

Customised Vaginal Mould Brachytherapy Audit

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Vaginal Malignancies

- Primary disease of vaginal, vulva or urethra
- Recurrence of endometrial or cervix cancer
- ~70 cases per year in Australia
- Given rarity, limited consensus guidelines, no clinical trial data
- If more than 5mm thick interstitial needles recommended
- Customised mould allows conformality
- A mould can be combined with free hand interstitial needles.



Vaginal Mould Clinical Diagram

Patient: -----

At Diagnosis

At Brachytherapy

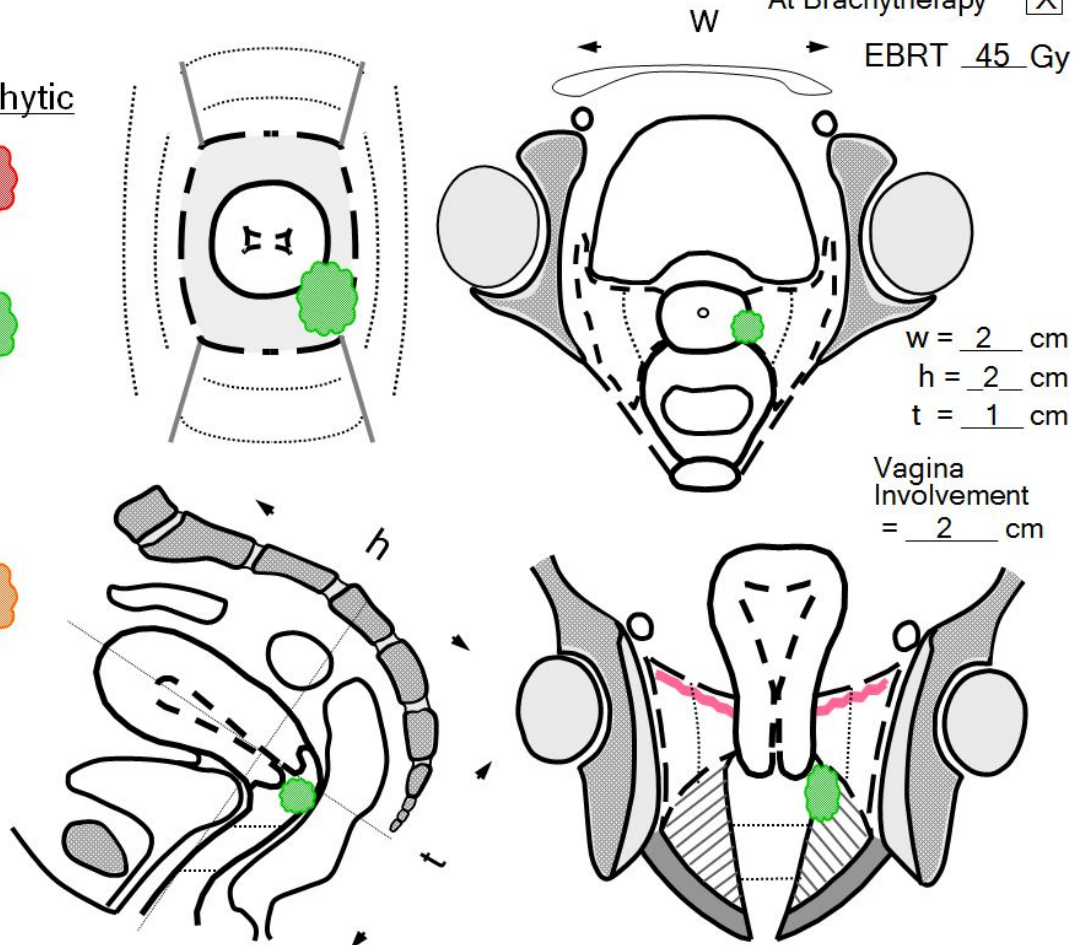
EBRT 45 Gy

Infiltrative Exophytic

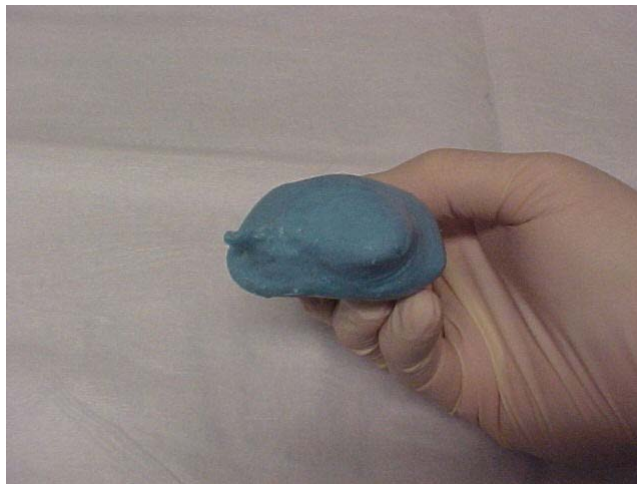


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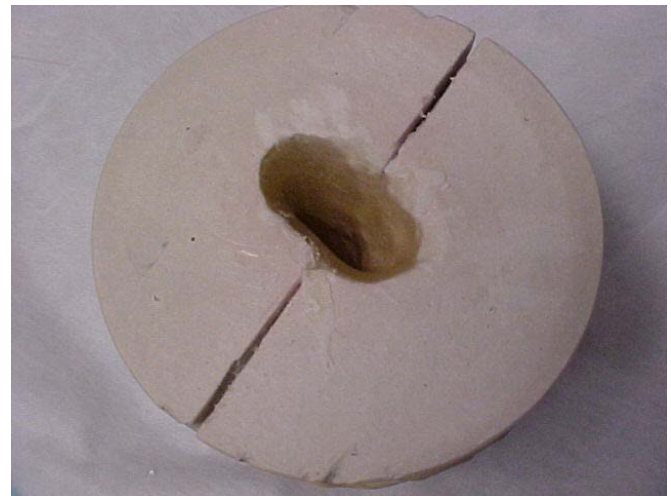
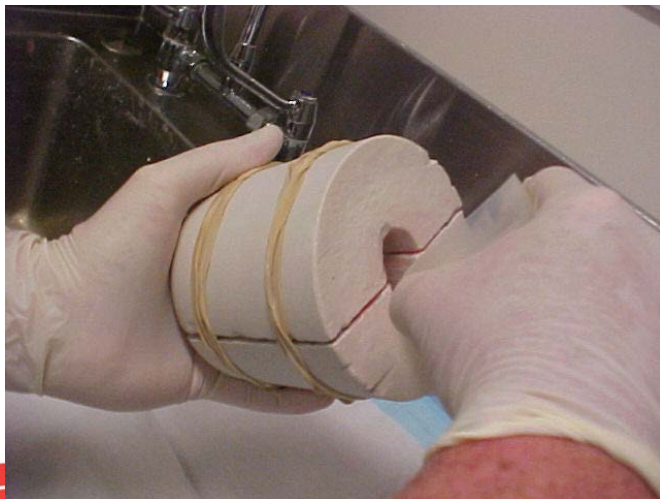
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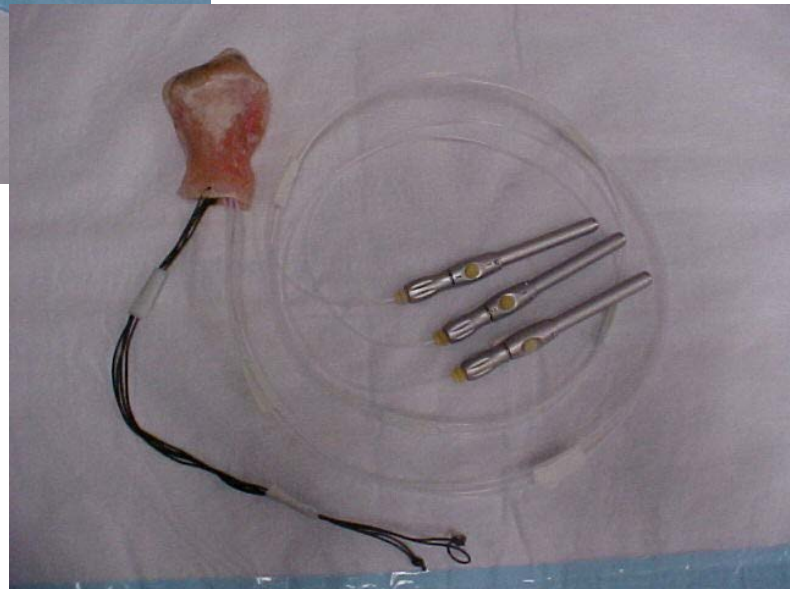
Vaginal Mould Construction



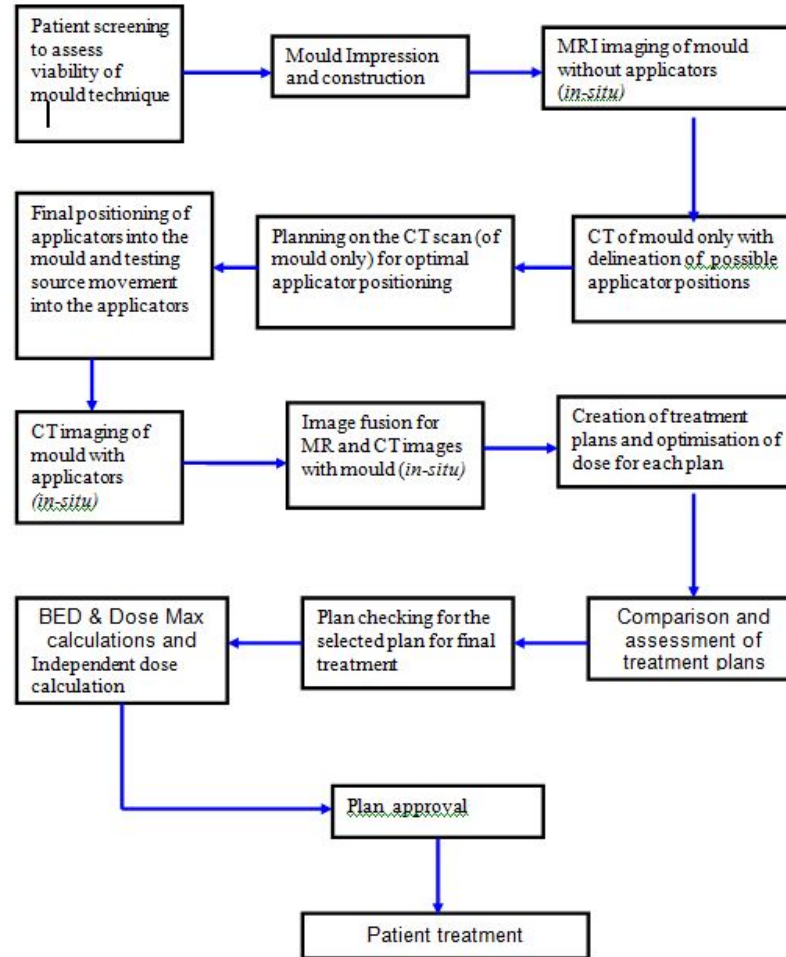
Vaginal Mould Construction



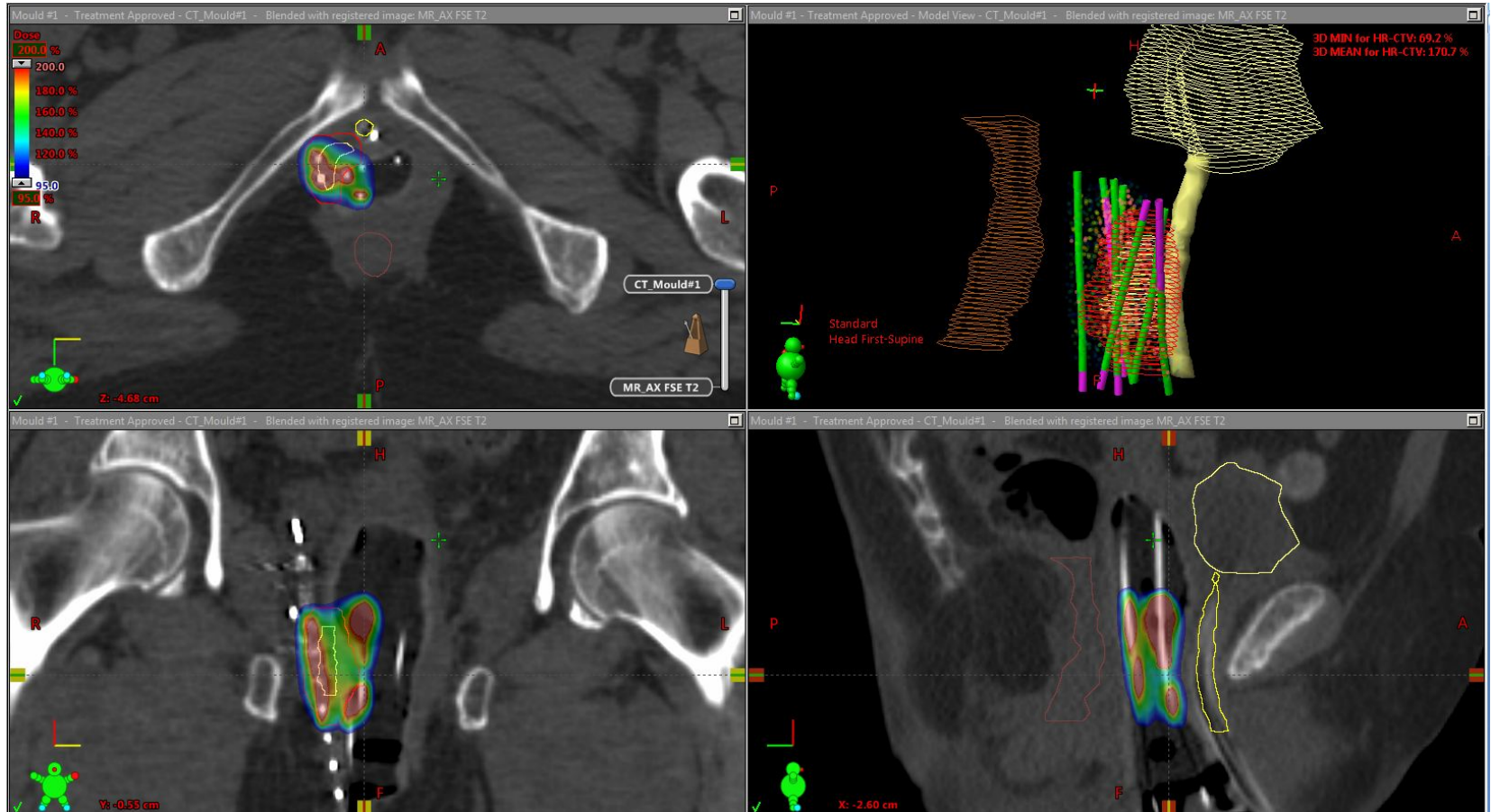
Vaginal Mould Construction



FLOWCHART FOR HDR GYNAE BRACHYTHERAPY USING PERSONAL MOULD TECHNIQUE



Vaginal Mould Plan



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Diagnosis

Primary Site	Number
Endometrium	9
Vagina	6
Cervix	1
Urethra	1
Vulva	1



Treatment Population

Follow-up time	Age	Referral Hospital
Average = 2.8 years	Mean 70 years	<ul style="list-style-type: none">• 9 x Westmead• 2 x Nepean• 3 x Orange• 1 x Nowra• 2 x St George• 1 x Liverpool
Median = 2.5 years	Range 54 – 88 years	
Range = 0.8 – 7.6 years		



Treatment Technique

Applicator Used	# Channels	# Fractions	Planning Imaging (following EUA)
<ul style="list-style-type: none"> • 8 x customised mould alone • 10 x mould and needles • 1 mould to stabilise and needles 	<p>Average = 5</p> <p>Range = 2 – 12</p>	<p>14 patients had 3 fractions</p> <p>5 patients had 4 fractions</p>	<ul style="list-style-type: none"> • 6 patients had CT only • All others had MRI and CT



Treatment Dosimetry

EBRT Dose (Gy)	Median CTV D98 (EQD2, Gy)	Median CTV D90 (EQD2, Gy)	Median Urethra D0.1cc (EQD2, Gy)	Median Bladder D2cc (EQD2, Gy)	Median Bladder D0.1cc (EQD2, Gy)	Median Rectum D2cc (EQD2, Gy)	Median Rectum D0.1cc (EQD2, Gy)
45-54	78	73.6	86.2**	79.3	67.5	66.5	63.5

**Where urethra is not involved in CTV, median D0.1cc = 74.6Gy



Clinical Outcomes

- Tolerable toxicities:
 - 2 Vaginal Ulcers (both resolved, one responded to hyperbaric oxygen) both had previous RT (combined doses were low)
 - The two patients with ulcers had previous pelvic RT (1 x cylinder BT 21 Gy/3 fractions, 1 x rectal EBRT 54Gy/30fractions). These doses were summed into the total EQD2 and doses kept within tolerance.
 - 1 x out of field nodal metastases
 - 1 x grade 1 bowel toxicity
 - Several patients had vaginal stenosis and/or telangiectasia



Conclusion

A review of patients treated with a customised vaginal mould and interstitial needles showed that the technique allows for acceptable doses to the CTV and organs and risk and acceptable toxicity.



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