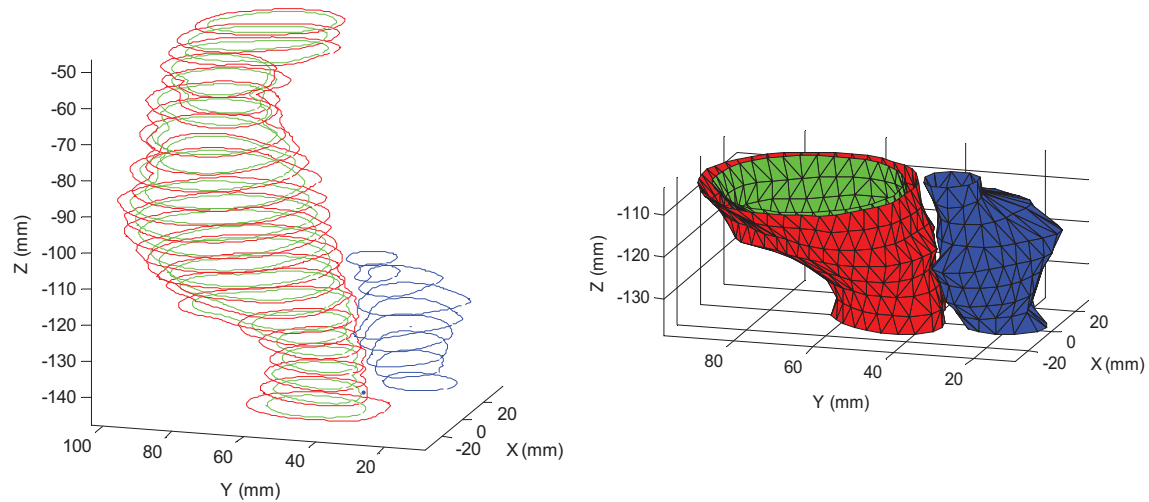


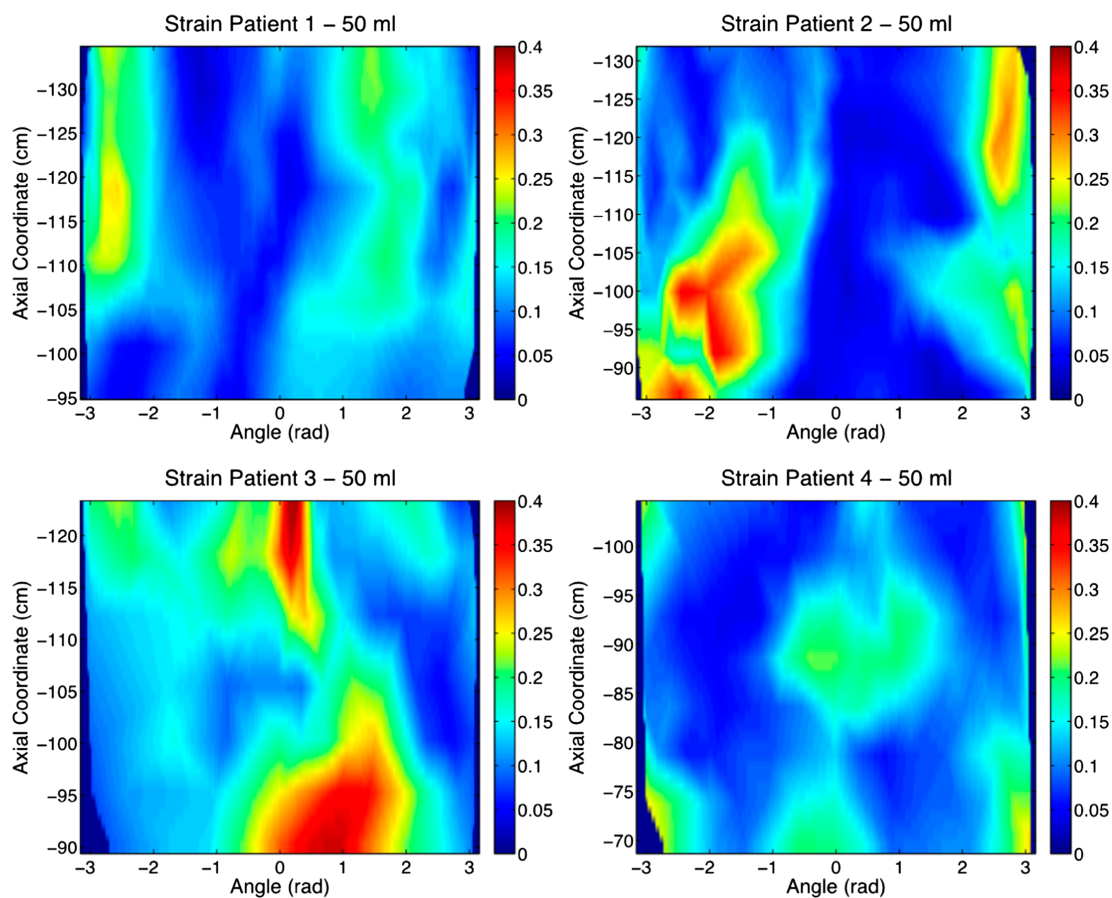
Supplementary material for Casares-Magaz O, et al. An image-based method to quantify biomechanical properties of the rectum in radiotherapy of prostate cancer, Acta Oncol, 2015;54:1335–1342.

Supplementary Table I. Mean (SD) values for thickness, strain and stress at each segment of the rectum wall at the 50ml distension volume.

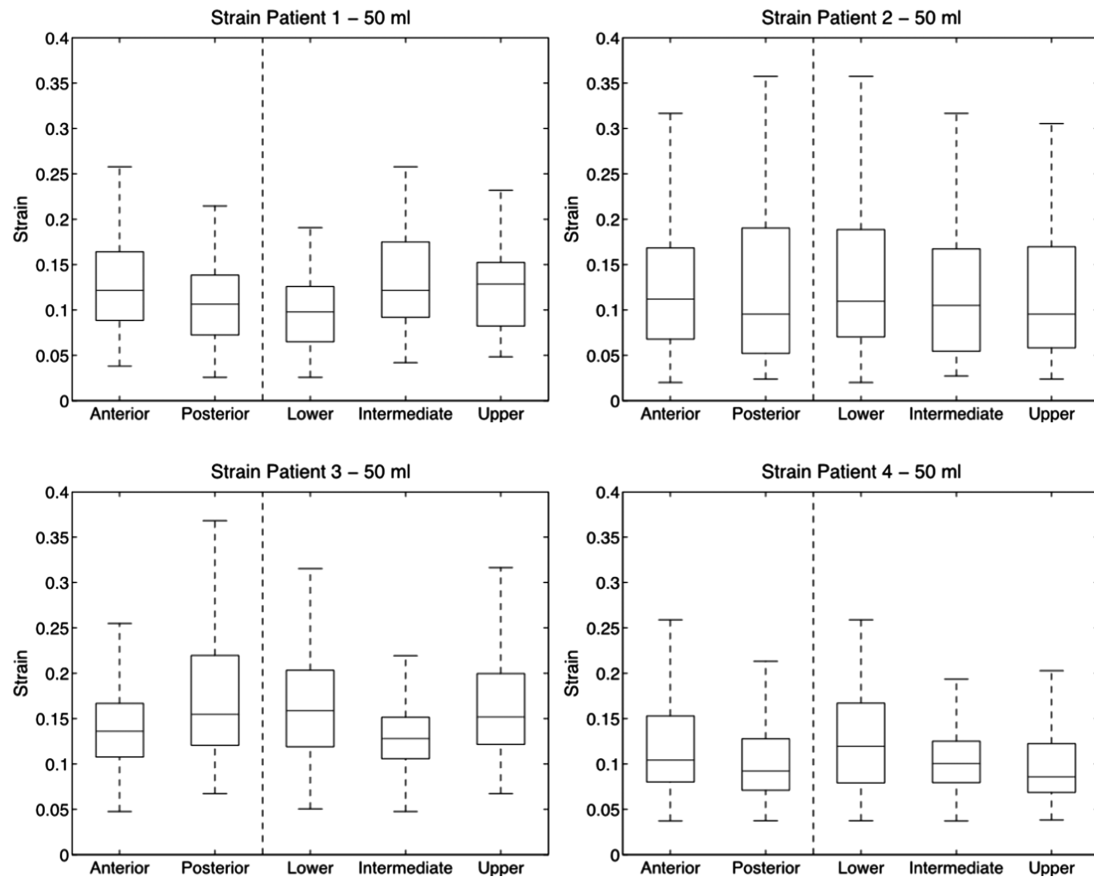
Patient	#1	#2	#3	#4
Thickness				
Lower	2.35	3.40	3.92	3.04
Medium	2.25	2.75	3.53	3.01
Upper	2.67	2.11	3.04	2.33
Anterior	2.29	2.47	3.10	2.20
Posterior	2.50	2.98	3.93	3.38
Strain				
Lower	0.11	0.13	0.16	0.11
Medium	0.11	0.12	0.13	0.10
Upper	0.12	0.09	0.16	0.08
Anterior	0.09	0.07	0.17	0.11
Posterior	0.13	0.15	0.12	0.10
Stress				
Lower	1.84	2.04	5.91	2.75
Medium	2.01	3.23	5.05	2.25
Upper	2.29	4.66	4.10	1.47
Anterior	2.16	3.30	3.89	2.14
Posterior	1.94	2.62	6.99	2.19



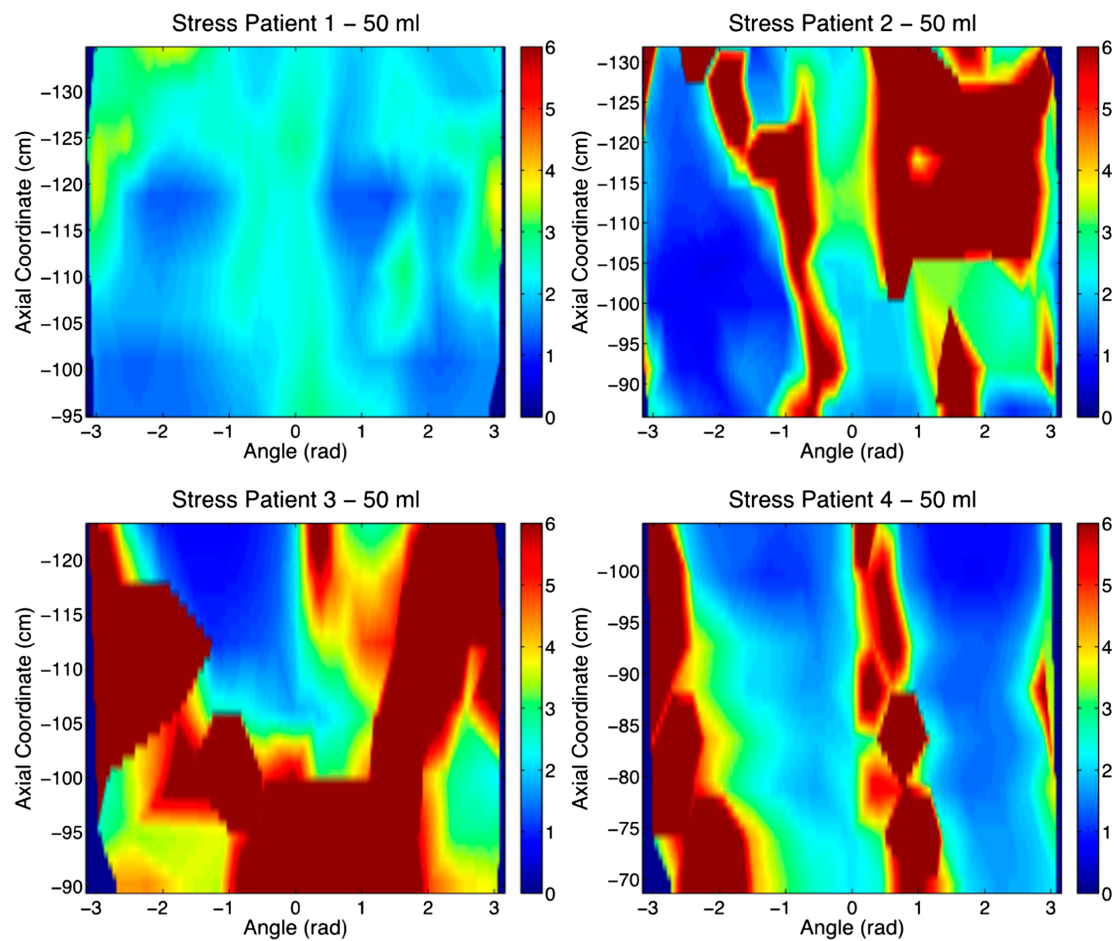
Supplementary Figure 1. A representative example of the 3D rectal surface reconstruction of the distension volume 50ml. The detected inner and outer rectal walls, and the outlines of the prostate from the MRI acquisitions (Right panel) and the reconstructed 3D inner, outer rectal surface and the rectum (Left panel).



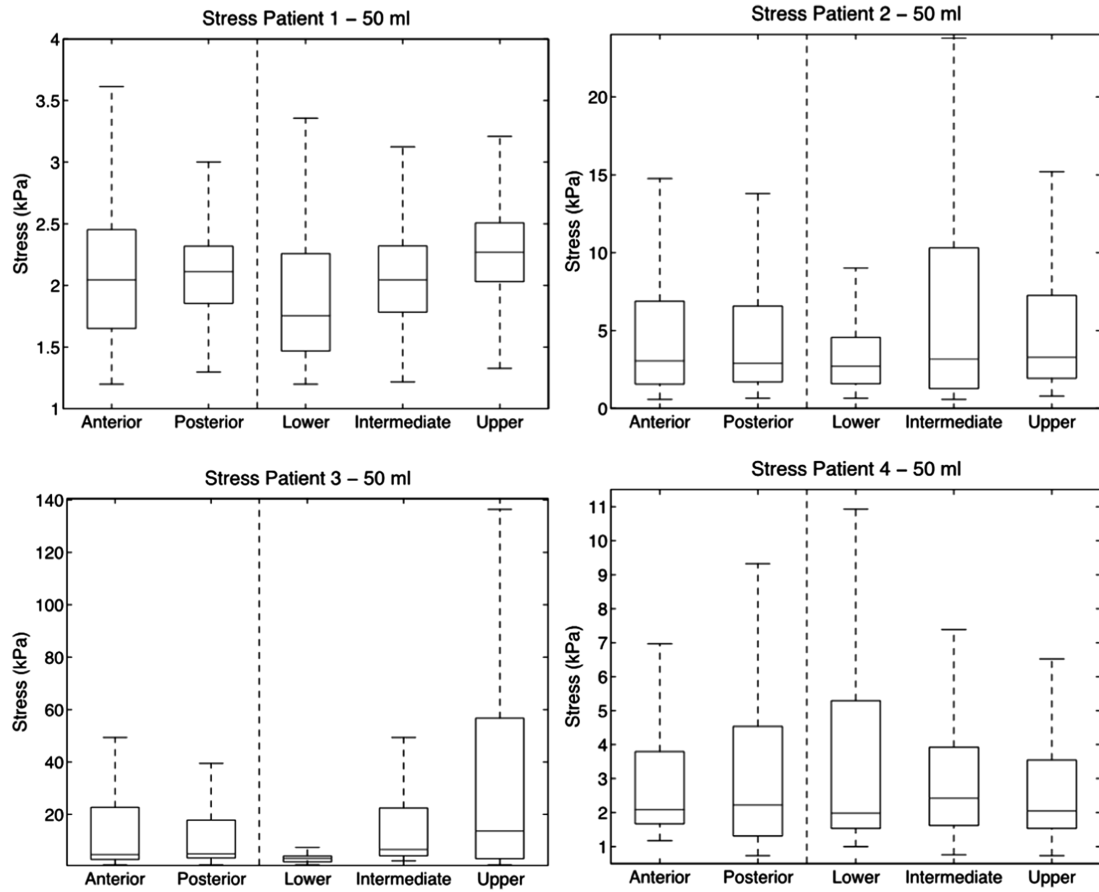
Supplementary Figure 2. 2D maps for all patients illustrating the strain for the 50 ml distension volume. Axial coordinate indicates the longitudinal position of the central point of each slice along the curved centre of axis, abscissa coordinate is the angular position from $-\pi$ to π , where coordinate 0 corresponds to the most anterior point at the most caudal part of the surface.



Supplementary Figure 3. Box plots for the four patients and the strain measurements at the 50 ml distension volume, and for the five rectal segments analysed.



Supplementary Figure 4. 2D maps for all patients illustrating the stress (kPa) for the 50 ml distension volume. Axial coordinate indicates the longitudinal position of the central point of each slice along the curved centre of axis, abscissa coordinate is the angular position from $-\pi$ to π , where coordinate 0 corresponds to the most anterior point at the most caudal part of the surface.



Supplementary Figure 5. Box plots for the four patients and the stress measurements at the 50 ml distension volume, and for the five rectal segments analysed.