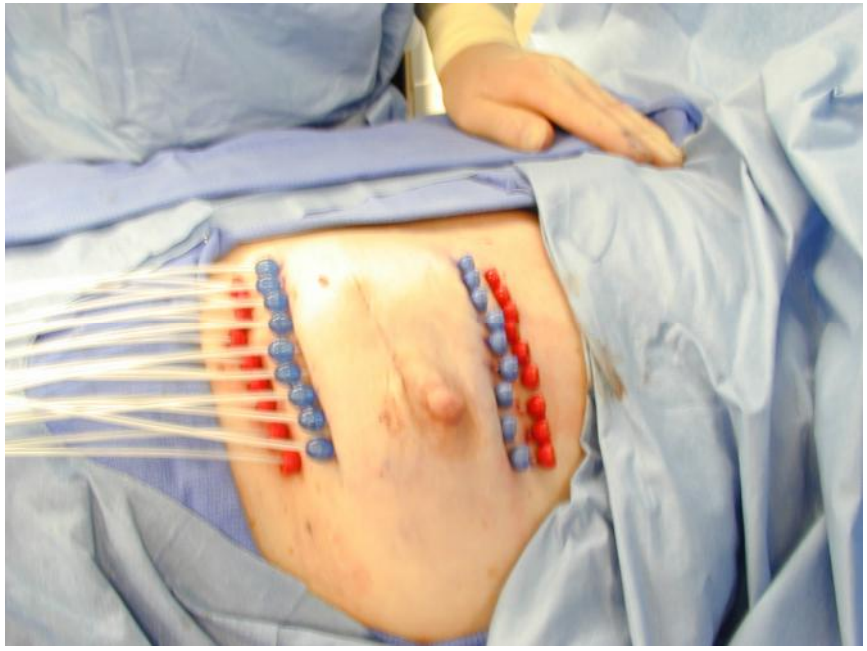
Applicator Removed in Office

Multiple Catheter Interstitial

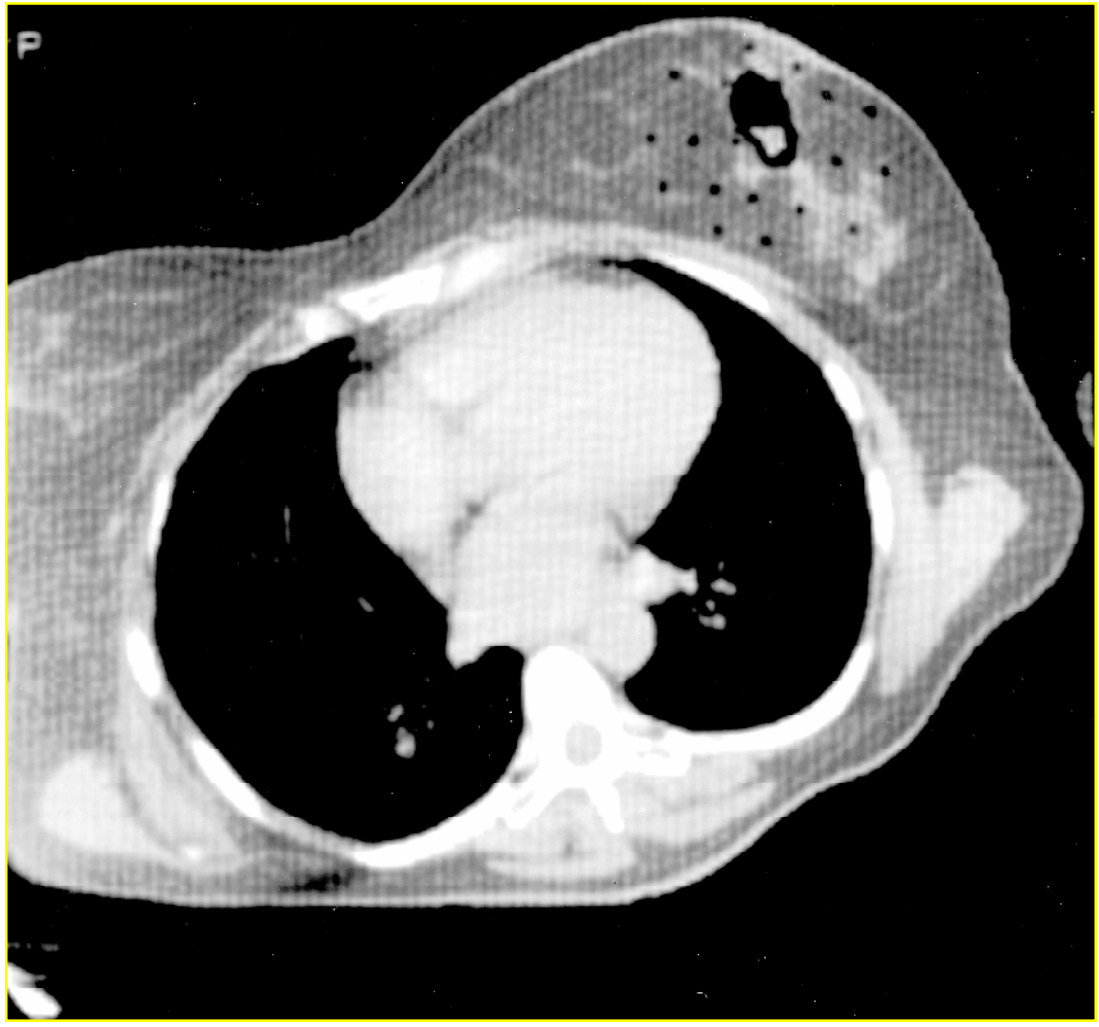




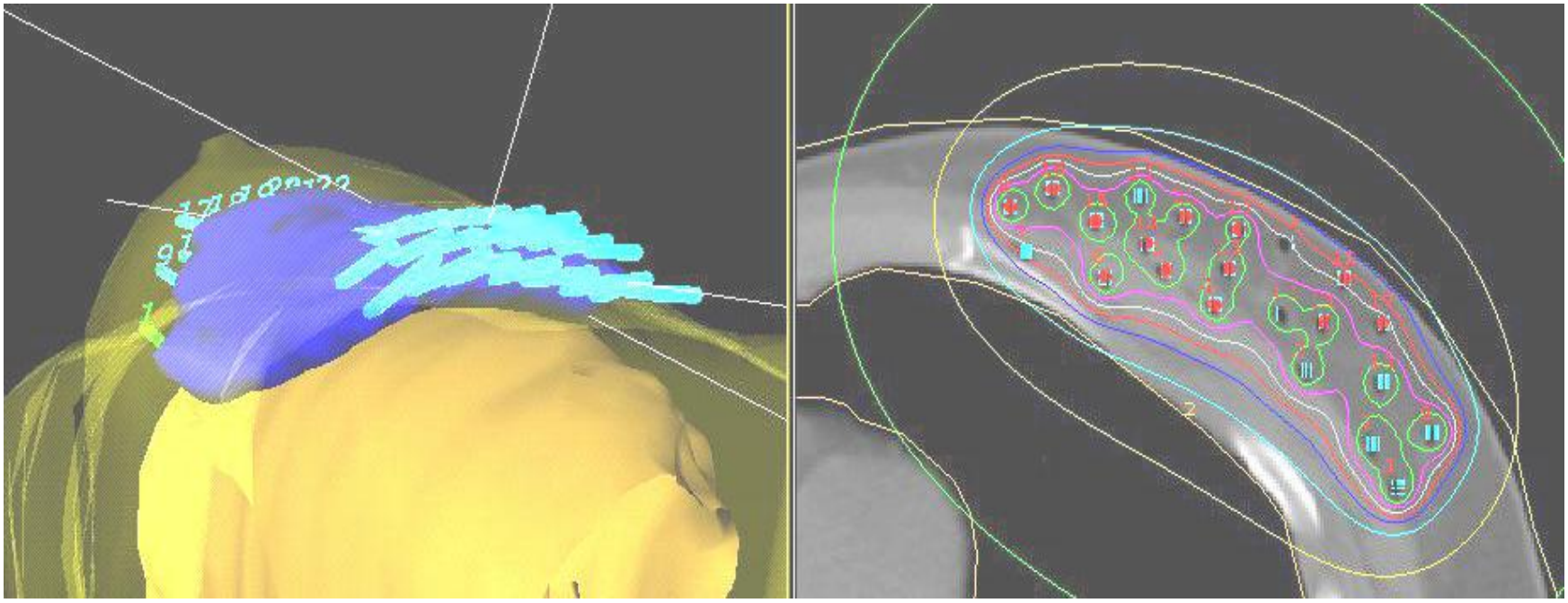
Multi-Catheter Technique



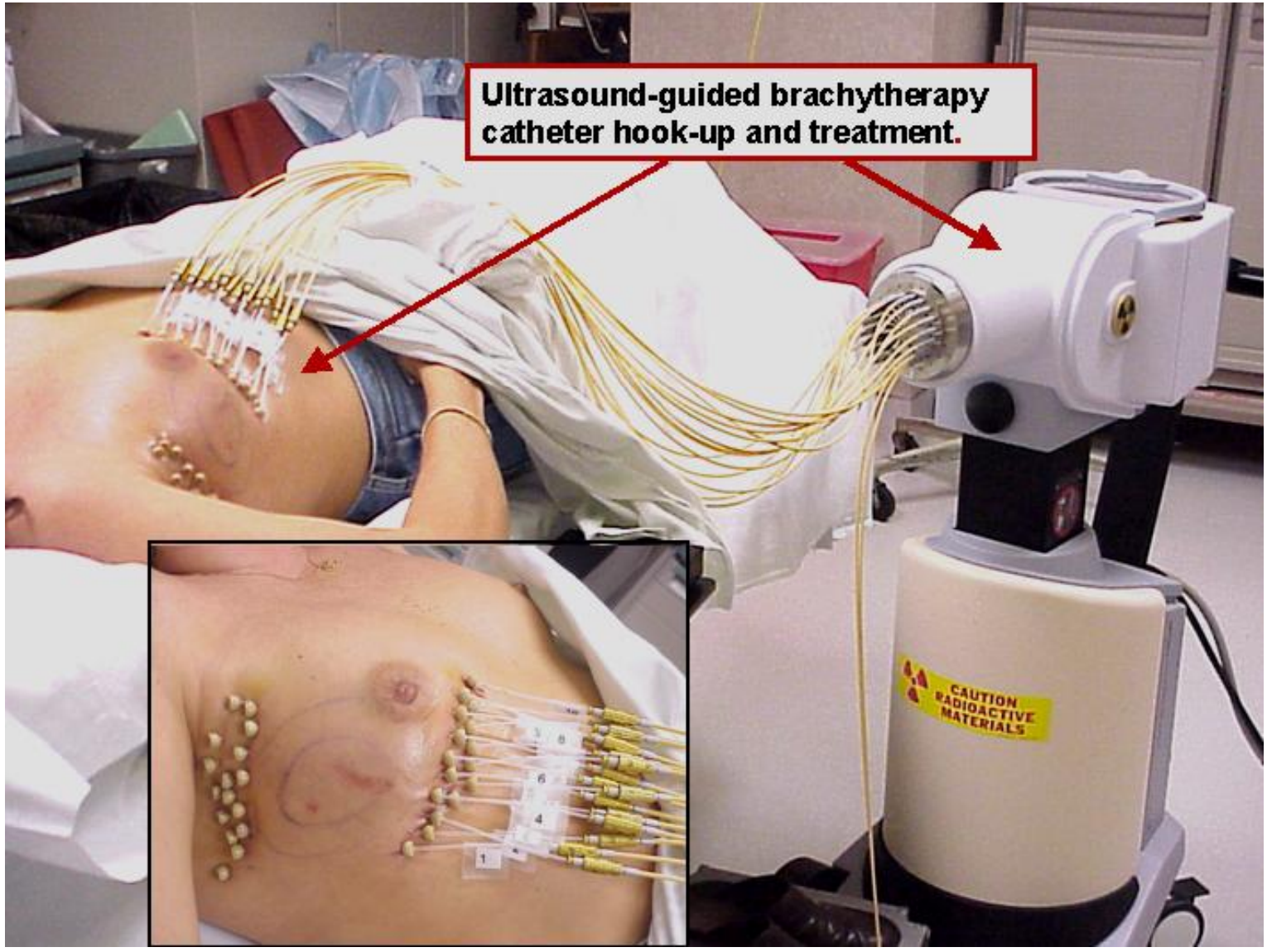
CT Image



3D Virtual Image



High Dose Rate Treatment Delivery



Multi-Catheter Example

APBI Multi-Catheter >5 yr follow-up

Institution	# Cases	Median F/U (mo)	5-Yr Actuarial Recurrence Total (%)	5-Yr Elsewhere Failure (%)	Cosmesis Good/Excel
TOTAL	**667**	**65-85**	**<5**	**<5**	**>75**
Beaumont	**199**	**77**	**1.2**	**0.6**	**92**
Tufts/Brown	**33**	**82**	**9**	**9**	**88**
RTOG 95-17	**100**	**80**	**4**	**3**	**--**
NIO, Hungary Ph I/II	**45**	**80**	**6.7[a]**	**6.7 [a]**	**97.8**
NIO, Hungary Ph III	**127**	**66**	**4.7**	**3.1**	**81**
Ochsner	**164**	**65**	**3**	**0**	**75**

MammoSite Balloon Catheter

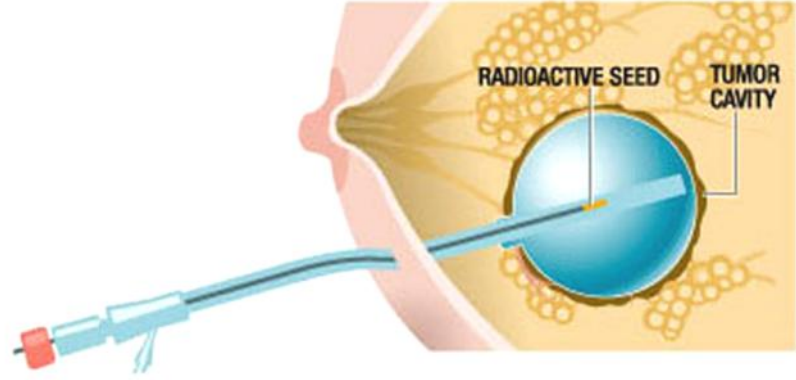
PROXIMA® THERAPEUTICS, INC.

Inserted obturator to prevent bending or coiling of the catheter shaft

Radiation source port pathway

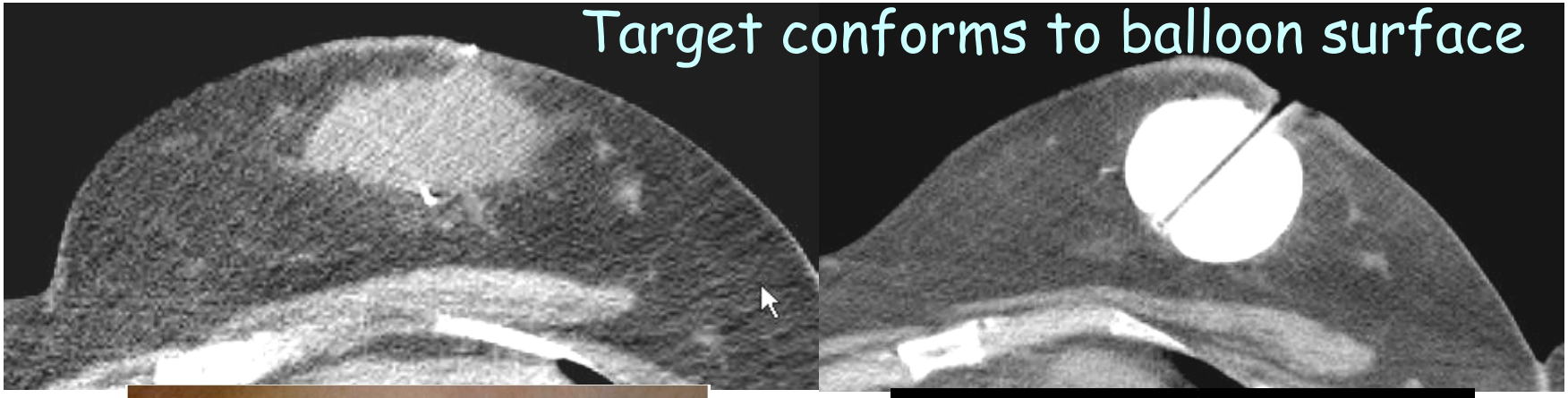
Multilumen, silicone catheter

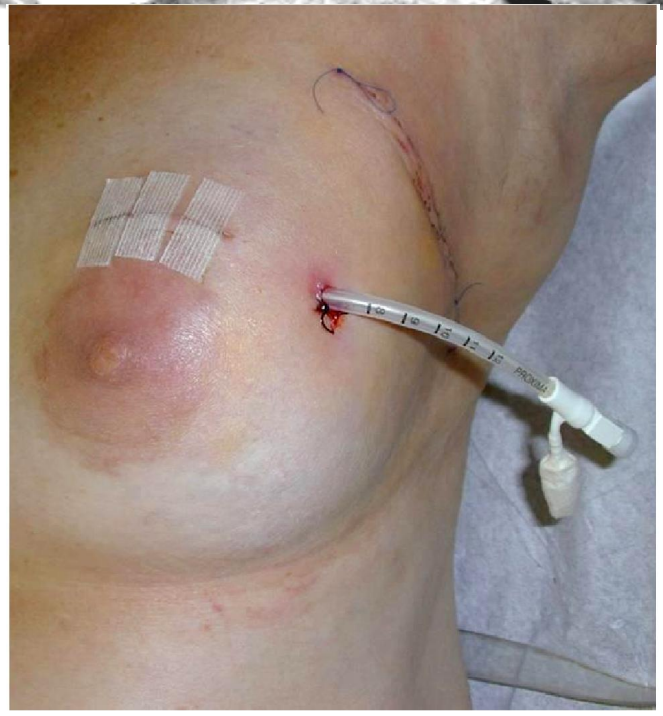
Variable 4 to 5 cm balloon

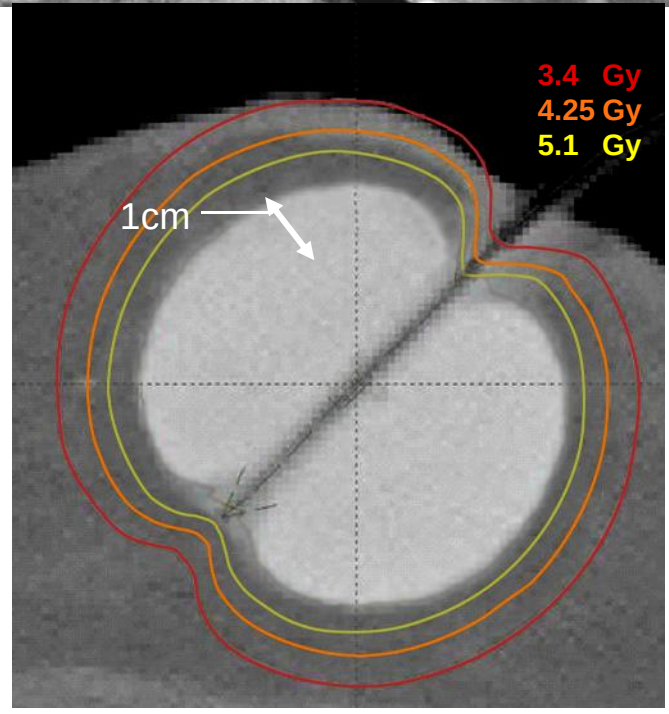


MammoSite Procedure

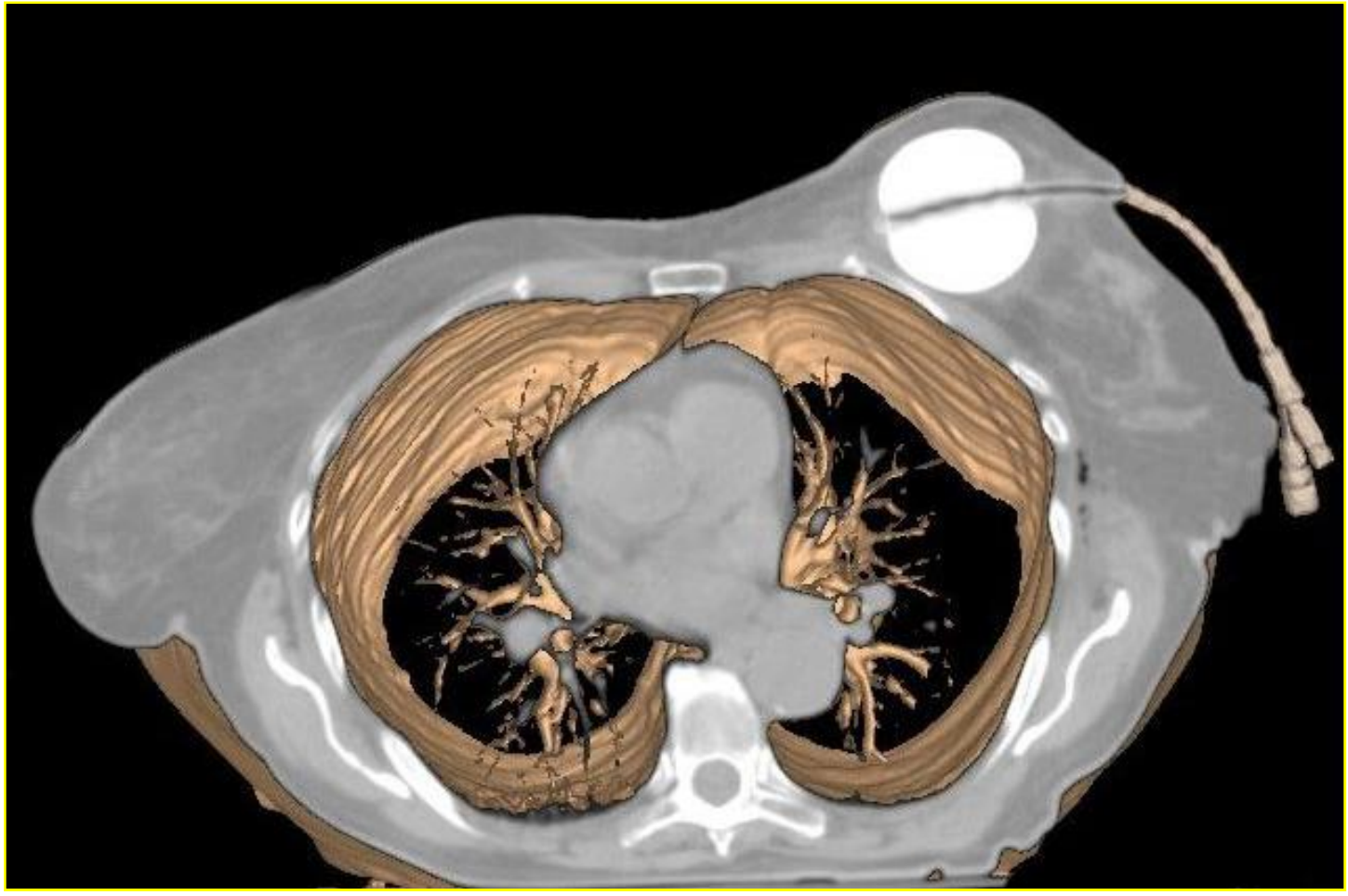
Ideal Case for MammoSite







3D Reconstruction Balloon



Balloon Cosmetic Result

After surgery 30 days 5 months

Must have minimum of 7 mm balloon to skin distance

Must keep applicator entry site clean and dry

Prophylactic oral antibiotics

MammoSite Data

Pilot 43 pts 5 yr f/u = 100% local control (good/excellent cosmetic 82%)

ASBS registry 1236 pt 2 yr f/u = 99% local control (good/excellent cosmetic 93%)

2004 Dr. Arthur summary many centers

577 pts 1-3 yr f/u = 99% local control (2% fat necrosis and 7% infection rate)

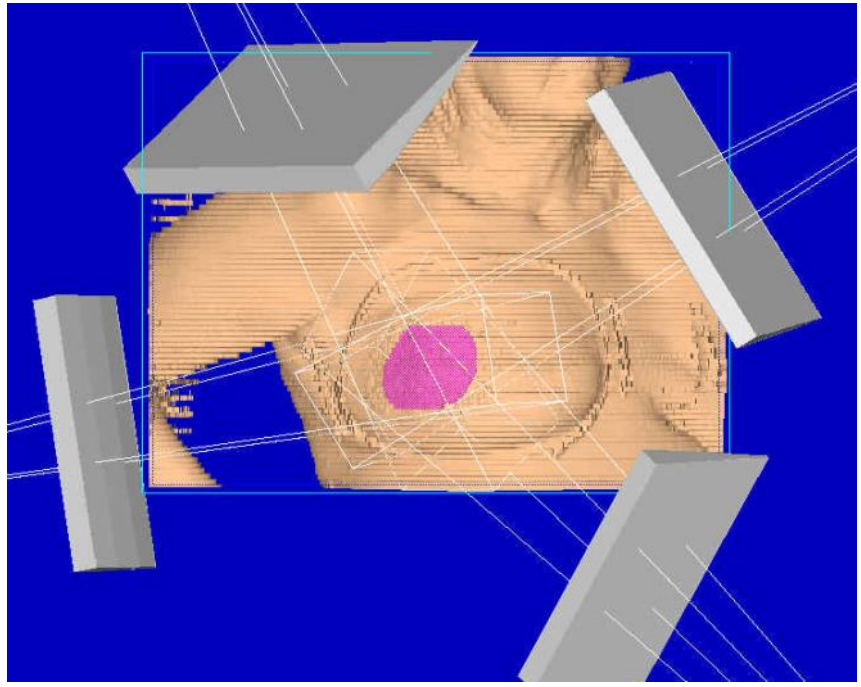
APBI External Beam

Non-invasive

Good dose homogeneity

Potential for excellent cosmesis

Dr. Patrick Swift M.D. will present



Case Selection

Age > 45 years

Ductal Carcinoma (invasive or in situ)

Lesions < 3m

Negative surgical margins (preferably >2mm)

Negative lymph node sample

Probably OK: Invasive lobular, EIC, Younger Age, or isolated cells/micro positive 1-3 lymph nodes without ECE

Conclusions

APBI is safe and effective treatment for properly selected patients with early breast cancer

Balloon Catheter
best for small tumors deep enough in breast to achieve 7mm balloon to skin distance

Multiple Catheters or 3D-CRT for larger or more difficult tumors or anatomic situations (superficial tumor, small or large breast etc)