

## 3D models for surgery planning in renal cell carcinoma with venous thrombus extension. Phase II nct03738488: Predictability

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**Introduction & Objectives:** Renal cell carcinoma (RCC) with venous thrombus extension (VTE) represents a great therapeutic challenge, being essential an adequate pre-surgery planning to make surgery more predictable. 3D models are printed copies of patients' radiological images that enhance anatomy understanding and may improve surgical planning. Our aim is to determine if surgery planning based on 3D models in comparison with the conventional surgery planning, allows a more predictable surgery.

**Materials & Methods:** Multicenter clinical trial on 66 patients diagnosed with RCC and TTV who underwent a nephrectomy with thrombectomy. Patients were randomized 1:1 to the 2 study groups: 1) surgery planning with conventional images; 2) surgery planning with 3D models. Kappa index was used to measure the agreement between surgery planning and the surgery itself in the two study groups.

### Results:

Agreement grade between surgery planning and surgery (Kappa index)				
	3D		Images	
	Kappa Index	Interpretation	Kappa Index	Interpretation
Surgical technique				
Thrombectomy	1,0	Perfect agreement	0,2	Fair agreement
Reconstruction	1,0	Perfect agreement	0,7	Substantial agreement
Vascular control	1,0	Perfect agreement	0,4	Fair agreement
Human resources				
General surgeon	1,0	Perfect agreement	0,5	Moderate agreement
Vascular Surgeon	0,9	Almost perfect agreement	0,4	Fair agreement
Cardiac Surgeon	1,0	Perfect agreement	1,0	Perfect agreement
Pre-surgery procedures				
Cava Filter	1,0	Perfect agreement	< 0	None agreement
Embolization	1,0	Perfect agreement	0,2	Fair agreement

**Conclusions:** Surgery planning with 3D models was more predictive than surgery planning with conventional images in RCC with VTE.