

# TRUS prostate biopsy cores: extent of the pierced area impacts the cancer detection rate



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## Introduction:

Some studies have already shown that the number of biopsy cores and the biopsy scheme can have an influence on the cancer detection rate. We have developed a method to calculate **the pierced area** of each lobe. We wanted to know if this area was similar in the both lobes and if this new variable could impact on the **cancer detection rate in each lobe**.

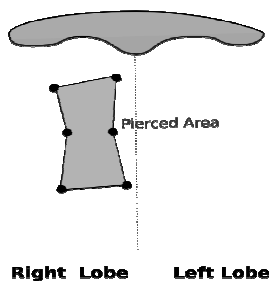
## Methods:

The Urostation® (Koelis, France) provides 3D mapping of transrectal prostate biopsy cores. With this device, we were able to estimate the pierced area of the posterior prostate capsule for each lobe (cf Figure 1). We retrospectively reviewed prostate biopsy procedures which were realized with the Urostation® ultrasound system in our department. All patients lied on lateral decubitus position, and 6 biopsy cores were acquired for each prostate lobe. *We defined the cancer in each lobe as one or more positive cores in the lobe.* We only included patient without history of prostate cancer, PSA=4-20ng/ml and/or abnormal digital rectal examination (DRE). We analyzed the following criteria: age, PSA level, DRE, prostate volume, left and right prostate pierced area.

Our primary objective was to compare the pierced area between the right and the left side according to the prostate size.

Our secondary objectives were to compare the cancer detection rate and the positive core rate between the right and the left lobe according to the prostate size

All data were collected in a database and were analysed with Excel® analysis software ,or with “R” software. Significance of results was assessed with Chi2 tests for qualitative values (cancer rate in each lobe) and analysis of variance tests for quantitative measures (pierced area of each lobe).



## Conclusion:

There are significant differences between right and left lobe cancer detection rate and pierced area. These differences may impact on clinical decision.

## Results:

158 patients were eligible for the study. Mean age was 64 years, mean PSA 8.22ng/mL and mean prostate volume 50.3mL.

We found significant differences between the right and the left lobe for the pierced area (**105mm<sup>2</sup> vs 116mm<sup>2</sup>**). This difference was significant according to the prostate size (cf figure 1).

The cancer rate (cf table 1) detection between the **right** and the **left side (29.1% vs 40.5%)** was significant for the complete group, and also was the rate of positive cores (**12.6% vs 16.1%**)(cf table 2).

However differences were not always significant according to the prostate size subgroup.

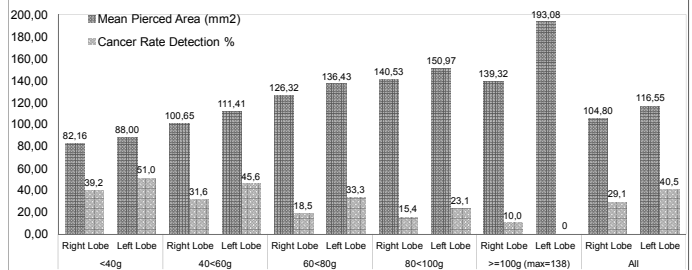


Figure 1. Variation of the pierced area and the cancer detection rate according to the prostate size

Prostate Volume (g)	Number of Patients	Abnormal Finding according to the Prostate Side		p
		right lobe	left lobe	
<40	51	20 (39.2%)	26 (51%)	0.09
40<60	57	18(31.2%)	26 (45.6%)	0.03
60<80	27	5 (18.5%)	9(33.3%)	0.1
80<100	13	2 (15.4%)ns	3 (23.1%)	ns
>=100 (max=138)	10	1(10%)	0(0%)	ns
All Patients	158	46(29.1%)	64(40.5%)	0.001

Table 1. Biopsy results according to the prostate size and the side (at least one positive core)

Prostate Volume (g)	Number of Patients	Number of Positive Cores		p
		right lobe	left lobe	
<40	51	61(19.9%)	73(23.9%)	0.107
40<60	57	46(13.4%)	57(16.7%)	0.11
60<80	27	8(4.9%)	19(11.7%)	0.007
80<100	13	4(5.13%)	4(5.13%)	ns
>=100 (max=138)	10	1(1.67%)	0(0%)	ns
All Patients	158	120(12.6%)	153(16.1%)	<0.001

Table 2. Number of positive cores according to the prostate size and the side