

Radiation Therapy in Cervical Cancer

Dr. Youri Popowski
Radiation Oncology
University Hospital of Geneva

ATTITUDES

- \leq IIA: SURGERY = RADIOTHERAPY
- $>$ IIA: RADIOTHERAPY + CHEMOTHERAPY

RT & CERVIX UTERI CANCER

- POST-OPERATIVE (\leq STAGE IIA)
- INDICATIONS: INVOLVED NODES,
POSITIVE MARGINS, DIAMETER $>$ 4-5 CM
- RELATIVELY LOW DOSES TO THE PELVIS,
45 – 50 GY, \Rightarrow GOOD TOLERANCE
- OVARY PRESERVATION
- SEXUAL LIFE PRESERVATION
- WHEN POSITIVE NODES \Rightarrow + CT

RT & CERVICAL CANCER

- EXCLUSIVE (STAGE > IIA OR CHOICE)
- ASSOCIATION OF EXT RT &
BRACHYTHERAPY (45 + 30-40 GY)
- COMBINED WITH CHEMOTHERAPY =
BETTER RESULTS
- HIGH DOSES RT + CT=> FROZEN
PELVIS (COMPROMISED SEXUAL LIFE)

IMPORTANT ISSUES

- HB > 12
- TUMOR DOSES > 75 – 80 GY (ST III = 85 GY)
- TREATMENT DURATION \leq 40 – 50 D
- COVERAGE OF THE TUMOR (MR, CT)
- NODES: INGUINAL IF VAGINA INVOLVED
- PARA-AORT. 10=>40 % FROM IIA => IV
- BETTER TOLERANCE IF RT LOW DOSE + BRACHY HIGHER DOSE
- RT + CT: IMPROVED OS AND PFS

5 RANDOMIZED STUDIES

Trial	Patient no.	Tumor stage	Surgical staging	Control arm	Invest. arm
Keys	369	IB \geq 4cm	PREOP RT	RT	+ CDDP
Whitney	368	IIB, III, IVA	yes	RT & HU	+ CDDP & 5FU
Rose	526	Idem	yes	RT & HU	+ CDDP & 5FU
Morris	386	Id & IB, IIA \geq 5 cm, + nodes	yes	RT PELV & LOMB.	+ CDDP & 5FU
Peters	243	IA2, IB, IIA + nodes, margins parametria	Post-op RT	RT	+ CDDP & 5FU

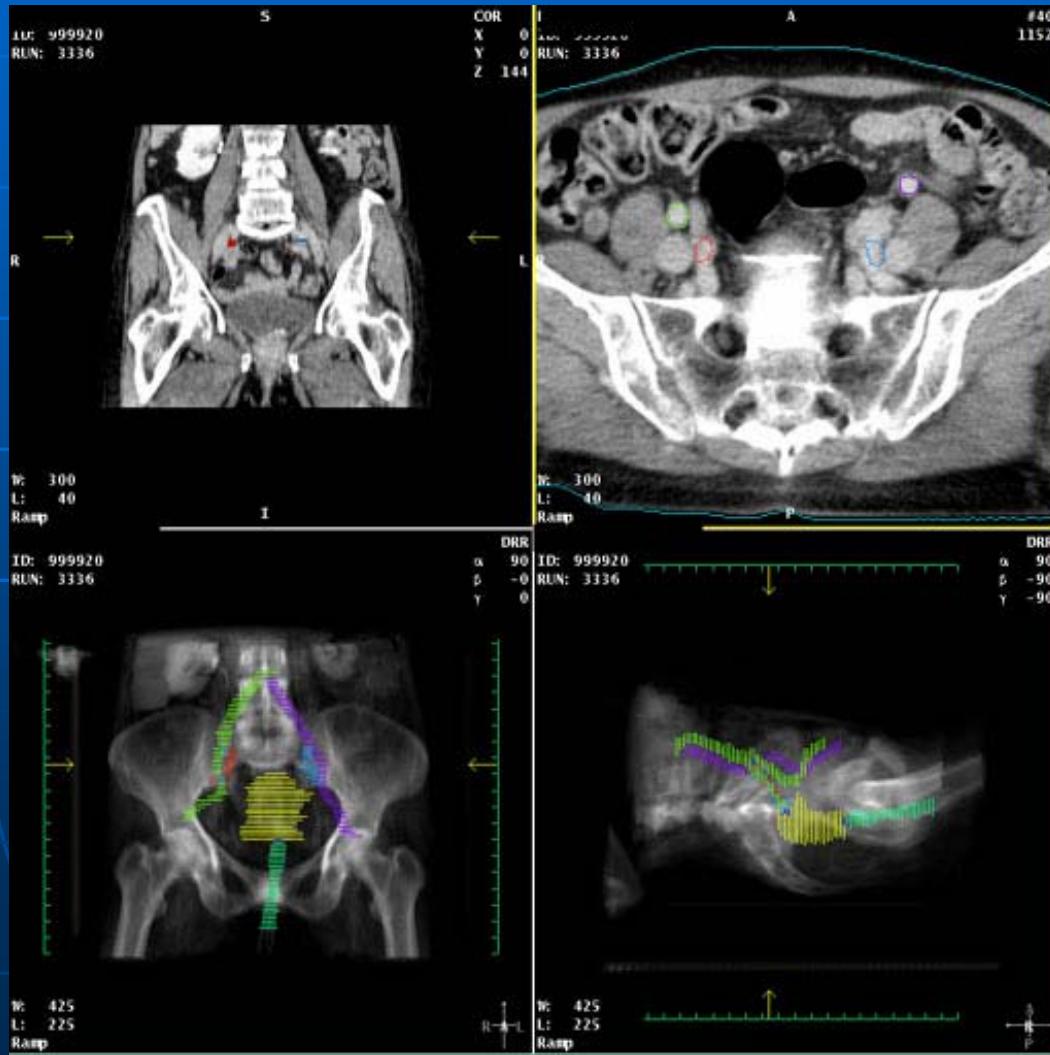
Randomized trials RT-CT

RESULTS					
	Median FU	Os % Control	OS % Invest	PFS % Control	PFS % Invest
Keys	36 m	63	79	74	85
Whitney	8.7 Y	47	57	43	55
Rose	35 m	47	67	50	66
Morris	43 m	40	67	58	73
Peters	42 m	63	80	71	81

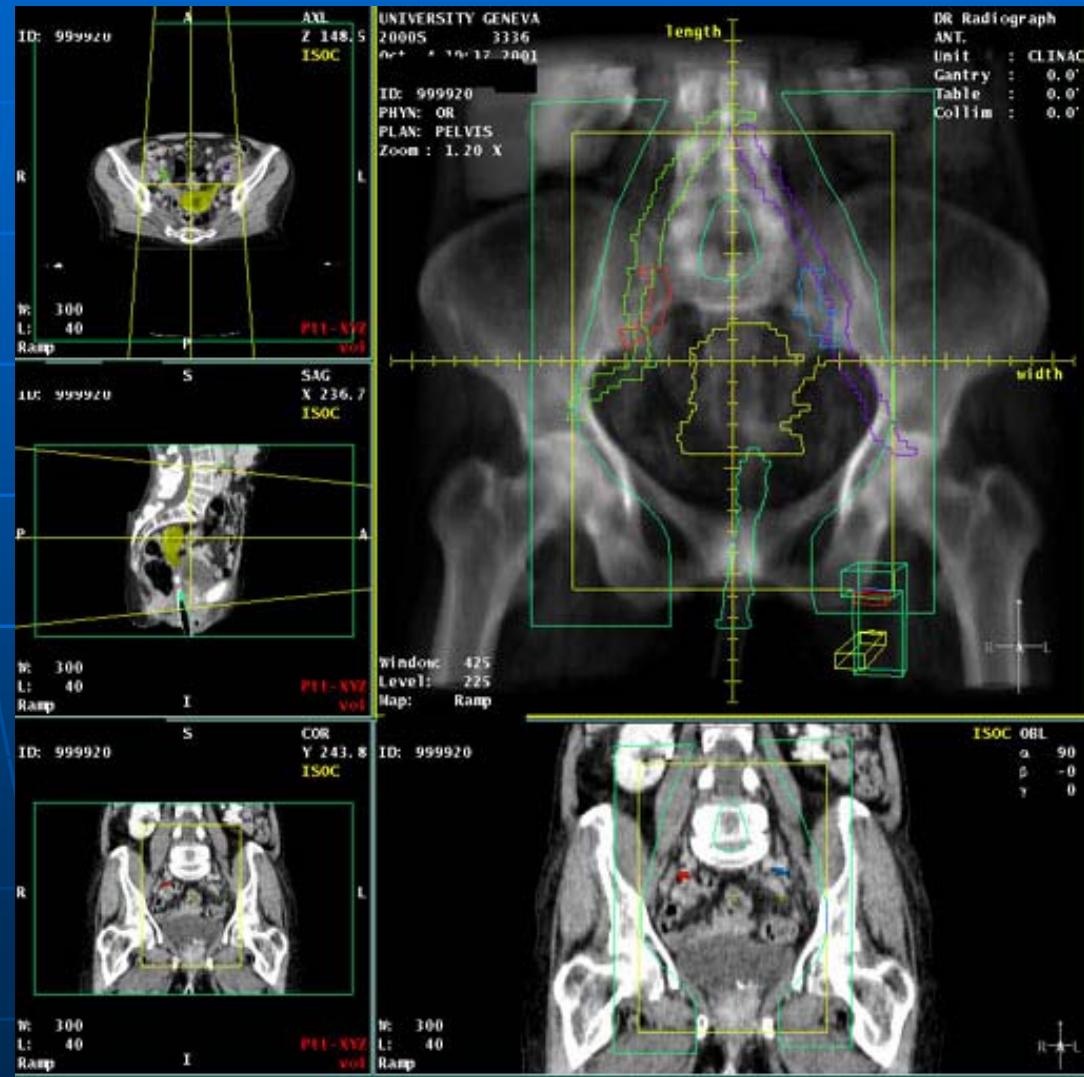
EXTERNAL RADIOTHERAPY



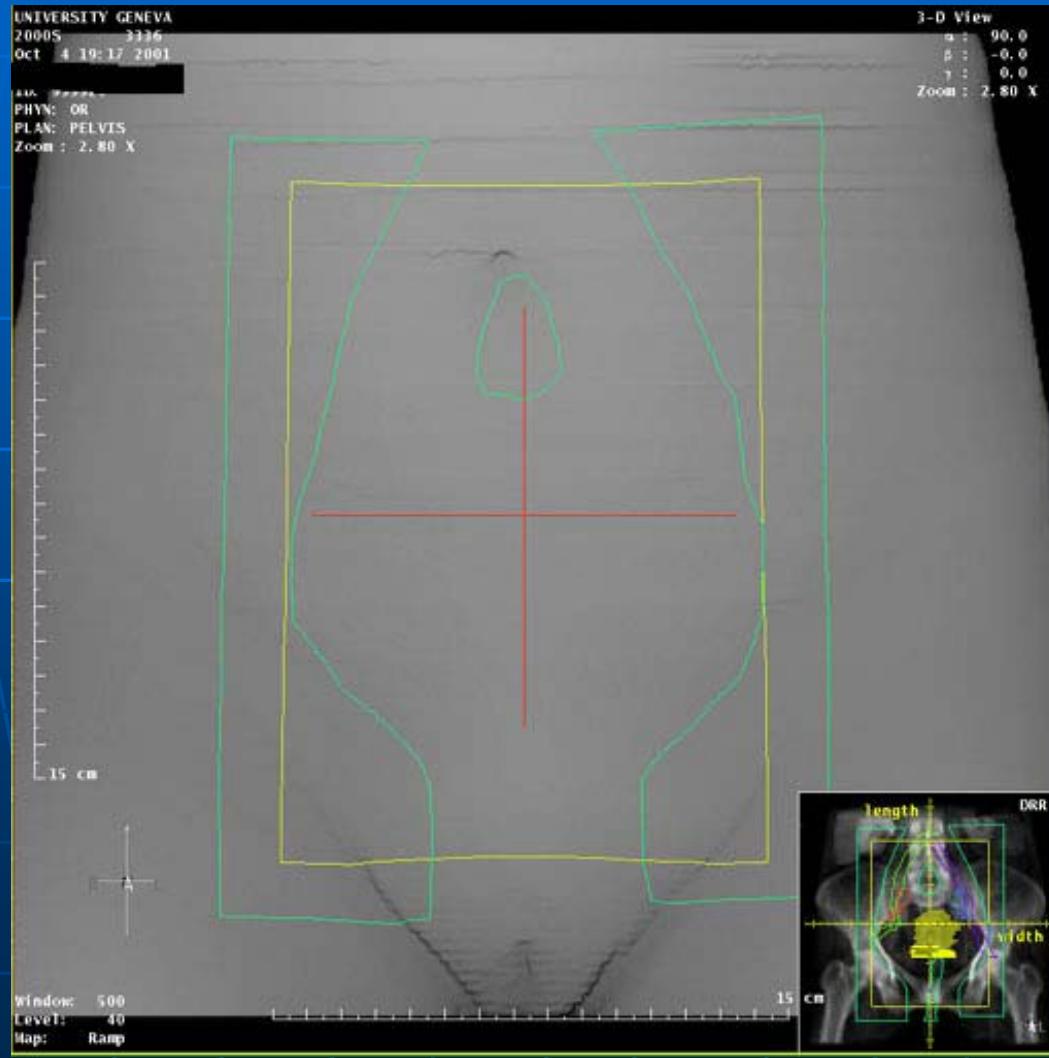
VIRTUAL SIMULATION



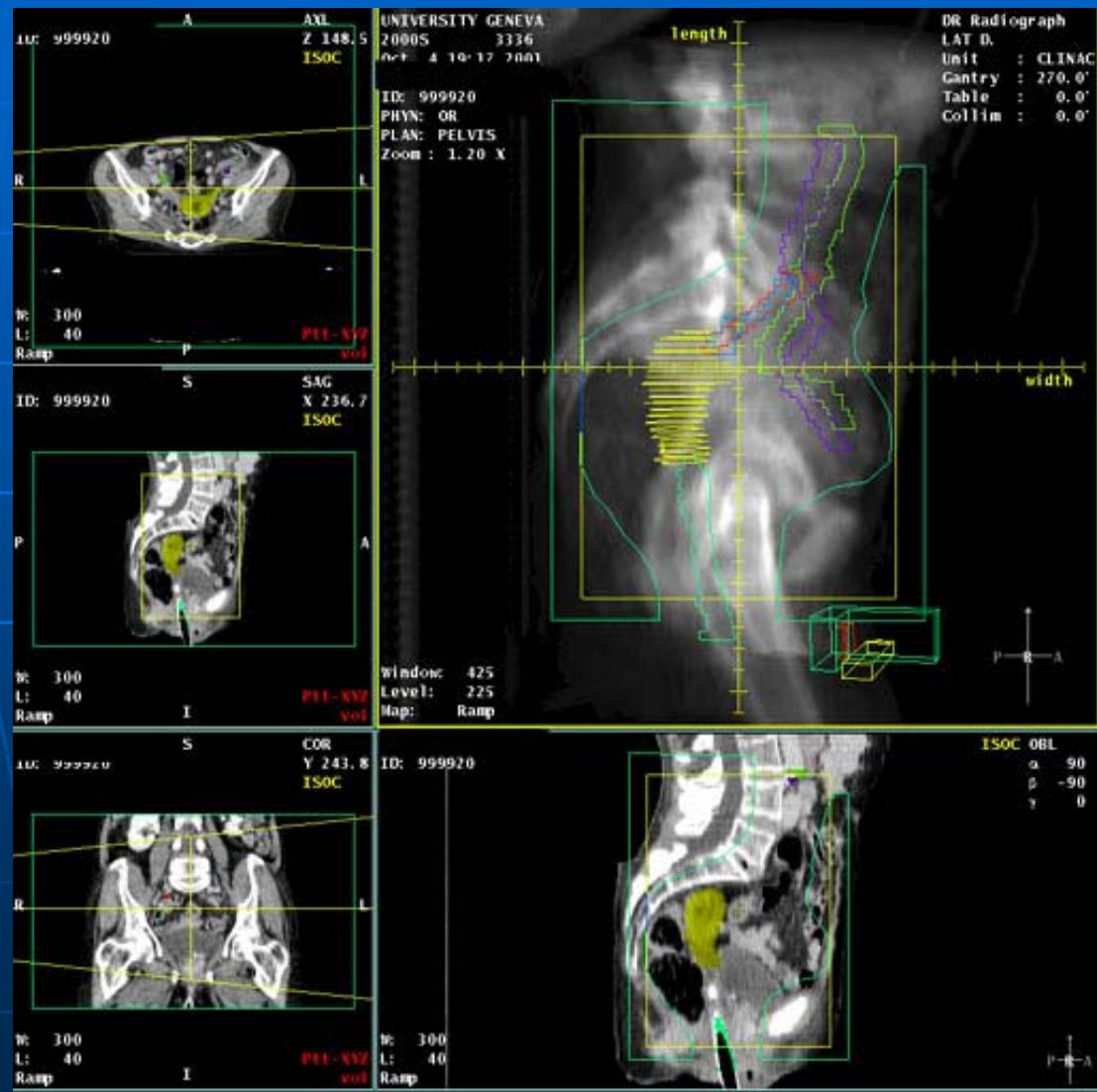
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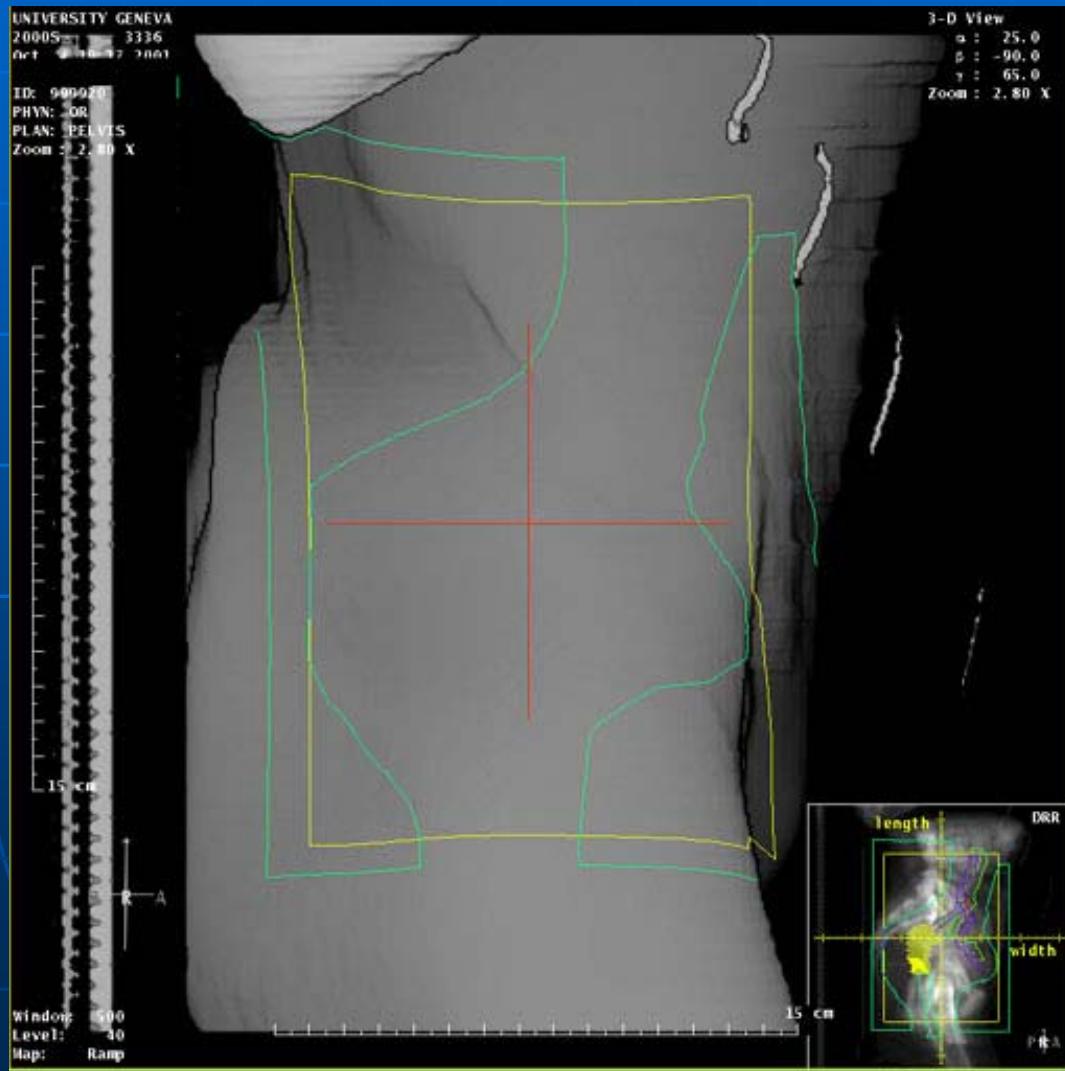
VIRTUAL SIMULATION



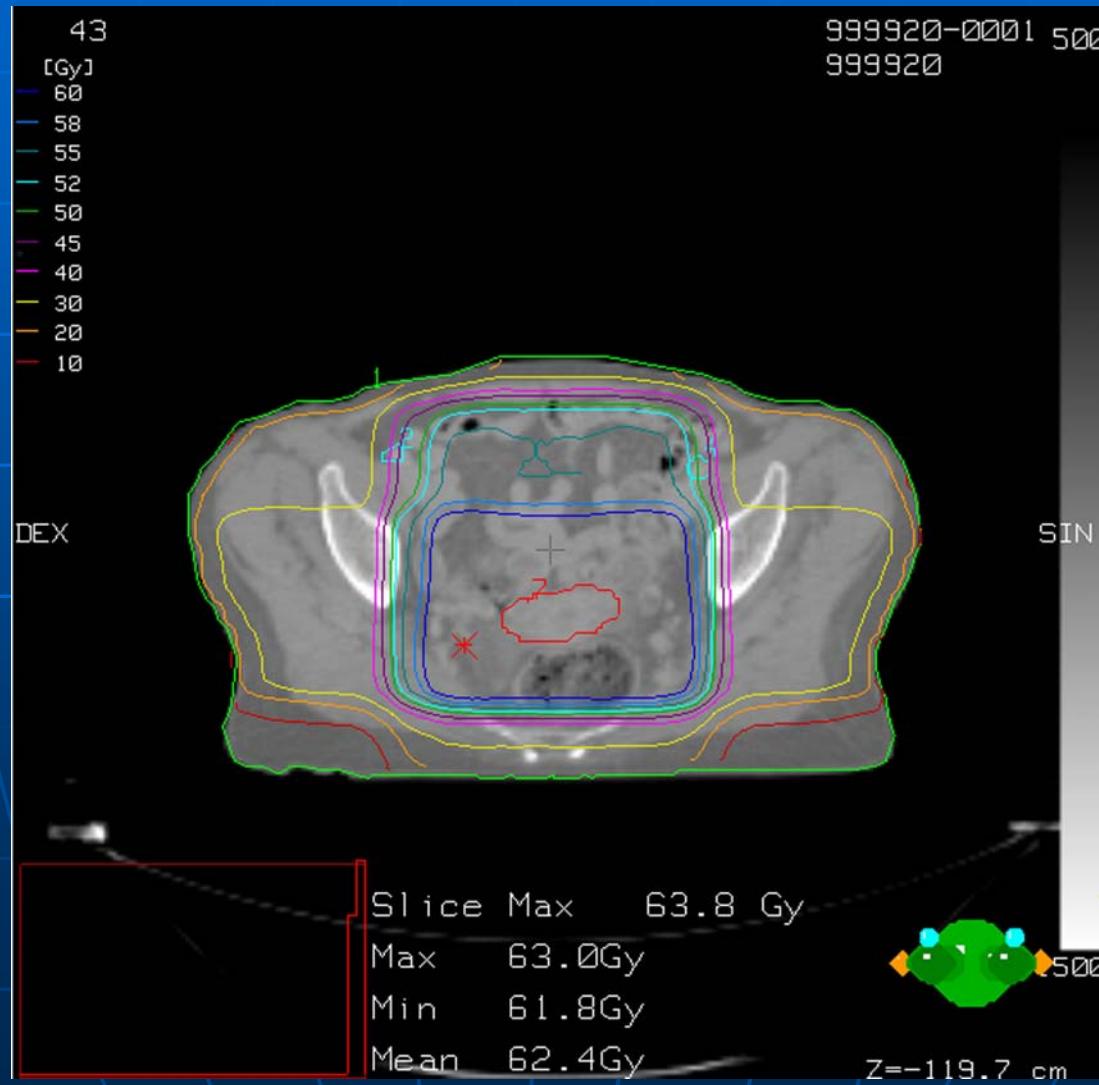
VIRTUAL SIMULATION



VIRTUAL SIMULATION



SIMULATION - DOSIMETRY



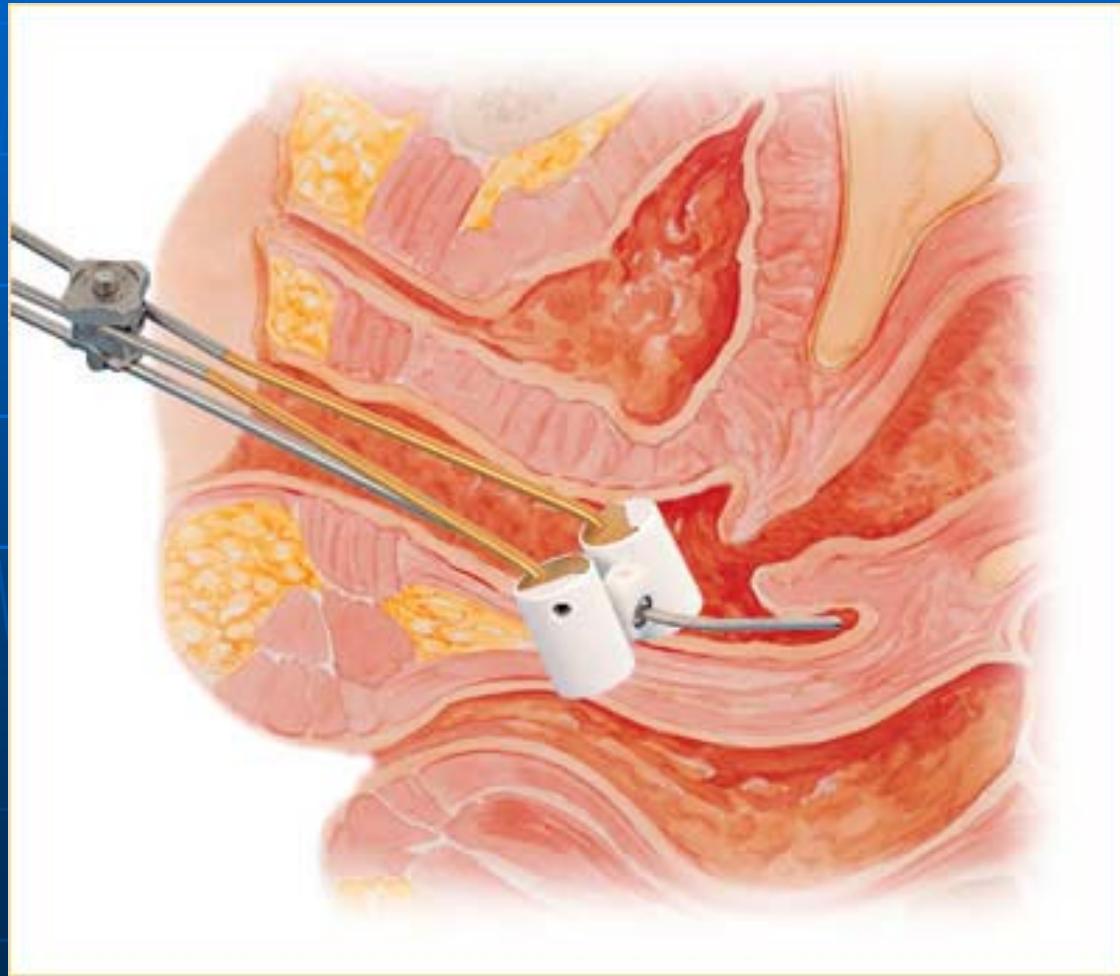
SIMULATION - DOSIMETRY



AFTER LOADER, WITH 192 Ir



CERVICAL APPLICATORS



GYNECOLOGICAL APPLICATOR



NEEDLES TROUGH A TEMPLATE



BRACHYTHERAPY UNDER MR



MR - BRACHYTHERAPY



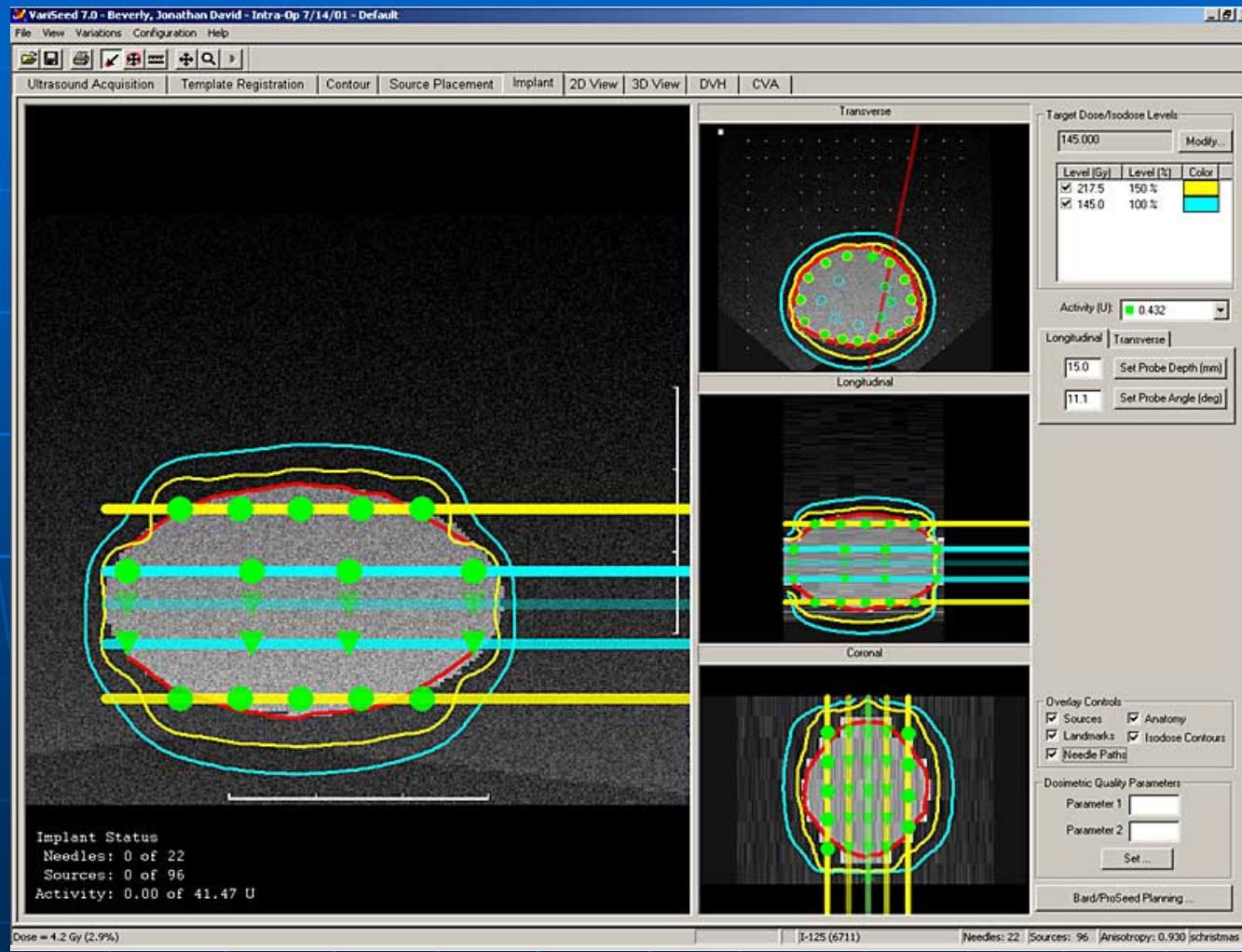
MR - BRACHYTHERAPY



MR - BRACHYTHERAPY



BRACHYTHERAPY DOSIMETRY



CONCLUSIONS

- \leq IIA: SURGERY OR RT (=)
- $>$ IIA: RT
- ! SURGERY (+ RT - CT) = SOFTER PELVIS (SEXUAL LIFE)
- RT: COMBINED WITH CT
- EXTERNAL RT: BETTER WITH CT OR MR SIMULATION
- BRACHYTHERAPY: BETTER IF IMAGE GUIDED
- EXT RT : LINEAR ACCELERATORS
- BRACHYTHERAPY: REMOTE AFTERLOADERS => OPTIMIZATION OF THE DOSIMETRY
- GLOBAL IMAGE GUIDED THERAPY => BETTER RESULTS