



Fondazione di Ricerca e Cura
GIOVANNI PAOLO II

RADIOCHIRURGIA EXTRACRANICA IN PAZIENTI CON MALATTIA OLIGOMETASTATICA: RISULTATI DI UNO STUDIO DI DOSE- ESCALATION (DESTROY-2)

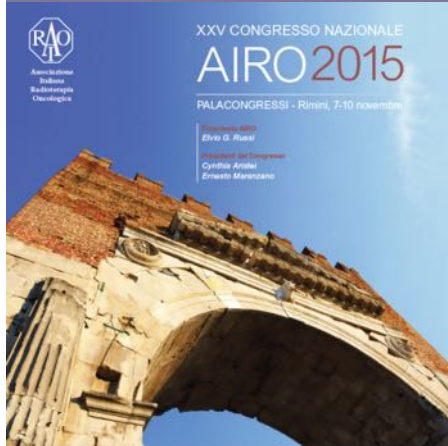
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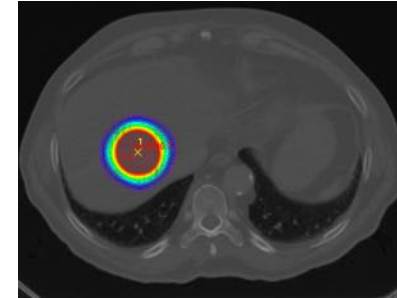


- I trattamenti stereotassici extracranici sono stati effettuati in varie neoplasie toracico-addomino-pelviche con buoni risultati sia in termini di controllo locale sia di tossicità
- Negli studi presenti in letteratura sono riportati:
 - dosi diverse
 - modalità di prescrizione diverse
 - set-up dei fasci utilizzati diversi
- La VMAT permette di aumentare la dose somministrabile al target con un maggior risparmio degli OARs, il tutto in tempi ridotti di trattamento (5'-10'):



tecnica ideale per la radiochirurgia

Studio di dose escalation

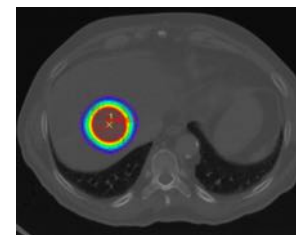


Obiettivo primario:

Definizione della dose massima tollerata (MTD) del trattamento VMAT-SBRT in unica seduta

Obiettivi secondari:

- Valutazione fattibilità dosimetrica
- Correlazione tra dati dosimetrici e tossicità
- Analisi della risposta clinica/sintomatologica
- Valutazione della sopravvivenza
- Valutazione della qualità di vita



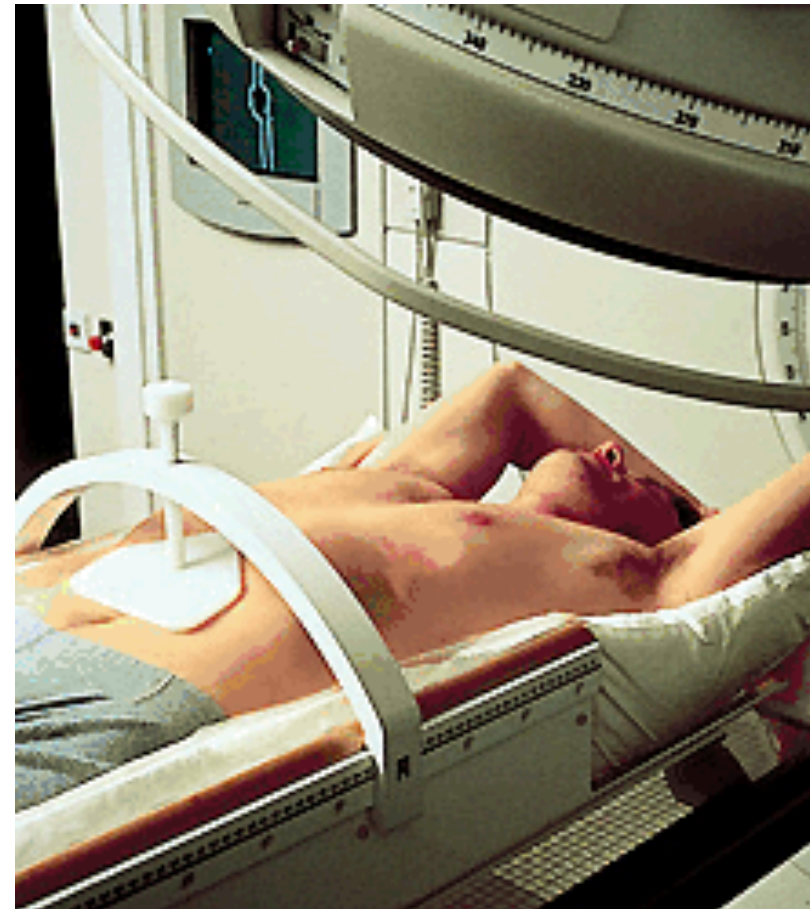
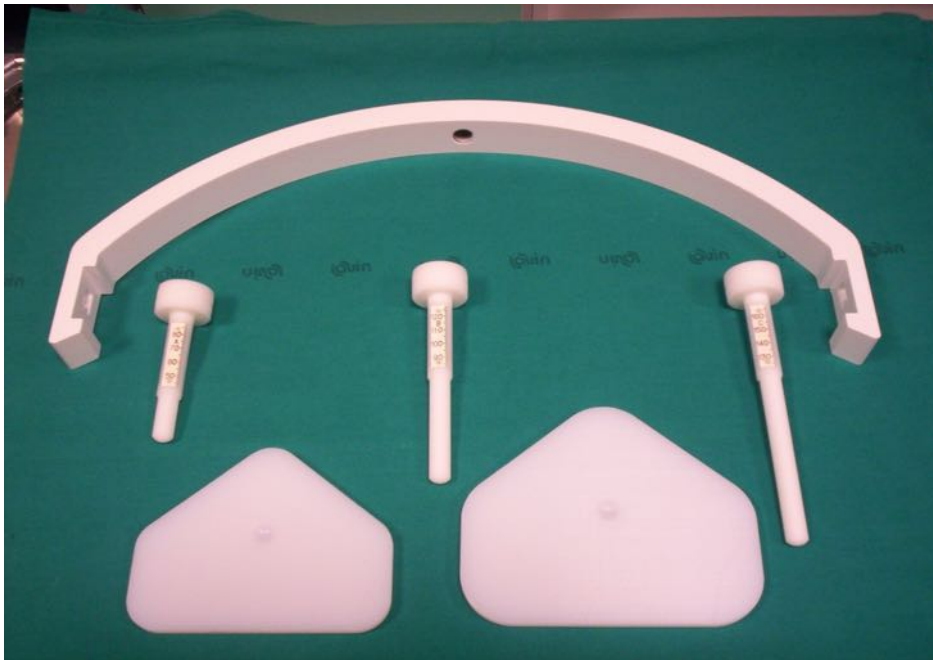
Dose Escalation STereotactic RadiOtherapY-2

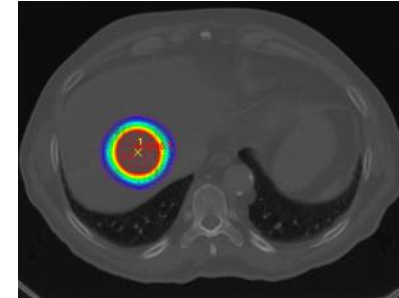
<i>Level</i>	<i>Polmone</i>	<i>Fegato</i>	<i>Osso</i>	<i>Altro</i>
1	26 Gy	25 Gy	12 Gy	16 Gy
2	28 Gy	28 Gy	14 Gy	18 Gy
3	30 Gy	30 Gy	16 Gy	20 Gy
4	32 Gy	32 Gy	18 Gy	22 Gy
5	34 Gy		20 Gy	24 Gy
6			22 Gy	
7	H		24 Gy	

StereoBody Frame (ELEKTA)



■ Abdominal Compression

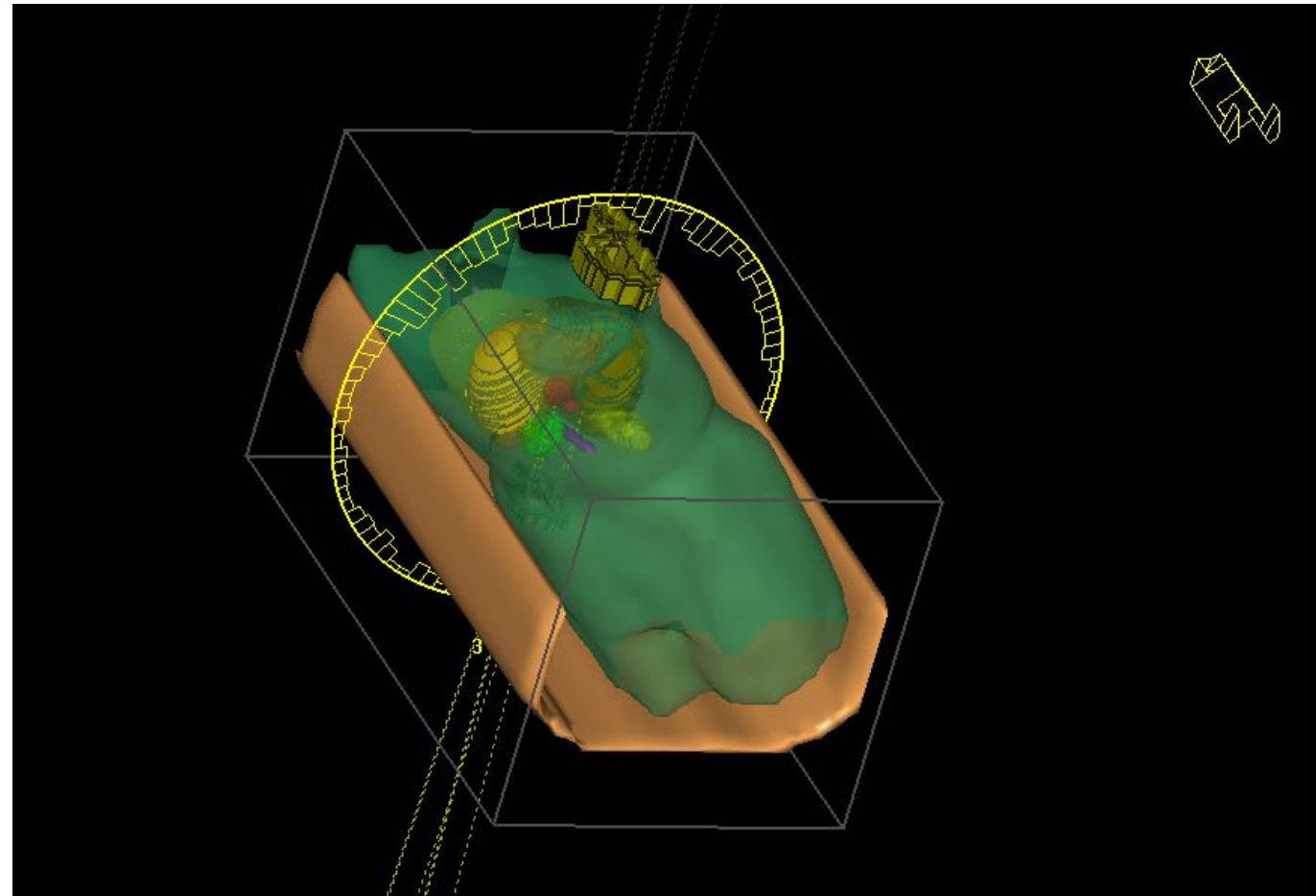




Organ Motion evaluation in all pts

PTV = CTV+5-10 mm (A-P e L-L)
CTV+5-15 mm (C-C)

VMAT

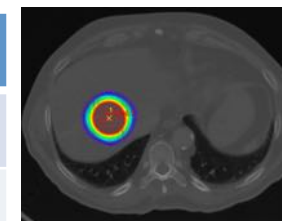


Reference point: 'ROSEL':

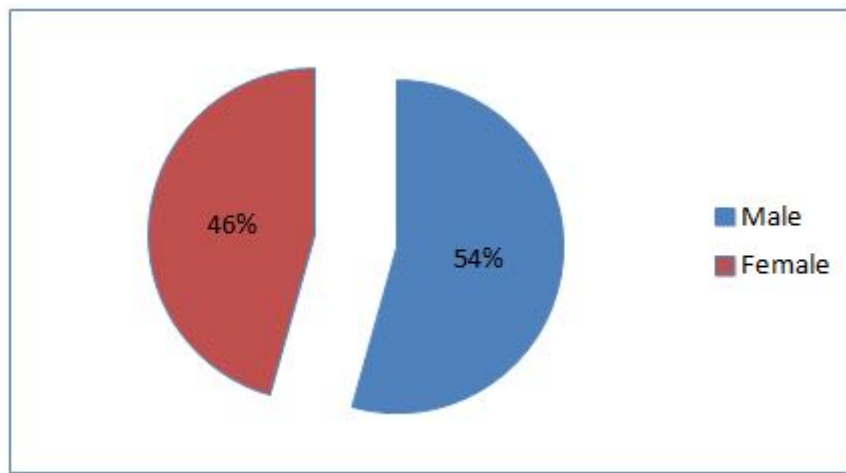
$$V_{100} = \underline{\geq} 95\% \quad V_{90} = \underline{\geq} 99\% \quad D_{max} = < 140\%$$

Materiali e metodi

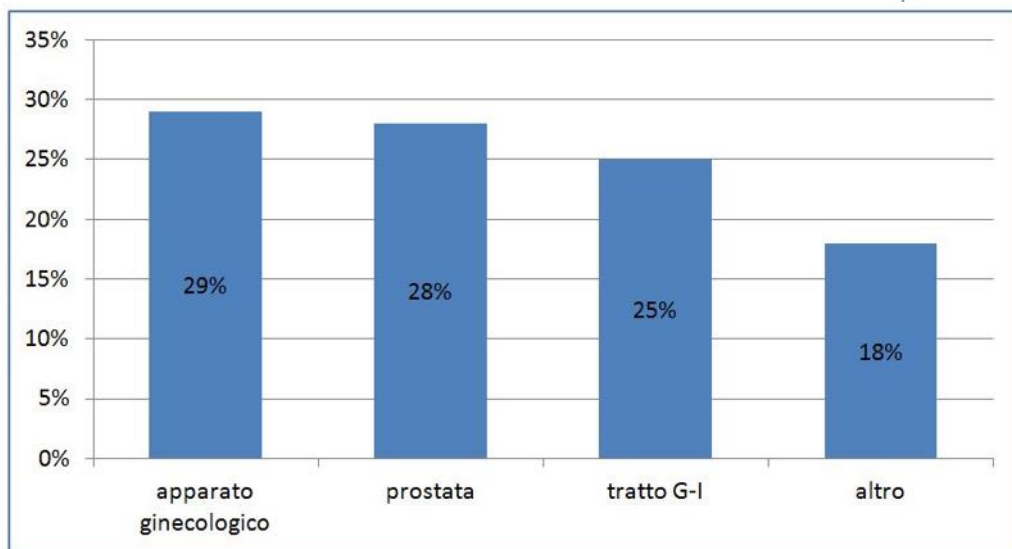
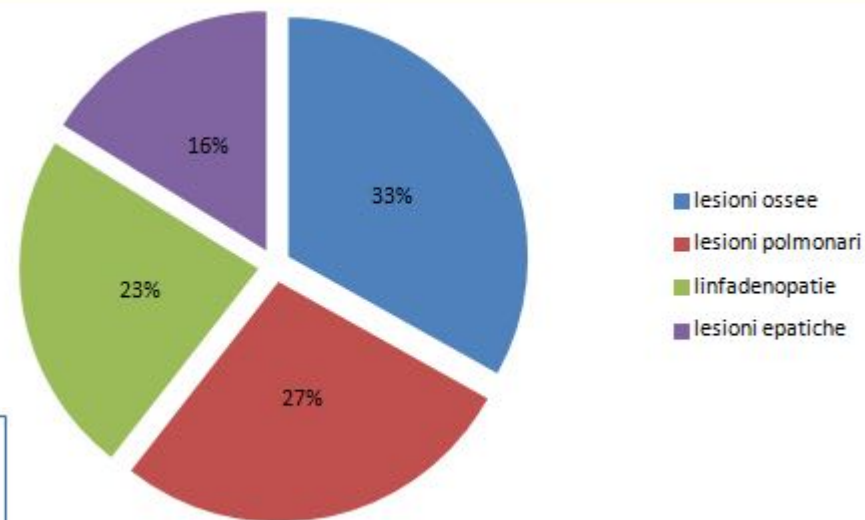
Organo	Dose (Gy) o dose/volume
Coste	$D_{max} = 30$
Cuore/pericardio	$D_{max} = 22$
Cute	$D_{max} = 26$
Esofago	$D_{max} = 15.4$
Fegato	$V_{12\text{ Gy}} < 30\%$ $V_{7\text{ Gy}} < 50\%$
Grossi vasi (mediastino)	$D_{max} = 37$
Intestino (tenue/colon)	$D_{max} = 12$
Midollo spinale	$D_{max} = 14$
Plesso brachiale	$D_{max} = 17.5$
Plesso sacrale	$D_{max} = 18$
Polmoni	$V_{7.4\text{ Gy}} < 1000\text{ cc}$
Reni	$V_{8.4\text{ Gy}} = 800\text{ cc}$ (zona corticale) $V_{7\text{ Gy}} = 2/3\text{ volume}$ (ilo)
Stomaco	$D_{max} = 12.4$
Trachea/Grossi bronchi	$D_{max} = 20.2$



Results: 142 lesions (92 patients)



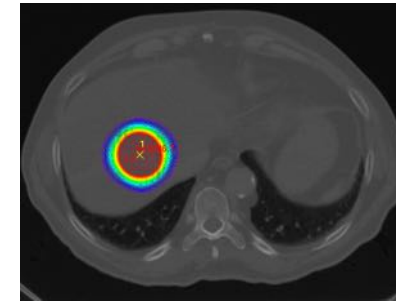
Median age: 67 (40-93)



Median Dose: 20 Gy (12-30)

Results: 142 lesions (92 patients)

Response	%		%
OR	70	}	CR 47
SD	15		PR 23
PD	4		
NV	11		

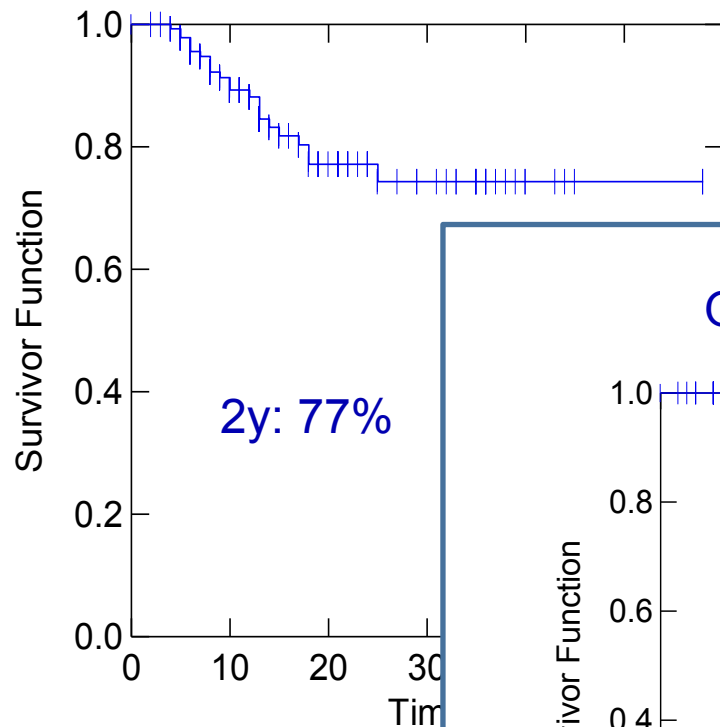


Tox \geq G3 = 0

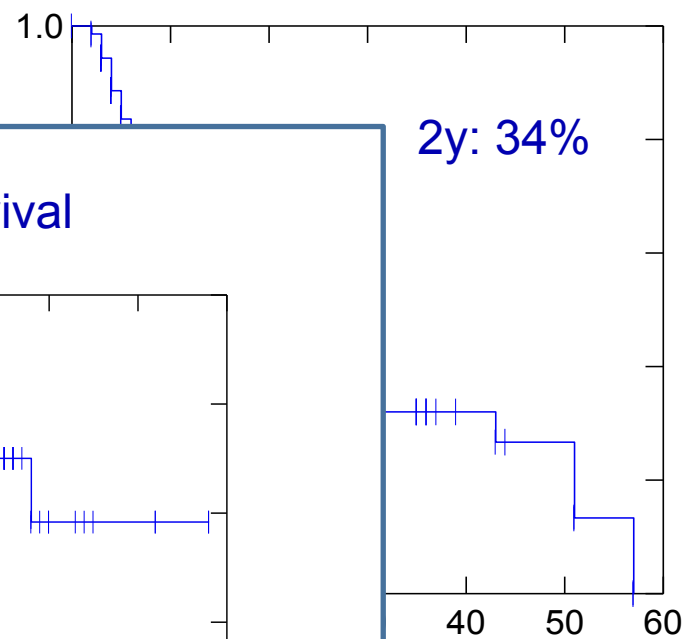
Median F-Up: 11 (2-58)

Risultati

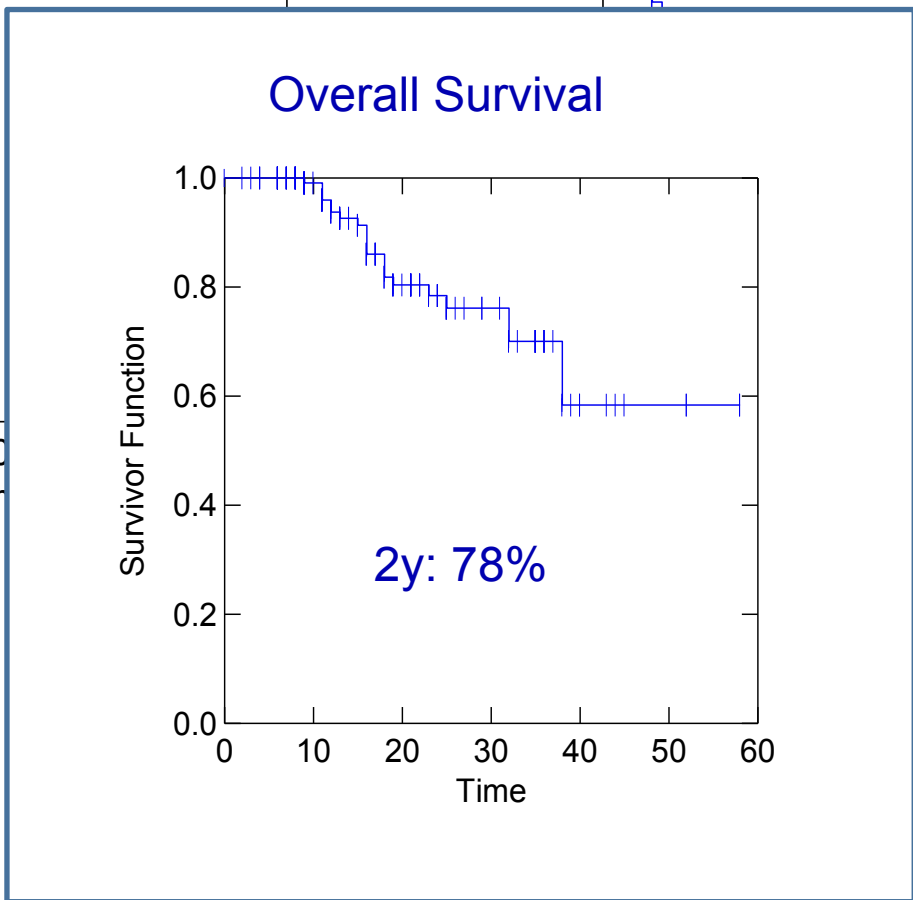
Local Control



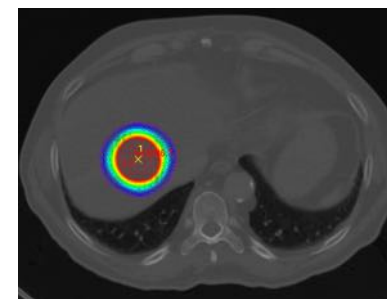
Distant Metastasis Free Survival

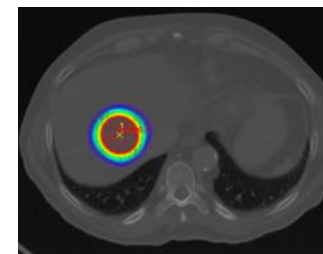


Overall Survival



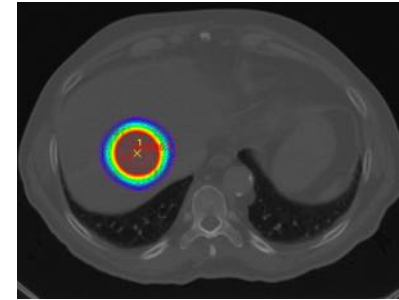
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Dose Escalation STereotactic RadiOtherapY-2

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- ESRT VMAT based up to a dose of 30 Gy in one fraction is well tolerated
- Maximum tolerated dose not reached
- Further dose escalation is ongoing

