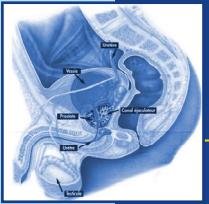






# ***L'Hypertrophie Bénigne de la Prostate***

*S.Bouras Lecturer Urology  
Faculty of medicine, University of Setif*



## **Generalités-définition**

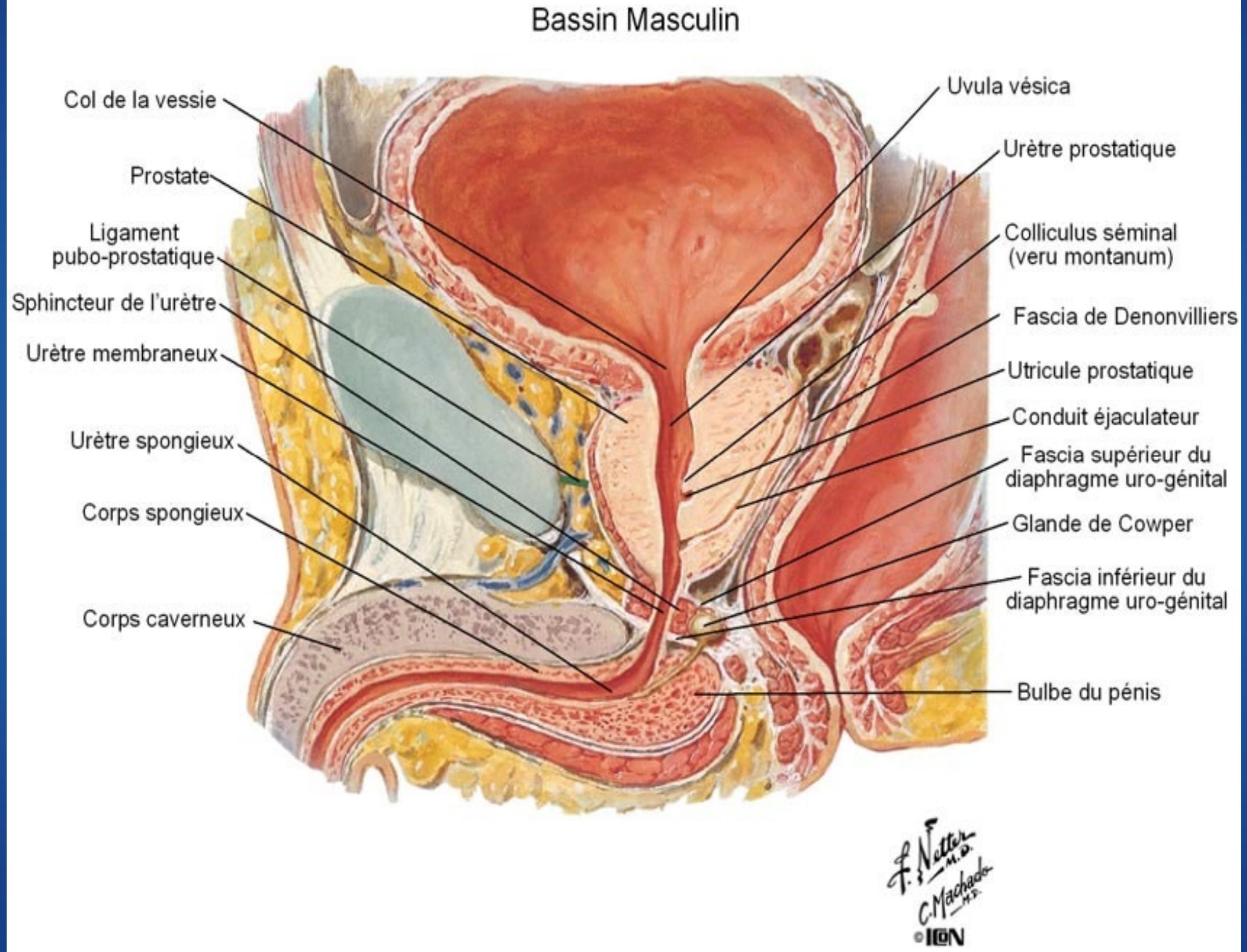
*Prolifération anormale mais bénigne des tissus prostatiques*

■ HBP = adéno-myofibrome (adénome)

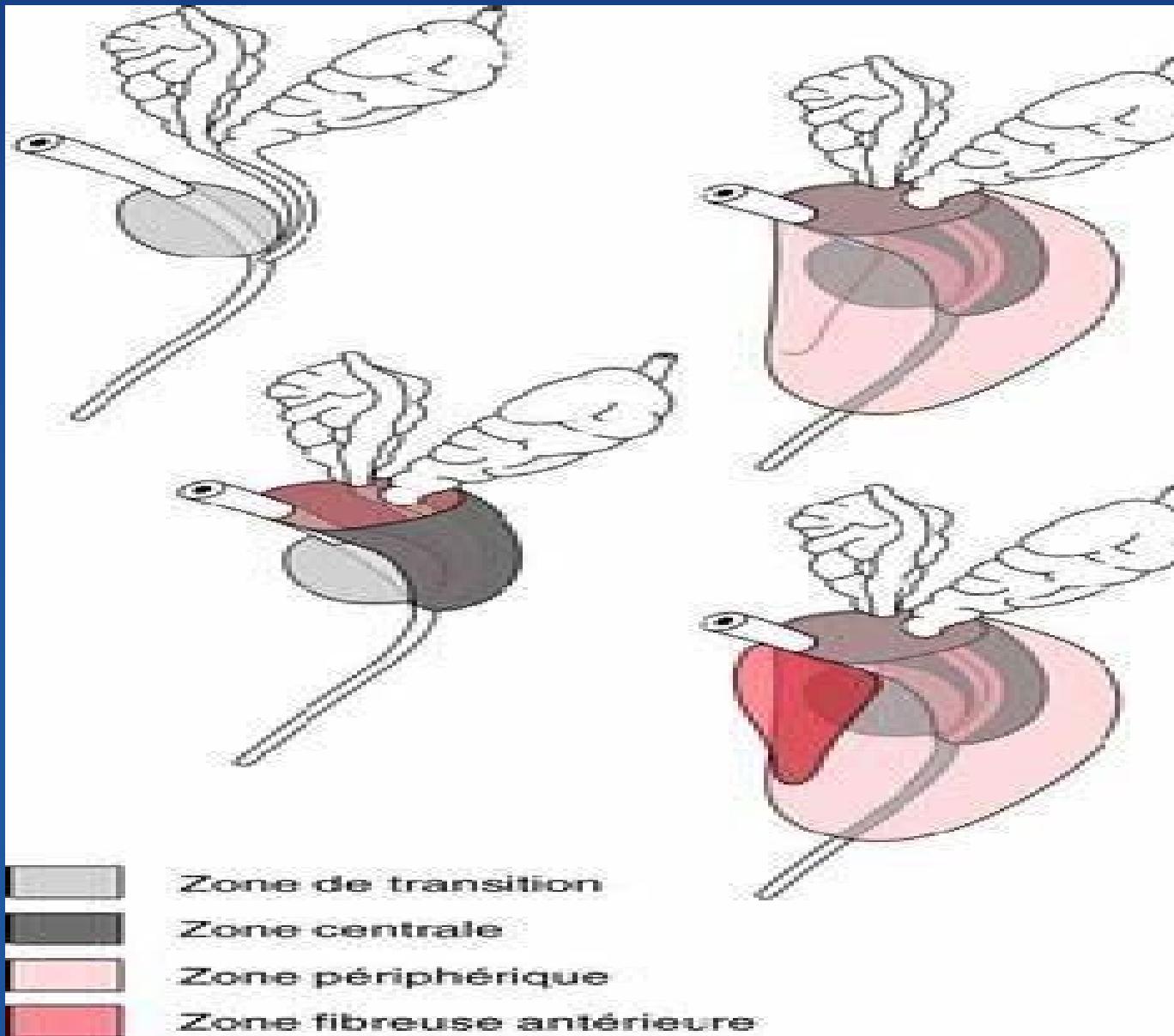
- tissu musculaire: myome
- tissu fibreux: fibrome
- tissu glandulaire: adénome
- Tm d'origine génitale dt le retentissement va se faire sur le haut A
- Absence de parallélisme anatomo-clinique
- Le seul traitement actuel est la chirurgie



# Anatomie descriptive



# Anatomie



## Anatomie zonale: model de Mc Neal

Zone centrale=25% du poid de la glande ,traversé par les canaux éjaculateurs

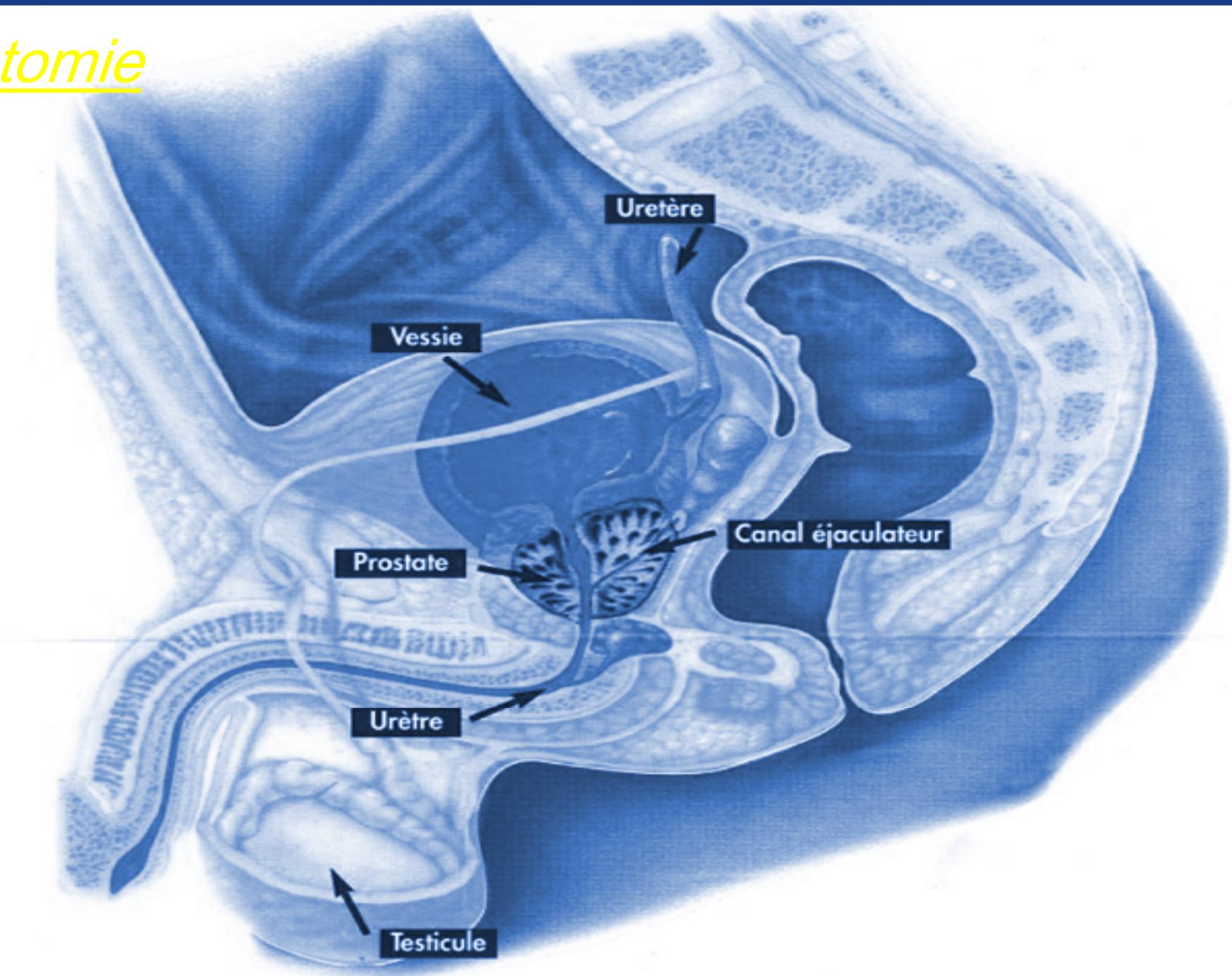
Zone périphérique:70% du pdg, , lieu privilégié de l'emergence des cancers

Zone de transition=deux lobes de part et d'autre de l'up, 5 %

Zone de glandes periurethrales=lobe médian

Zone du stroma fibromusculaire

# Anatomie



Anatomie zonale: model de Mc Neal

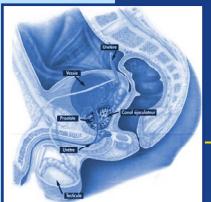
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Zone de glandes periurethrales=lobe médian

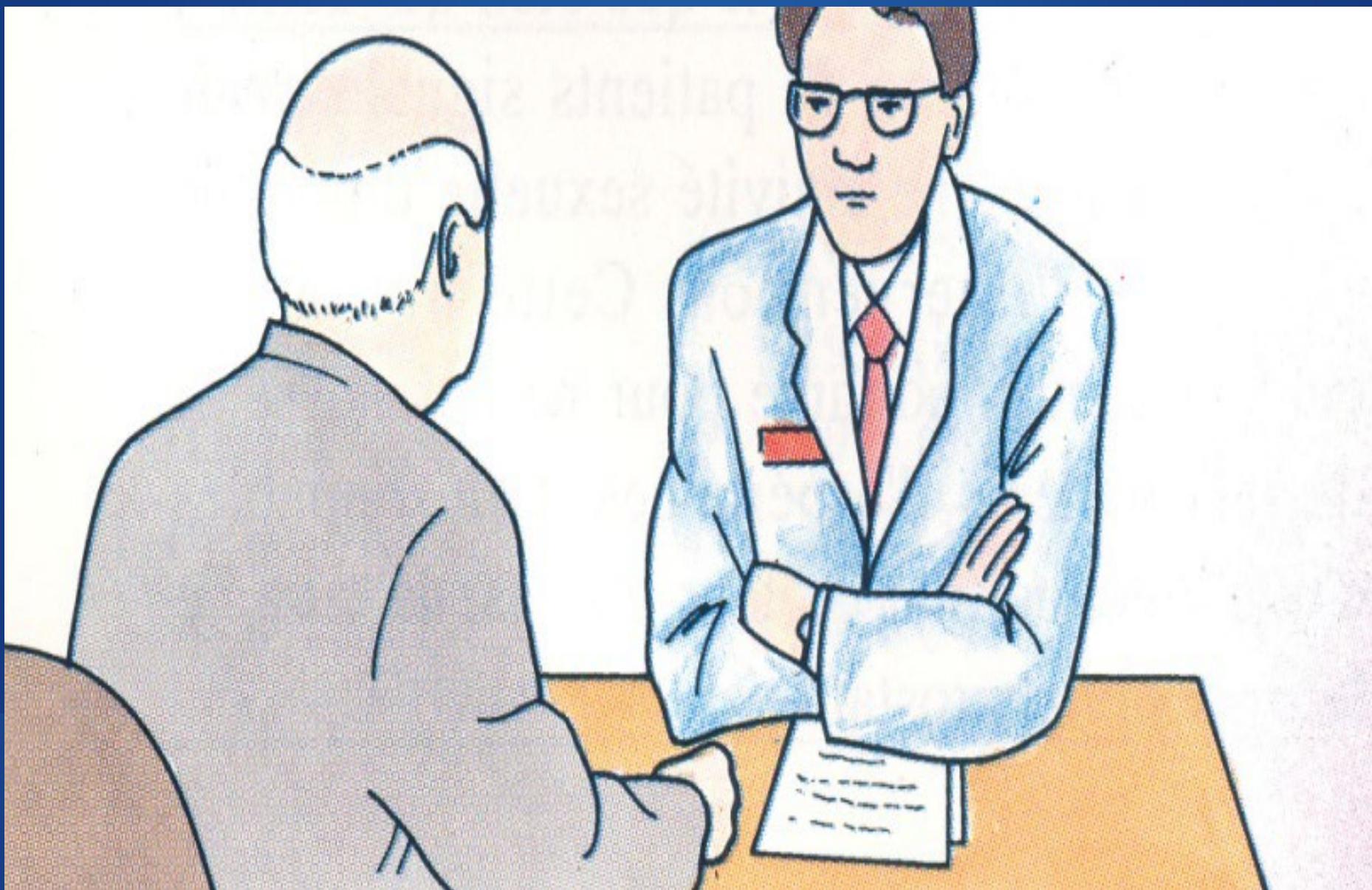
Zone du stroma fibromusculaire

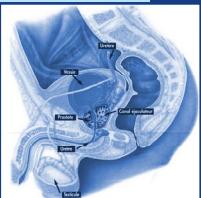


## Epidémiologie

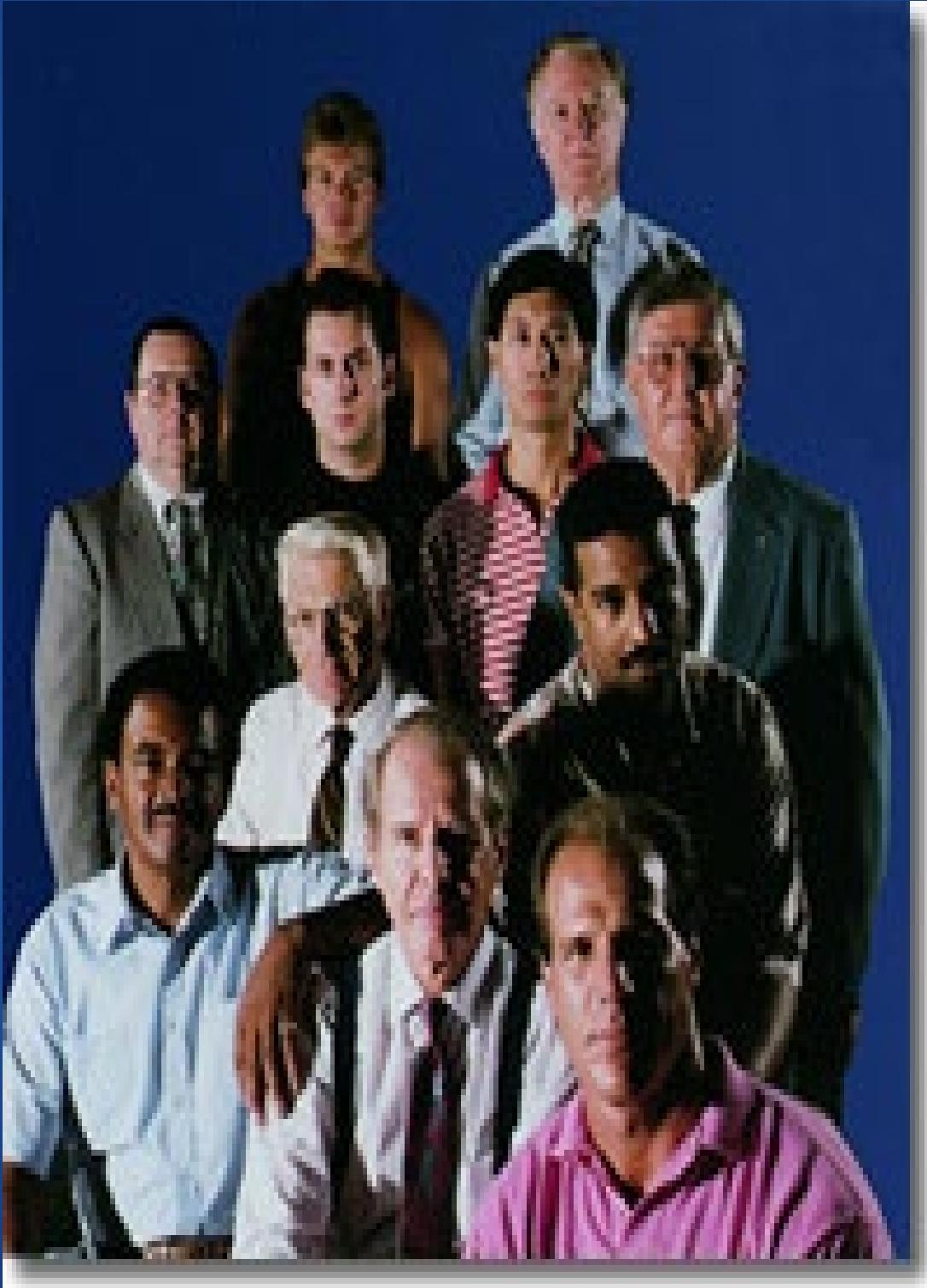
■ Un homme de 70 ans se présente à votre la consultation pour des TUBA

A quoi pensez vous !??



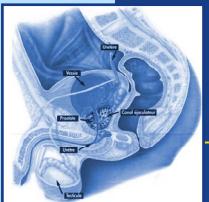


## Quelle pathologie !



«La vie m'a appris qu'il y a  
deux choses dont on peut très  
bien se passer : la présidence  
de la République et la prostate.»

Georges CLEMENCEAU



## Epidémiologie

*I'HBP représente 80% des affections prostatiques*

❖ Un homme de 70 ans se présente à votre consultation pour des TUBA

■ 1 homme / 2 à partir de 50 ans

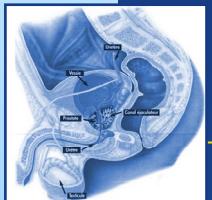
■ 90% des hommes à l'âge de 90 ans

■ 1 homme / 5 en âge de travailler

■ 50% of men diagnosed with histologic changes indicating

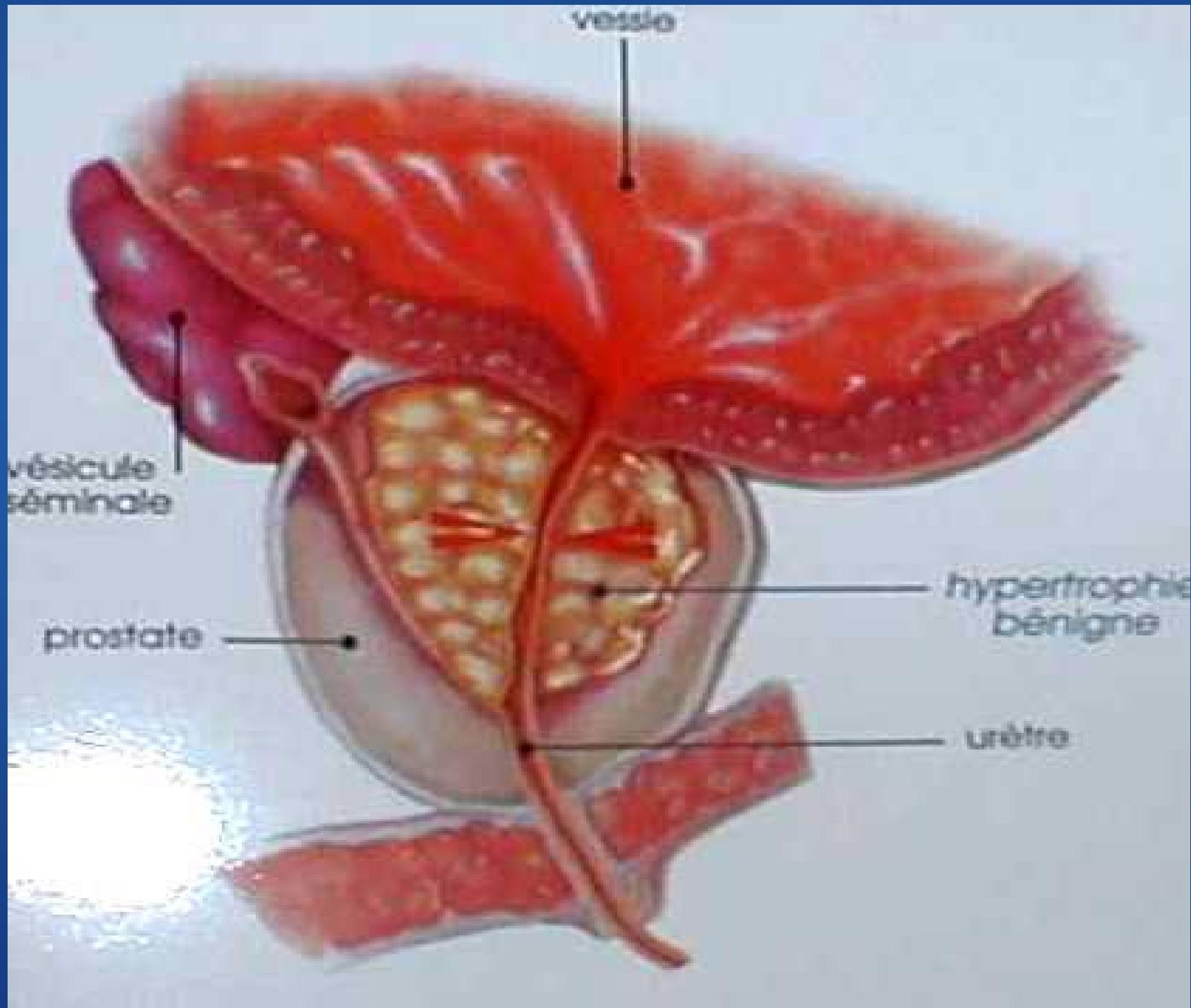
BPH demonstrate urinary symptoms at age 80 years

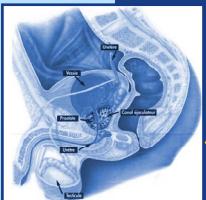
■ 14 million men in the United States have symptoms of BPH



## physiopathologie

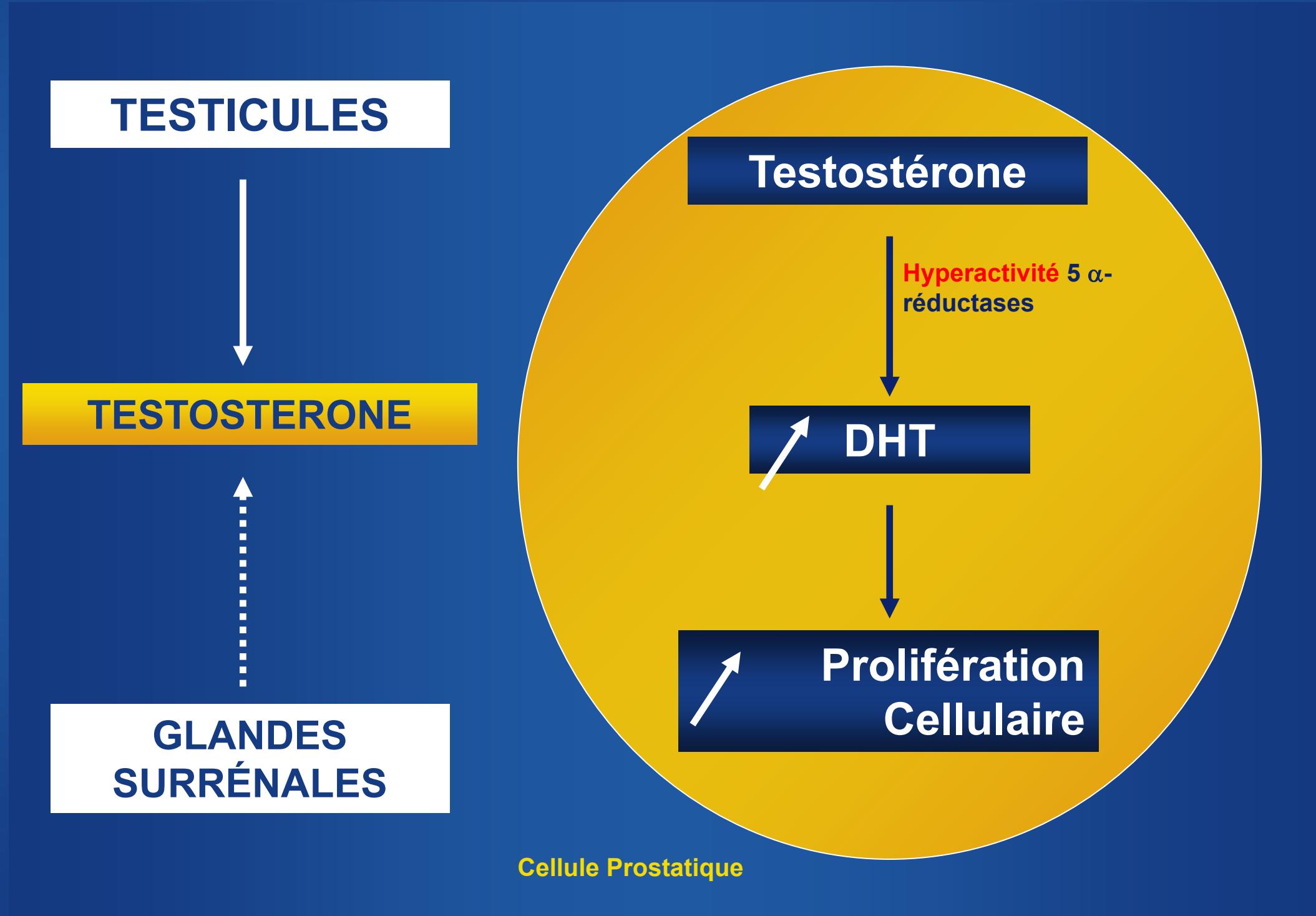
Les TUBA sont liés a une augmentation du volume de la prostate !??

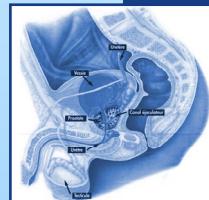




## Physiopathologie

- Histology indicating the presence of BPH includes proliferation of prostatic tissue around the urethra !!





## Physiopathologie

### ❖ Récepteurs alpha 1 Adr :hypertonie mus.



A second mechanism is related to smooth muscle tone mediated by alpha-adrenergic

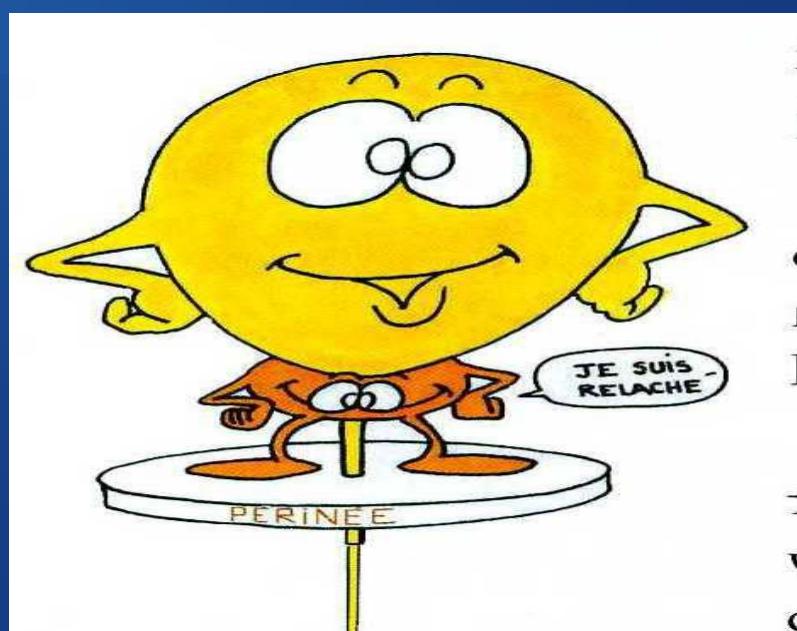
receptors. This smooth muscle encapsulates the prostate, urethra, and prostate stoma.

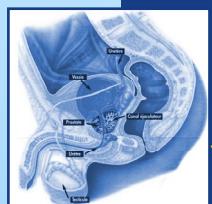
Over stimulation of alpha-adrenergic receptors located within the smooth muscle can

increase muscle tone, worsening symptoms of obstruction and retention of urine and

decreasing the urinary flow rate.

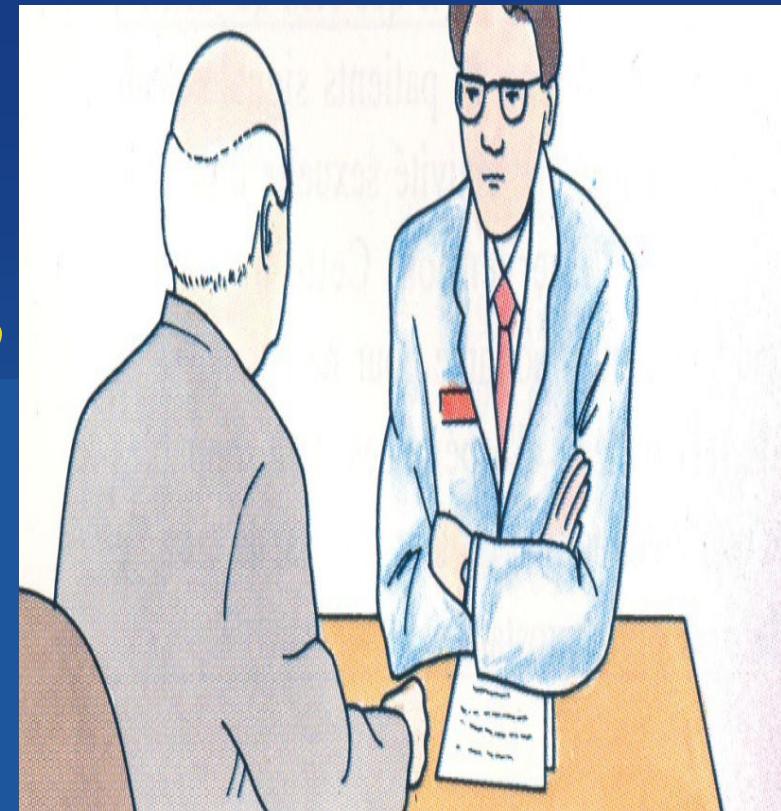
### ❖ L'endothéline-1 (ET1) :agent contractile des cellules musculaires lisses prostatiques !?





## ***Etude clinique***

***Si l'on évoque une HBP chez notre malade***

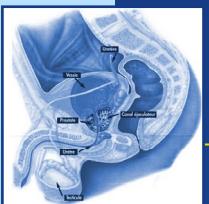


L'interrogatoire: *Temps capital*

- 1 - Apprécier et quantifier les signes fonctionnels
- 2 - rechercher les complications
- 3 - rechercher d'autres maladies
- 4 - connaître l'état de la vie sexuelle

***Quels sont ces signes !?***

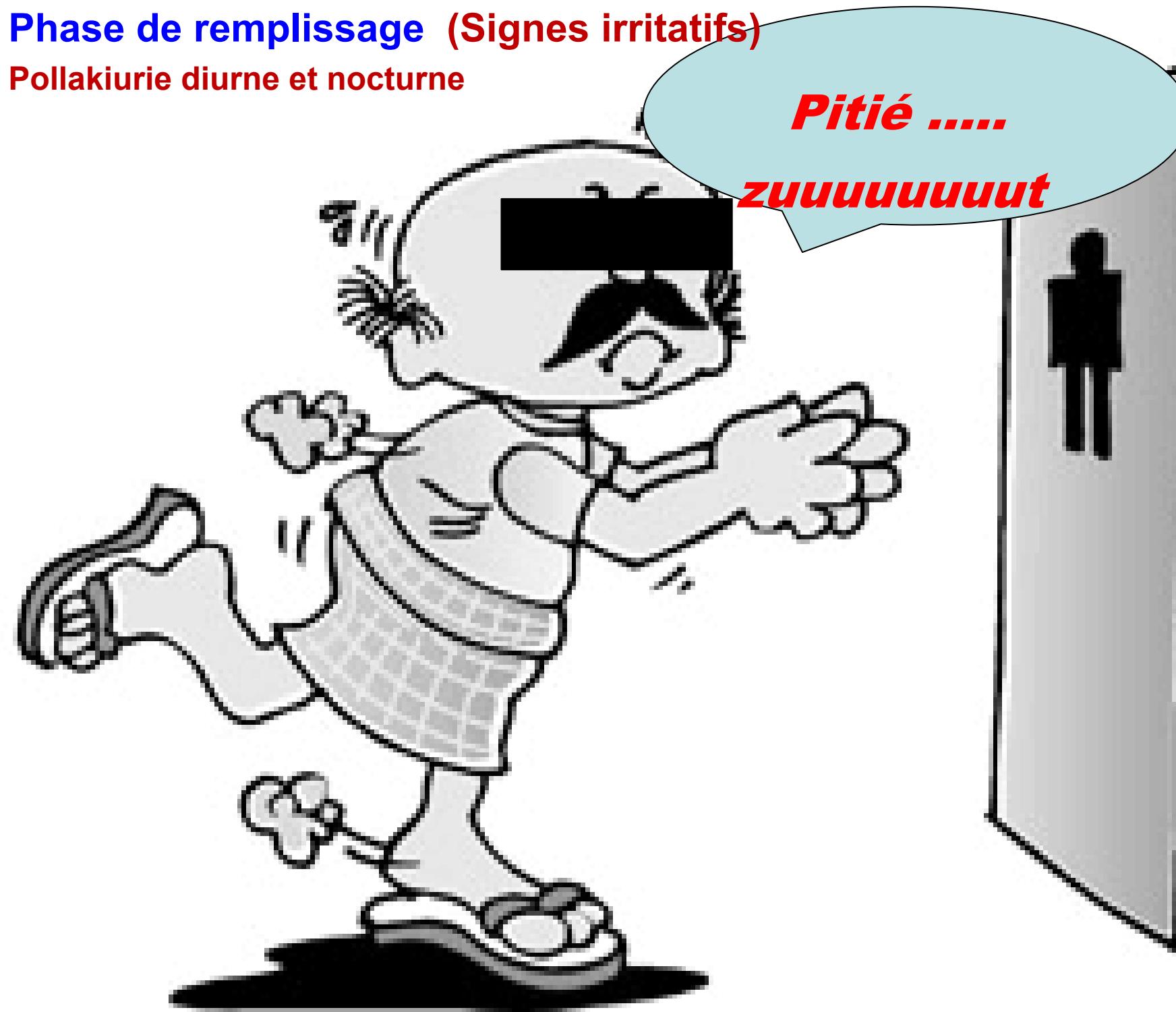


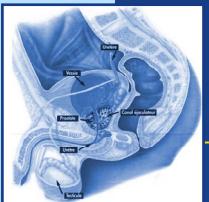


## Signes Cliniques

Phase de remplissage (Signes irritatifs)

Pollakiurie diurne et nocturne

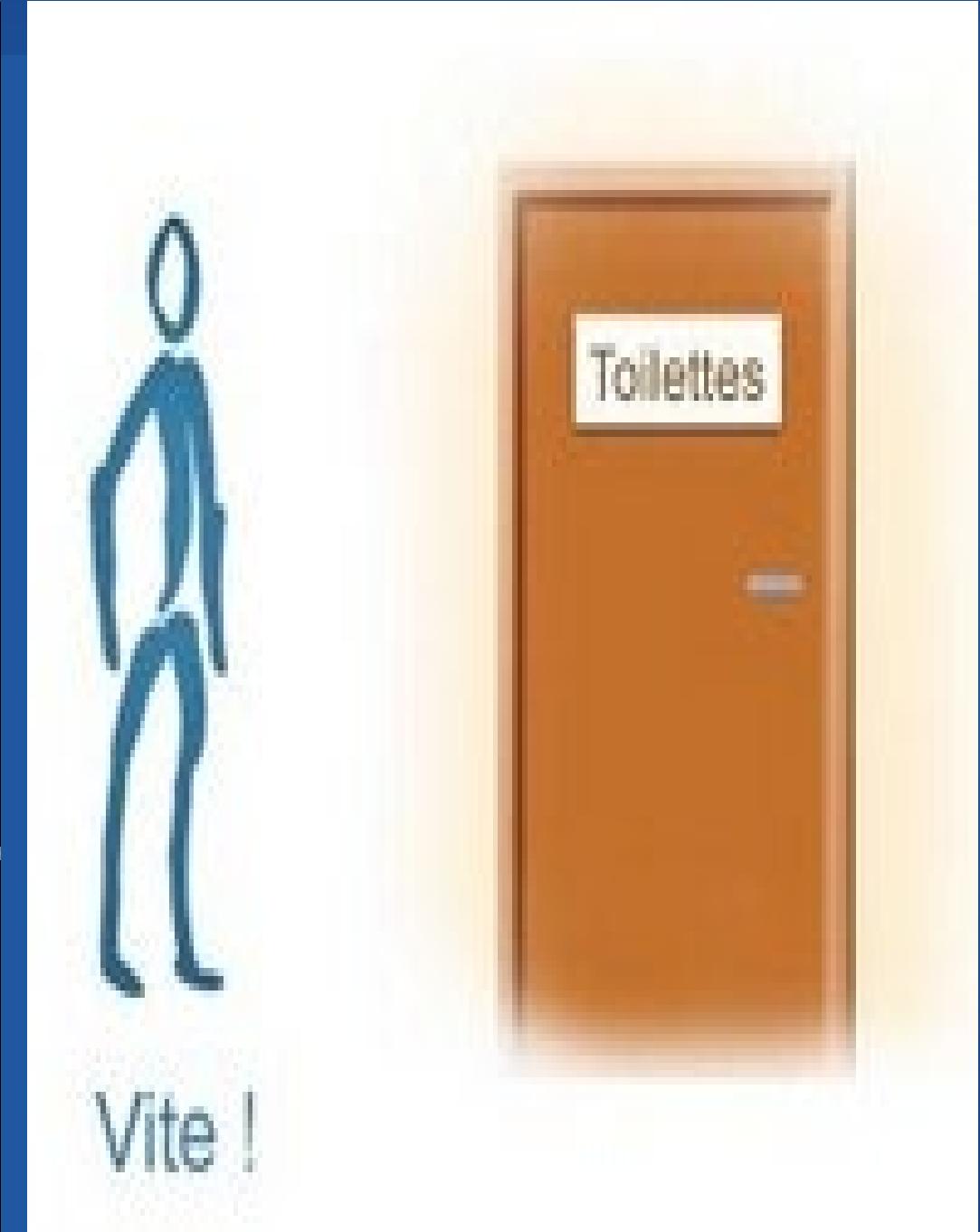


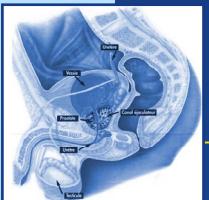


## *Signes Cliniques*

phase de remplissage

Mictions impérieuses





## Signes Cliniques

J'ai surely la prostate  
mais le toucher rectal  
jamais de la vie .....

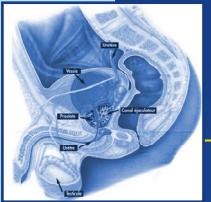
Phase mictionnelle

Signes obstructifs

- Dysurie !???

البارح,,, البارح  
كان في عمرى  
عشرين ,,,,



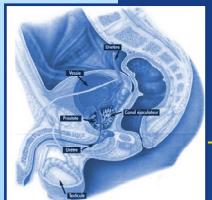


## Diagnostic

*Recommandation pour le diagnostic !???*

*Que faut il faire pour notre patient !?*

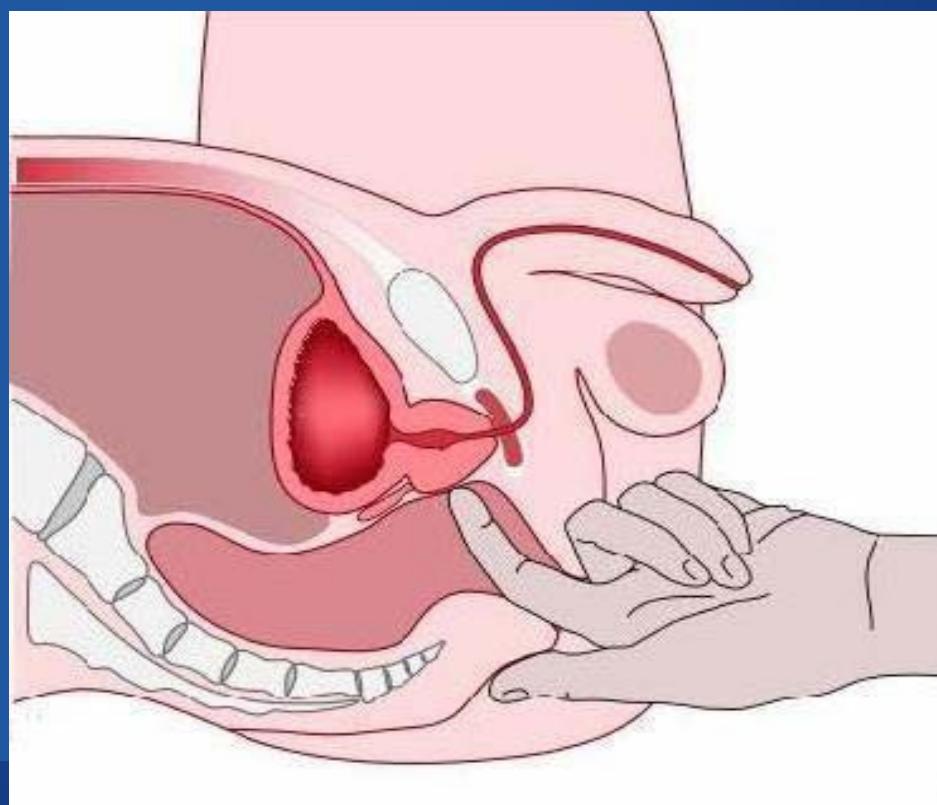
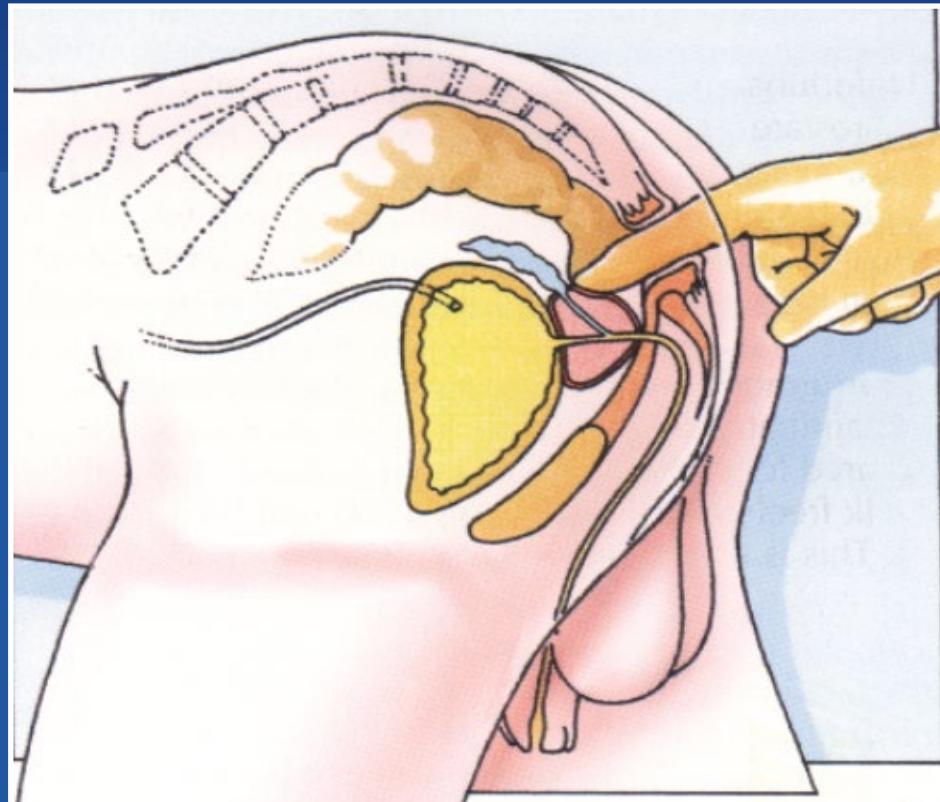


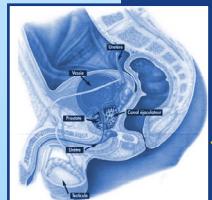


## Diagnostic

### *Toucher rectal*

- Taille augmentée
- Consistance élastique,  
souple
- Lisse, homogène,  
régulière





## **Diagnostic**

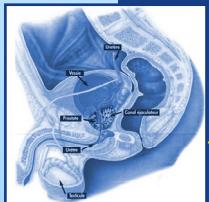
**Score SSI = I-PSS (International Prostatic Score Symptom)AUA**

- Questionnaire validé par OMS
- Quantification de l'intensité des symptômes

**AUA Symptom Index score**



		Jamais	Env 1 fois Sur 5	Env 1 fois Sur 3	Env 1 fois Sur 2	Env 2 fois Sur 3	Presque toujours
<b>Sensation de vessie non vide</b>	Au cours du dernier mois écoulé, avec quelle fréquence avez-vous eu la sensation que votre vessie n'était pas complètement vide après avoir uriné ?	0	1	2	3	4	5
<b>Pollakiurie</b>	Au cours du dernier mois écoulé, avec quelle fréquence avez-vous eu besoin d'uriner à nouveau, moins de 2 heures après avoir fini d'uriner ?	0	1	2	3	4	5
<b>Démarrage et arrêt du jet</b>	Au cours du dernier mois écoulé, avec quelle fréquence avez-vous eu une interruption du jet d'urine, c'est-à-dire démarrage de jet, puis arrêt, puis redémarrage ?	0	1	2	3	4	5
<b>Besoin impérieux</b>	Au cours du dernier mois écoulé, après avoir décidé d'uriner, avec quelle fréquence avez-vous eu des difficultés à retenir votre envie d'uriner ?	0	1	2	3	4	5
<b>Jet faible</b>	Au cours du dernier mois écoulé, avec quelle fréquence avez-vous eu une diminution de la taille ou de la force du jet d'urine ?	0	1	2	3	4	5
<b>Dysurie</b>	Au cours du dernier mois écoulé, avec quelle fréquence avez-vous dû forcer ou pousser pour commencer à uriner ?	0	1	2	3	4	5
<b>Nocturie</b>	Au cours du dernier mois écoulé, combien de fois par nuit en moyenne vous êtes-vous levé pour uriner (entre le moment de votre coucher le soir et celui de votre lever définitif du matin) ?	Jamais	1 fois	2 fois	3 fois	4 fois	5 fois ou+
		0	1	2	3	4	5



## Diagnostic

**Table 1. Symptoms Assessed by International Prostate Symptoms Score (IPSS)<sup>a</sup>**

*Sensation of not emptying bladder*

*Frequency of urination*

*Interruption of urine stream*

*Difficulty postponing urination*

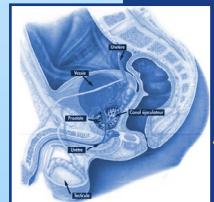
*Weakness of urine stream*

*Need to strain to begin urination*

*Frequency of urination overnight (nocturia)*

Symptoms are assessed by the patient from a range of not at all (0 points) to almost always (5 points). Nocturia is measured as a frequency of 0–5 or more times and receives a corresponding point value (maximum of 5). Total score: 0–7 points = mild symptoms; 8–19 points = moderate symptoms; 20–35 points = severe symptoms.





## Diagnostic

### I-PSS

■ 7 questions

■ Score 0 à 5 par question

■ Maximum : 35

### Résultats

■ 0 à 7 : HBP peu symptomatique

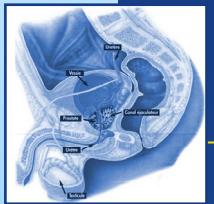
■ 8 à 19 : HBP modérément symptomatique

■ 20 à 35 : HBP sévère

Qualité de vie !?

**Il n'existe pas de corrélation entre la sévérité des symptômes et le volume de la prostate**



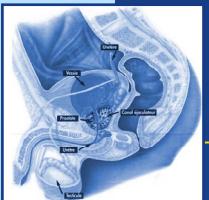


## ***Diagnostic***

### **■ Chimie des urines**

Autres examens à réaliser !??





## Diagnostic

### ■ PSA: Antigène Spécifique de Prostate

< 4ng/ml: normal !?

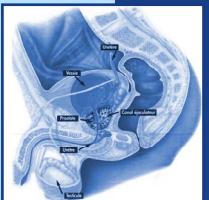
De 4 à 10 ng/ml: douteux

>10ng/ml: cancer !?

the American Urological Association and American Cancer Society published guidelines recommending PSA screening be offered to men with a 10-year or greater life expectancy.

**3 milliards** de dollars: c'est **le coût** annuel du dépistage par dosage de la **PSA** aux Etats-Unis !!!!





## Diagnostic

Débitmétrie : quantification de la dysurie !????



### Débit maximum

> 15 ml/sec

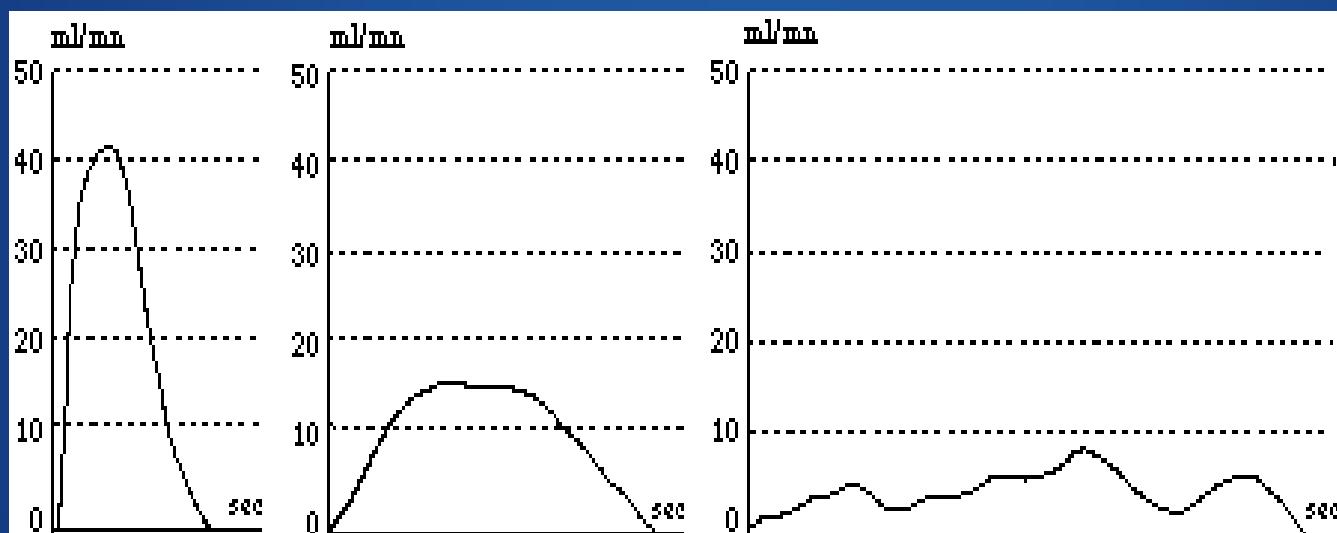
Normal

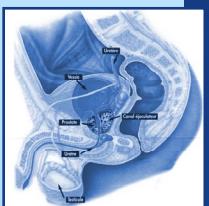
10 à 15 ml/sec

?

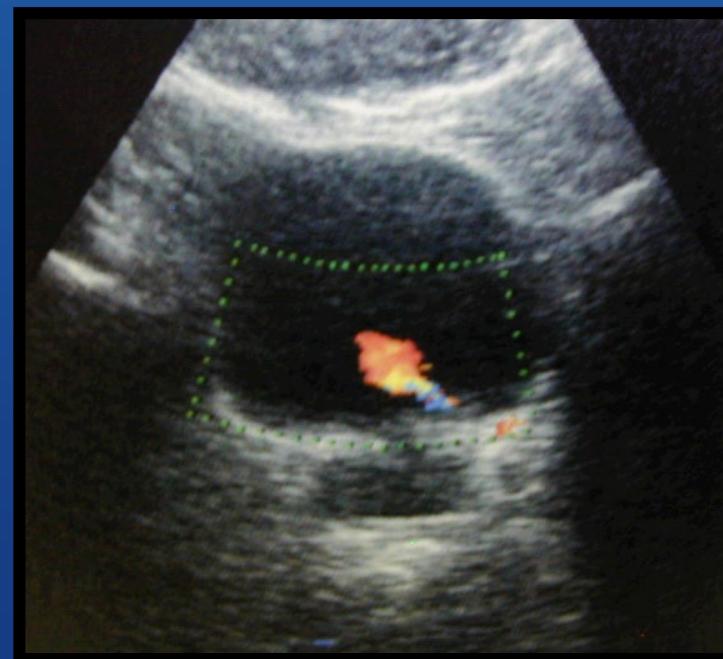
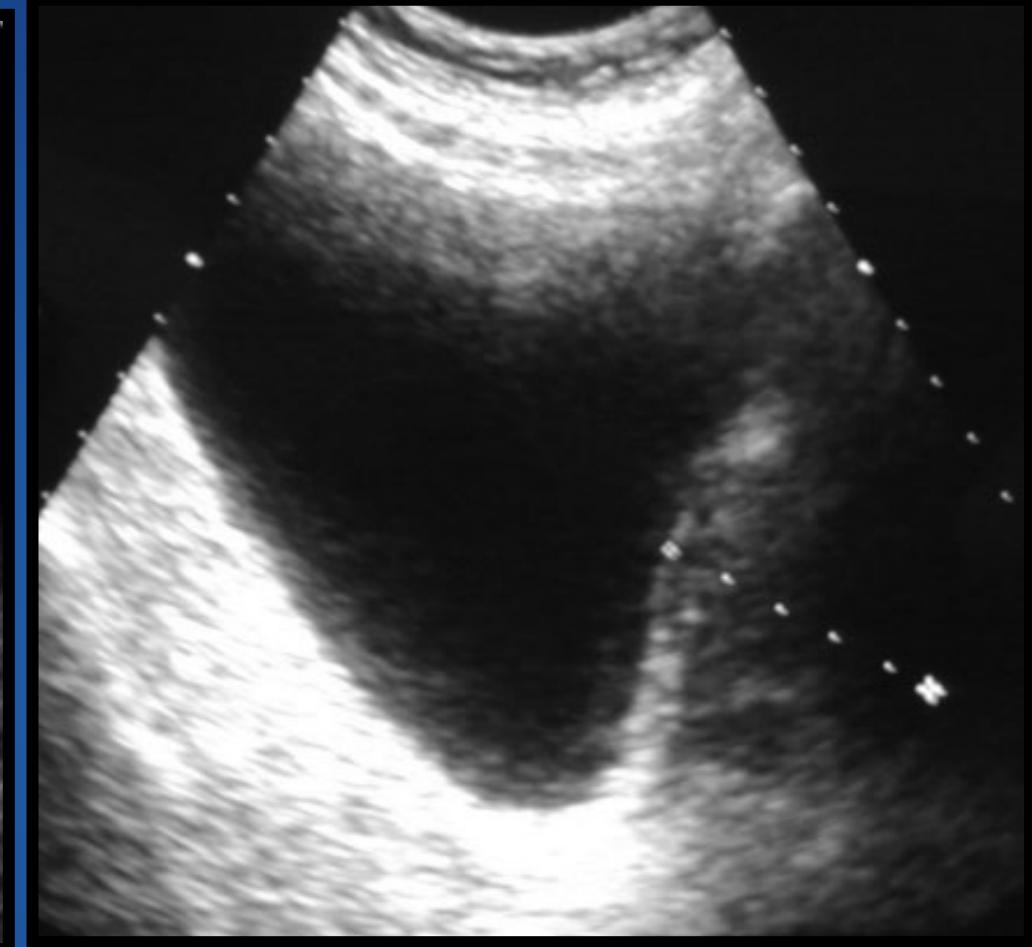
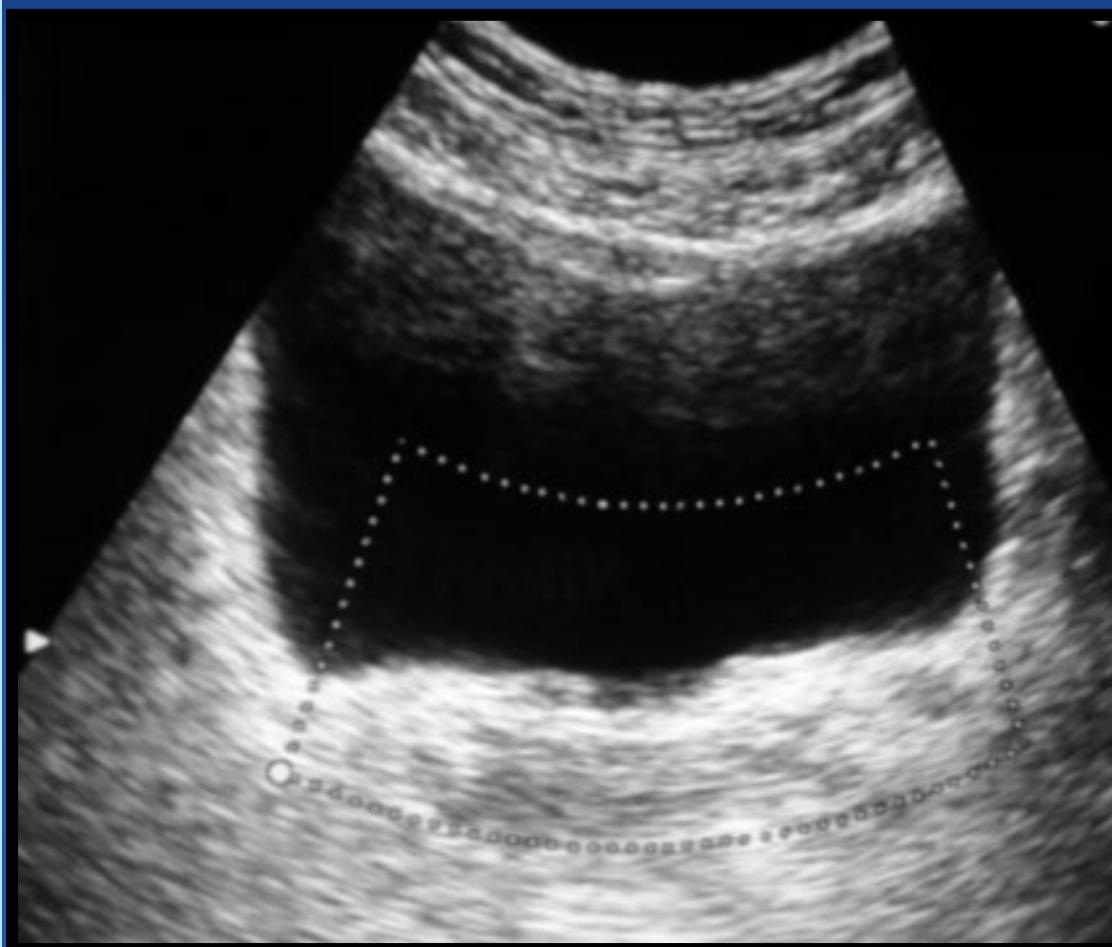
< 10 ml/sec

Obstruction probable

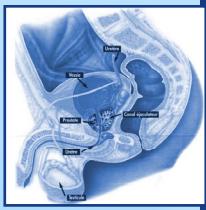




# Diagnostic *Echographie abdominale ou transrectale*



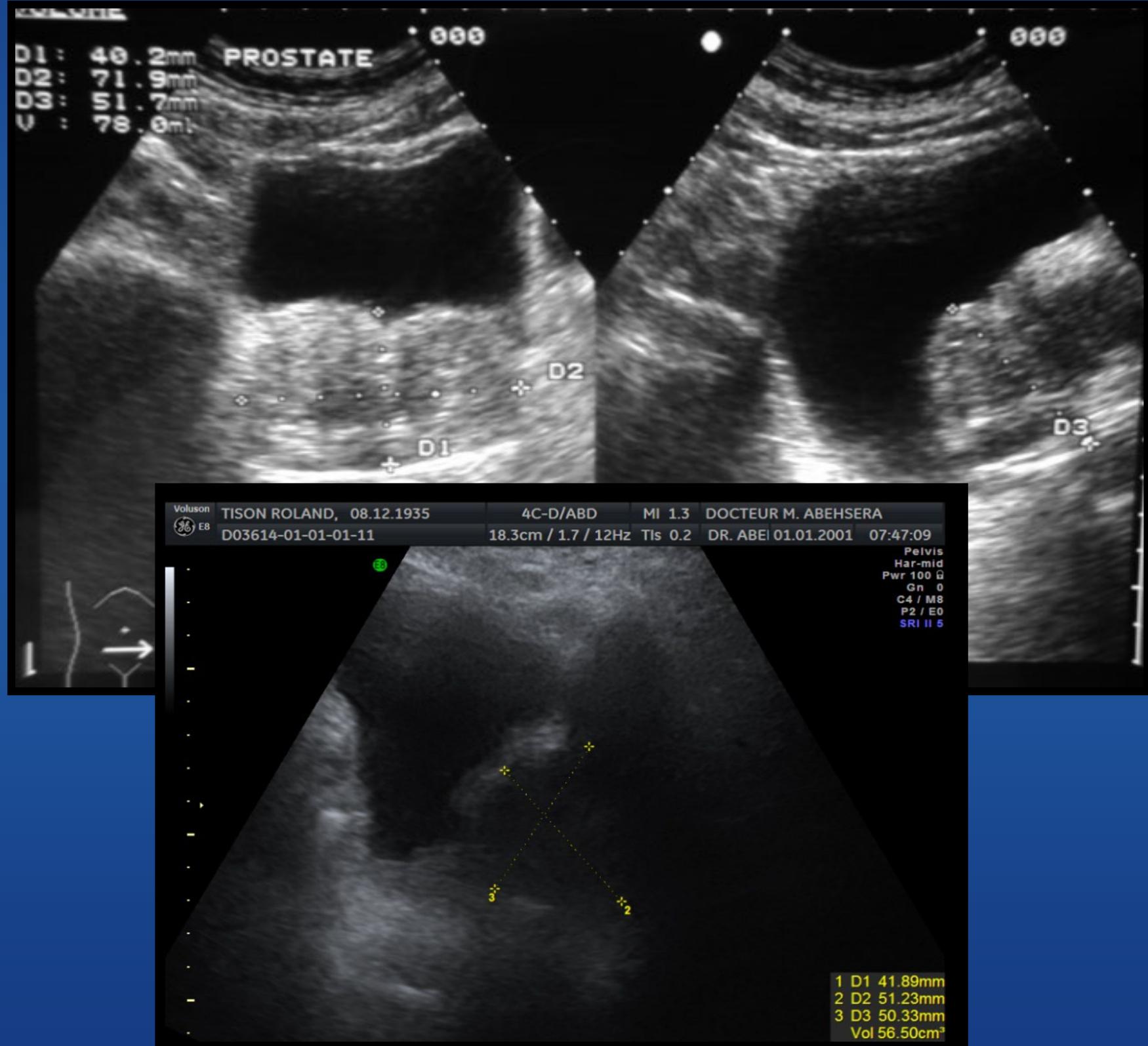
$$\bullet \text{ Vol} = h \times l \times p \times 0,55$$



## Diagnostic

### Echographie prostate trans pariétale

$$\text{Vol} = h \times l \times p \times 0,55$$

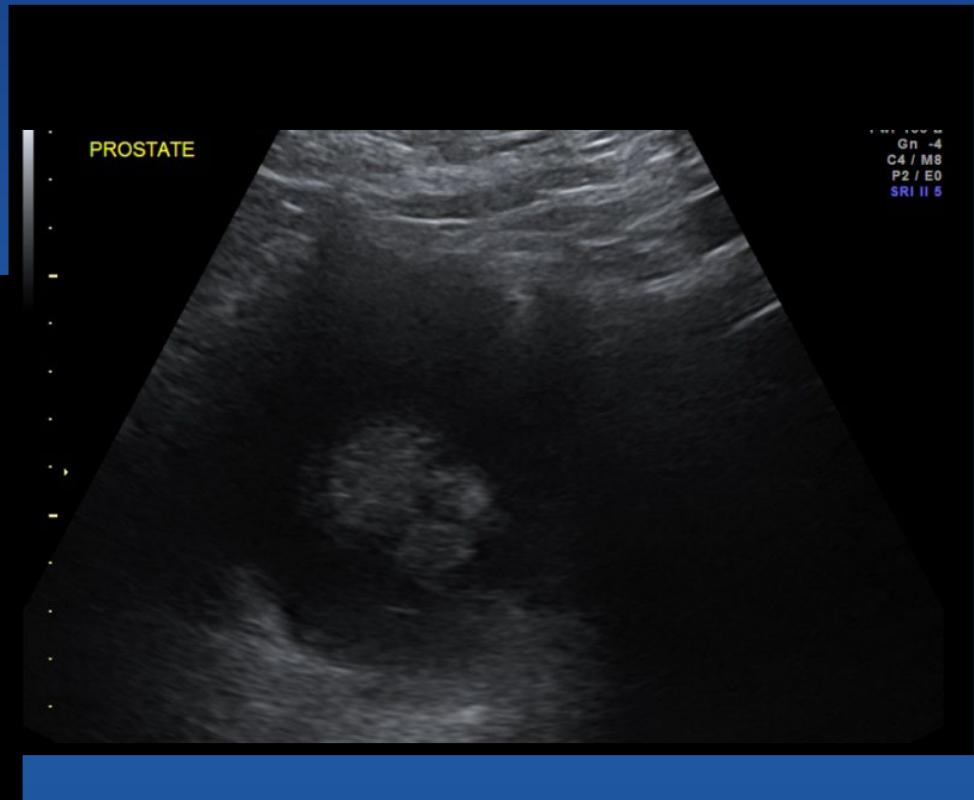
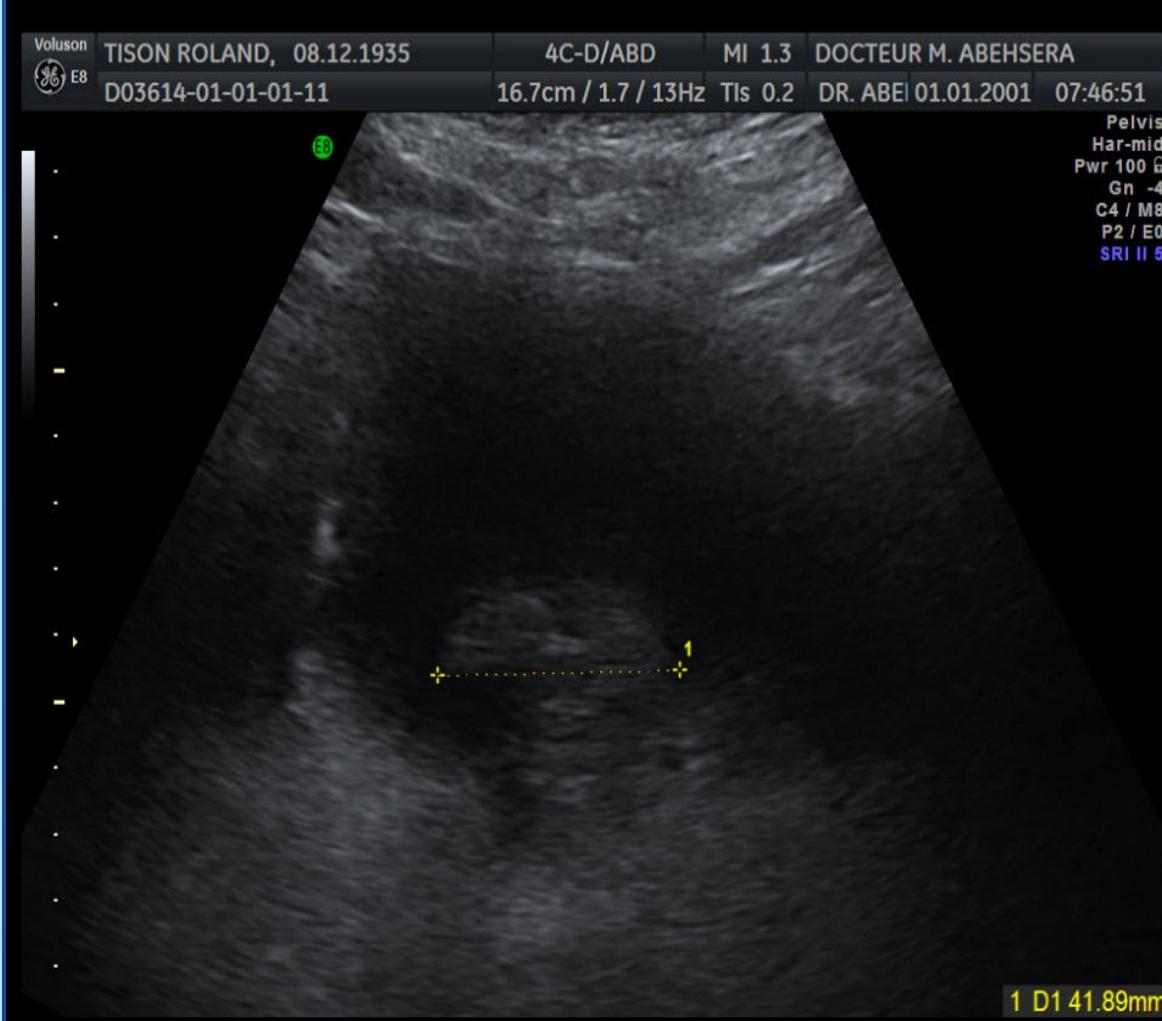


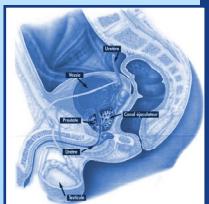
Volume normal < 25 cc



# Diagnostic *Echographie*

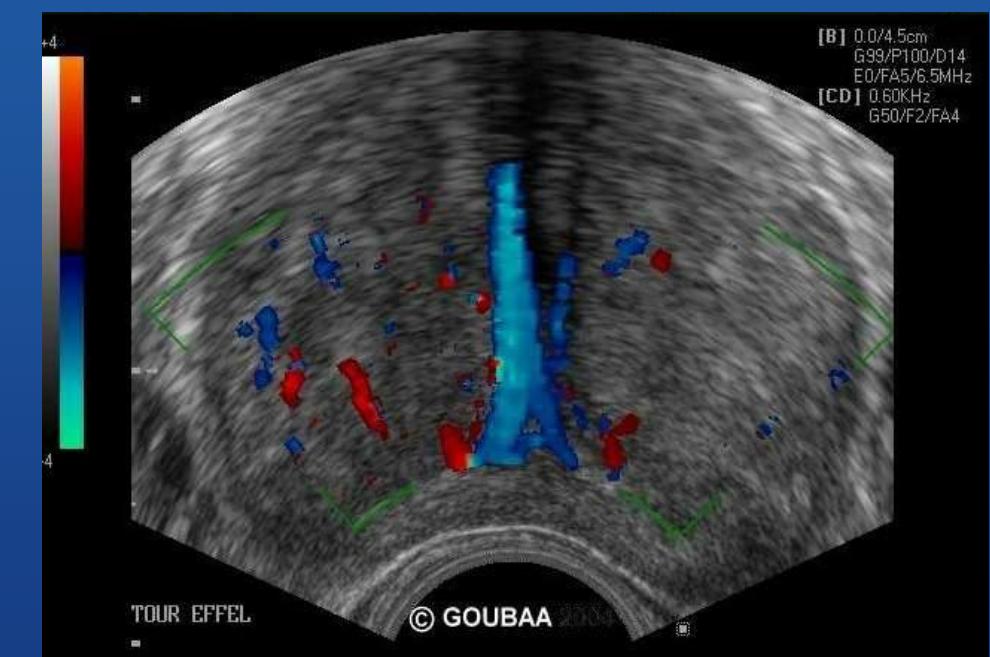
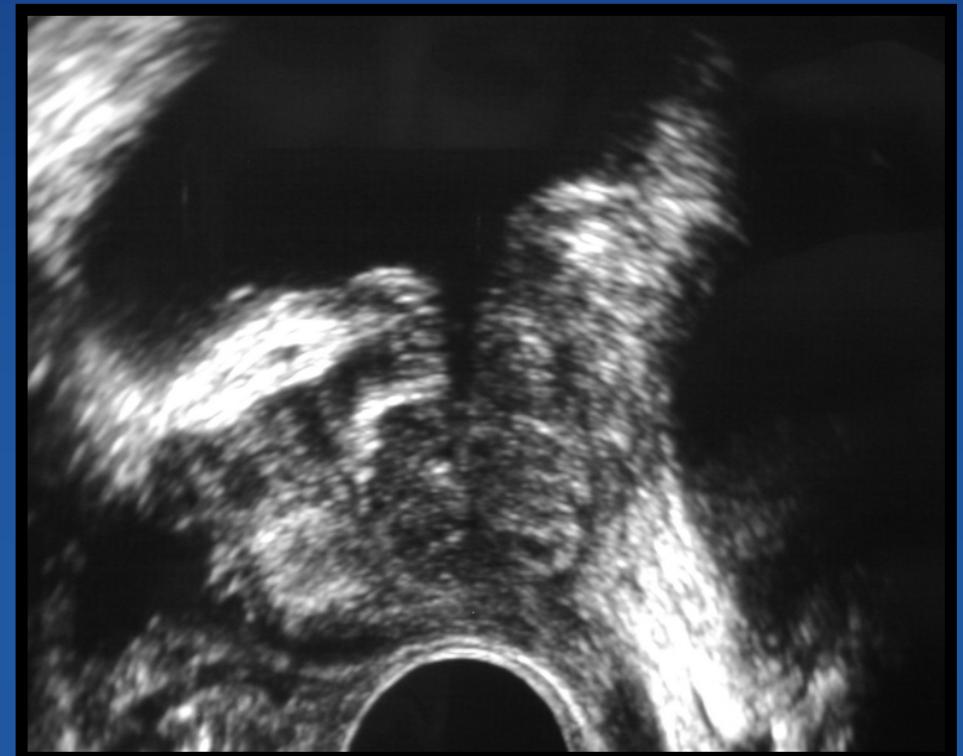
## Hypertrophie bénigne de prostate





## Diagnostic

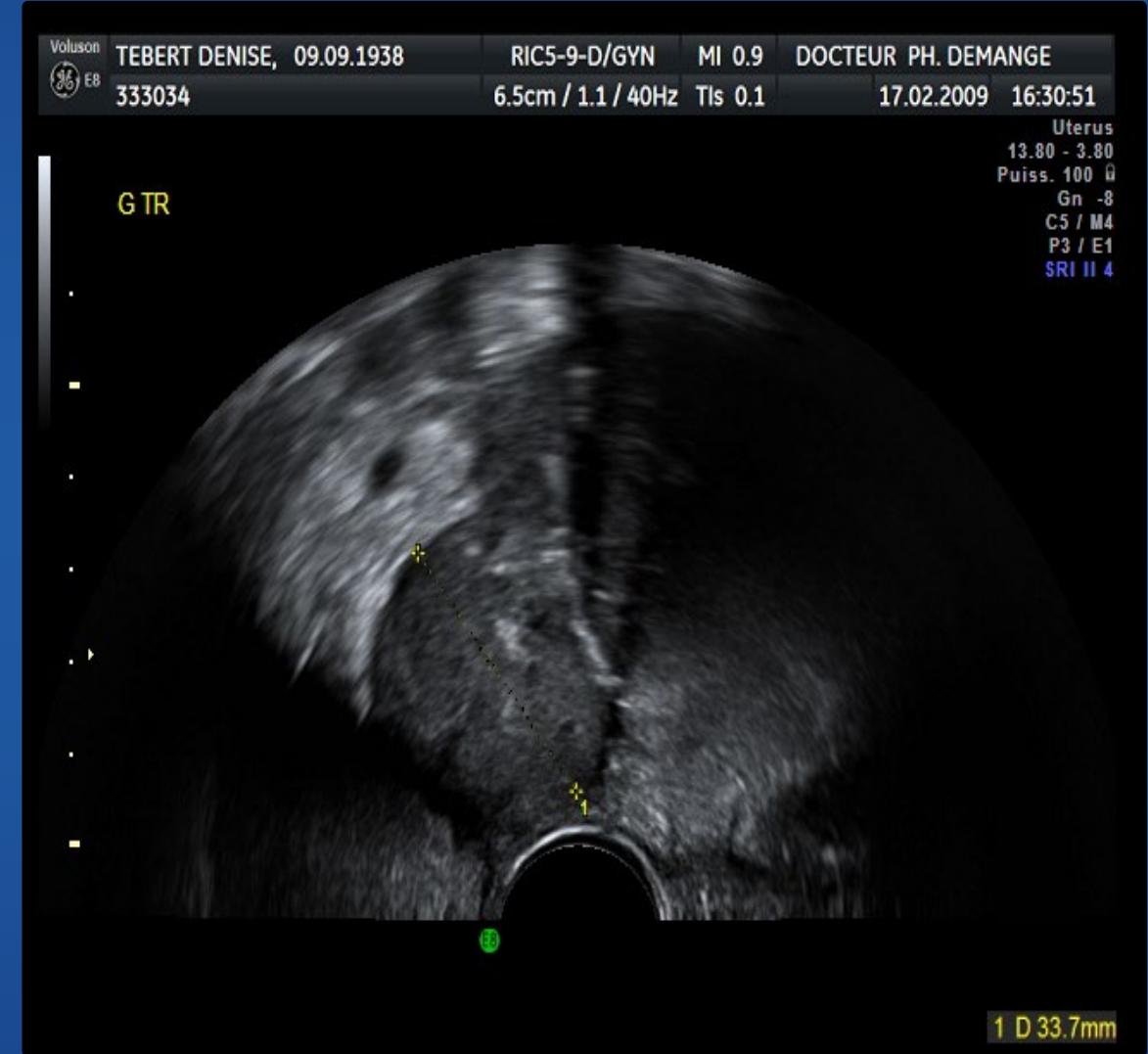
### Echographie endorectale !??





## Diagnostic

# Hypertrophie bénigne de prostate



## DIAGNOSTIC

Recommendation	LE	GR
A medical history must always be taken from men with LUTS.	4	A*

Recommendation	LE	GR
A validated symptom score questionnaire with QoL question(s) should be used for the routine assessment of male LUTS in all patients and should be applied for re-evaluation of LUTS during treatment.	3	B

Recommendation	LE	GR
Physical examination including DRE should be a routine part of the assessment of male LUTS.	3	B

is more accurate in determining prostate volume than DRE. Underestimation of prostate volume by DRE increases with increasing TRUS volume, particularly where the volume is > 30 mL [30]. A model of visual aids has been developed to help urologists estimate prostate volume more accurately [31]. One study concluded that DRE was sufficient to discriminate between prostate volumes > or < than 50 mL [32].

Recommendation	LE	GR
Urinalysis (by dipstick or urinary sediment) must be used in the assessment of male LUTS.	3	A*

Recommendation	LE	GR
PSA measurement should be performed only if a diagnosis of PCa will change the management or if PSA can assist in decision-making in patients at risk of progression of BPE.	1b	A

# Guidelines On Benign Prostatic Hyperplasia

## DIAGNOSTIC

The measurement of PSA is recommended when a diagnosis of prostatic carcinoma will change the decision made about which therapeutic option to use.

UPDATE FEBRUARY 2002



	LE	GR
PSA measurement should be performed only if a diagnosis of PCa will change the management or if PSA can assist in decision-making in patients at risk of progression of BPE.	1b	A



Summary of evidence	LE
Prostate-specific antigen has a good predictive value for assessing prostate volume and is a strong predictor of prostate growth.	1b
Baseline PSA can predict the risk of AUR and BPE-related surgery.	1b

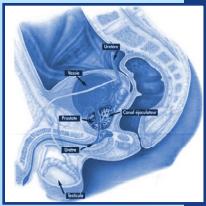
Recommendations	Strength rating
Measure prostate-specific antigen (PSA) if a diagnosis of prostate cancer will change management.	Strong
Measure PSA if it assists in the treatment and/or decision making process.	Strong

## DIAGNOSTIC

Summary of evidence	LE
Men with LUTS are not at increased risk for upper tract malignancy or other abnormalities when compared to the overall population.	3
Ultrasound can be used for the evaluation of men with large PVR, haematuria, or a history of urolithiasis.	4

Recommendation	Strength rating
Perform ultrasound of the upper urinary tract in men with LUTS.	Weak

Recommendations	Strength rating
Perform imaging of the prostate when considering medical treatment for male LUTS, if it assists in the choice of the appropriate drug.	Weak
Perform imaging of the prostate when considering surgical treatment.	Strong



## Evolution complication

Après une première évaluation , notre patient a été perdu de vu pendant quelques temps .....

Espérer t'il une amélioration spontanée de la symptomatologie !???

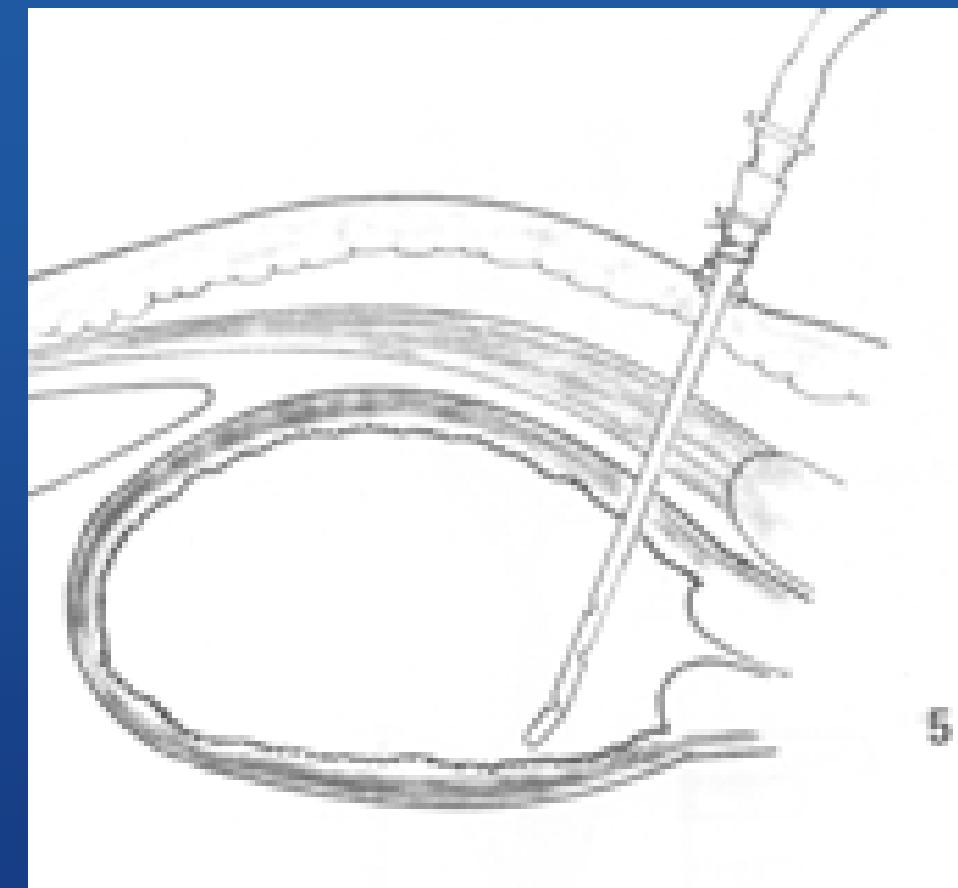
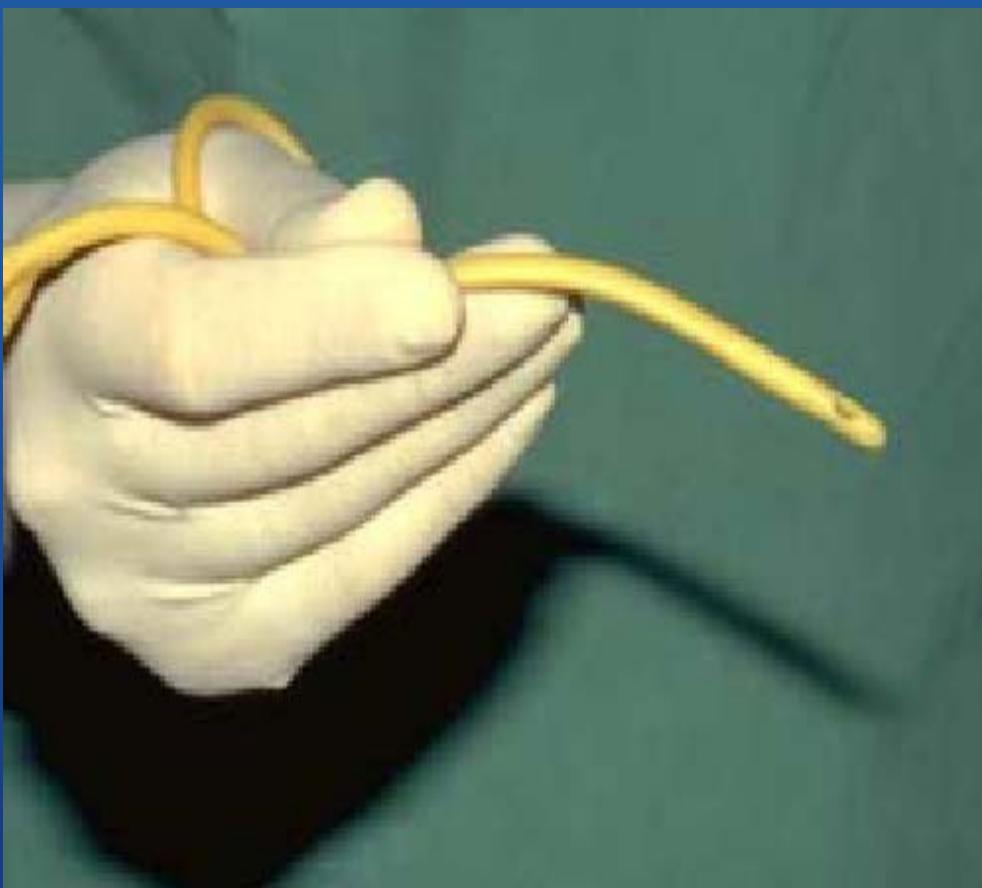
Amélioration !?

Ou

Complication !?

# Evolution complication

Rétention vésicale aigue





# Evolution complication

## Rétention vésicale aigue

Following spontaneous acute urinary retention (AUR), 15% of patients had another episode of spontaneous AUR, and a total of 75% underwent surgery, whereas after precipitated AUR, only 9% had an episode of spontaneous AUR, and 26% underwent surgery.

The sensation of incomplete bladder emptying, having to void again after less than 2 hours, and a weak urinary stream are the best independent symptom predictors; use of medications with adrenergic or anticholinergic side effects also predicts AUR.

Men with a clinical diagnosis of benign prostatic hyperplasia and a symptom score of 8 or greater had the highest rates of AUR, and all 7 lower urinary tract symptoms (LUTS) comprising the American Urological Association symptom index individually predicted AUR.

The cumulative risk for a man in his 50s with more than mild symptoms to experience AUR if he lives to be 80 is about 20%, for a man in his 60s who lives another 20 years, about 23%, and for a man in his 70s who lives another 10 years, 30%.

Most patients should be offered trial without catheter, although a significant number of patients will fail and require surgery within the first year of follow-up.

Morbidity and mortality have been reported in older series to be higher in those patients undergoing transurethral resection of the prostate for AUR compared to those treated for symptoms only.

In the PLESS study of finasteride versus placebo in men with enlarged prostate glands and moderate to severe LUTS, fewer finasteride- treated patients underwent surgery subsequent to an episode of either spontaneous or precipitated retention compared to placebo-treated patients.

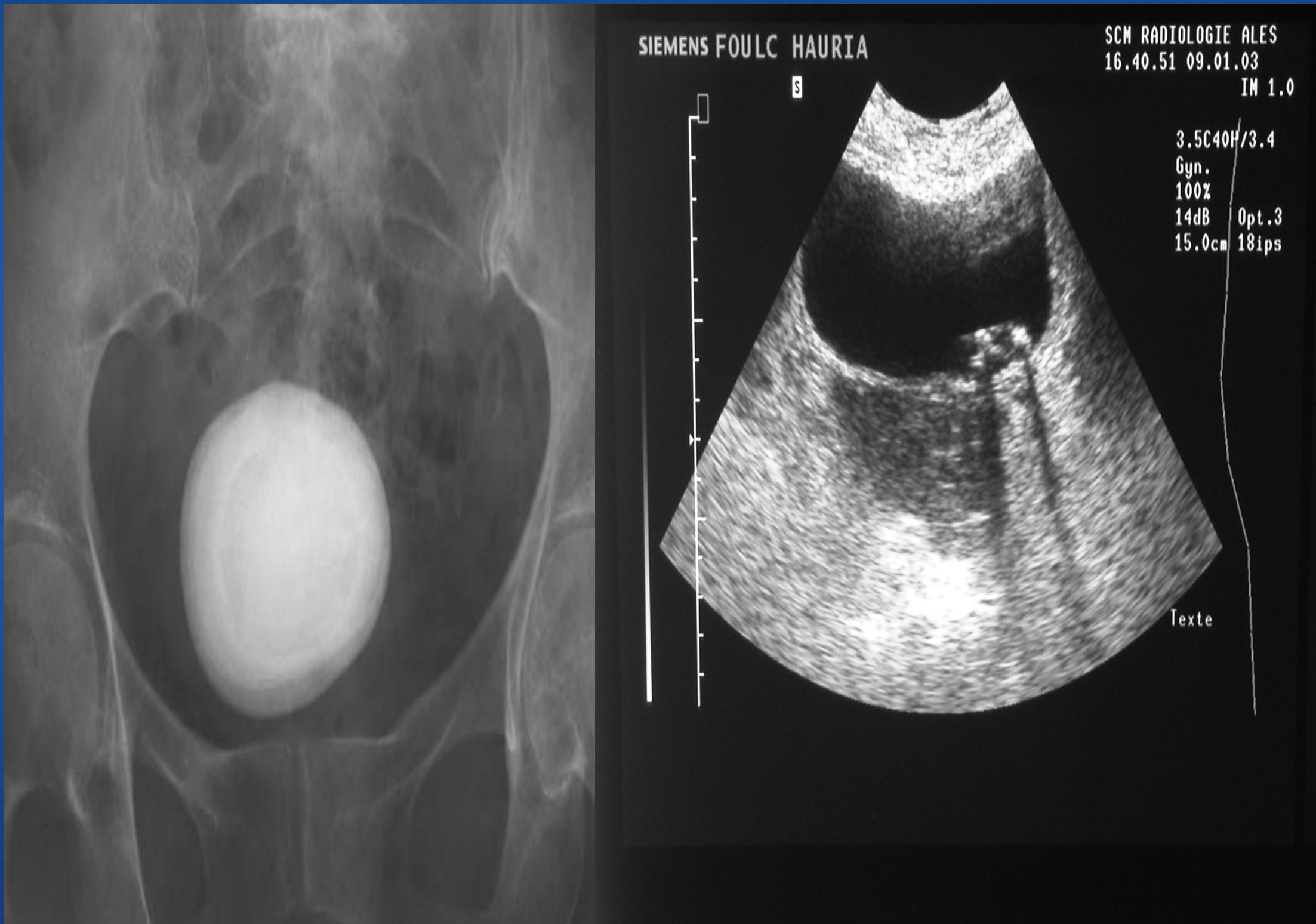
Acute Urinary Retention: Risks and Management

Claus G Roehrborn, MD  
Department of Urology, University of Texas Southwestern Medical Center at Dallas,  
Dallas, TX 2005



# Evolution complication

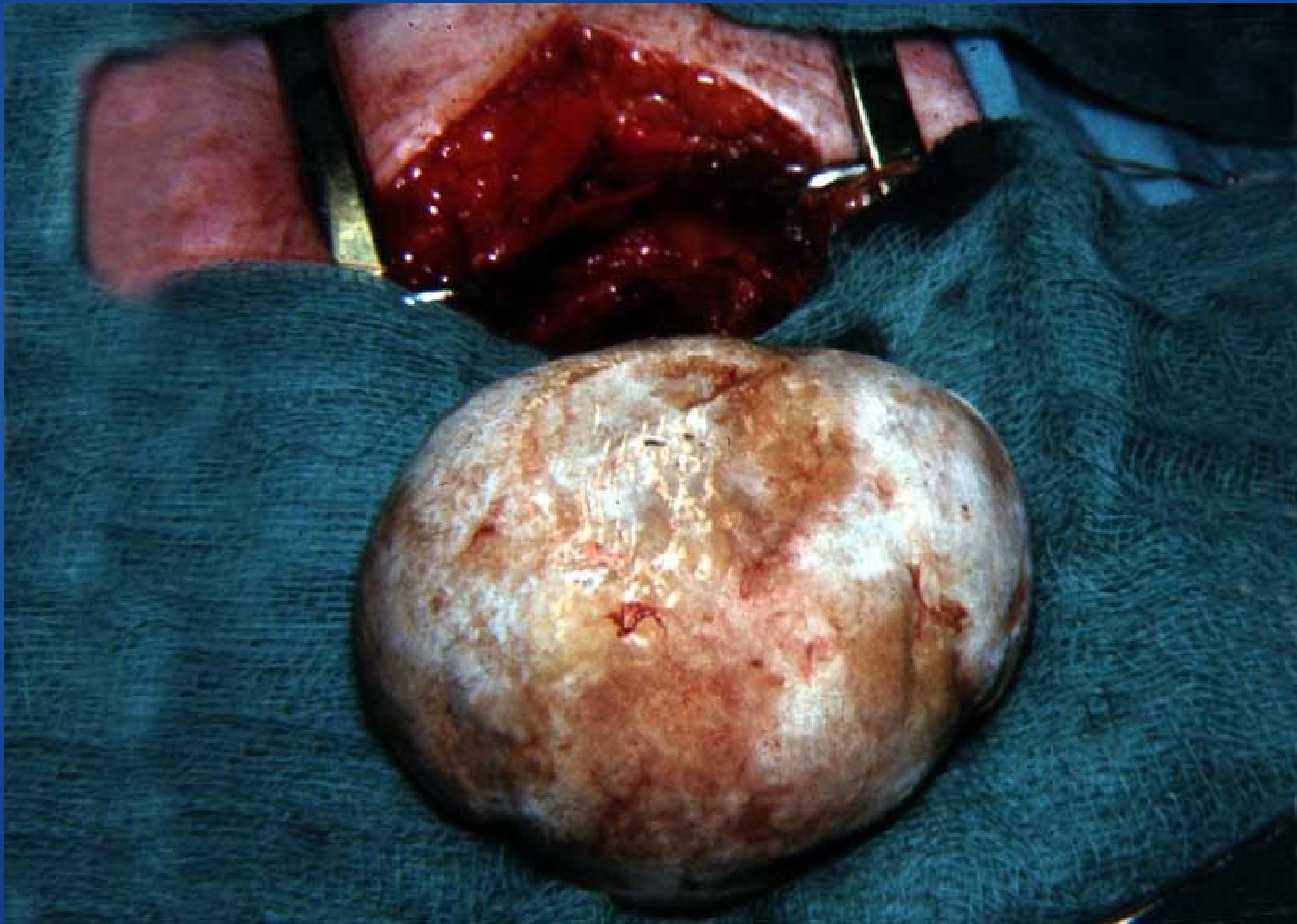
## Lithiases vésicales

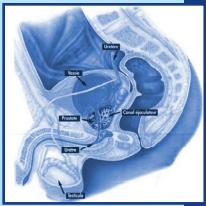




# Evolution complication

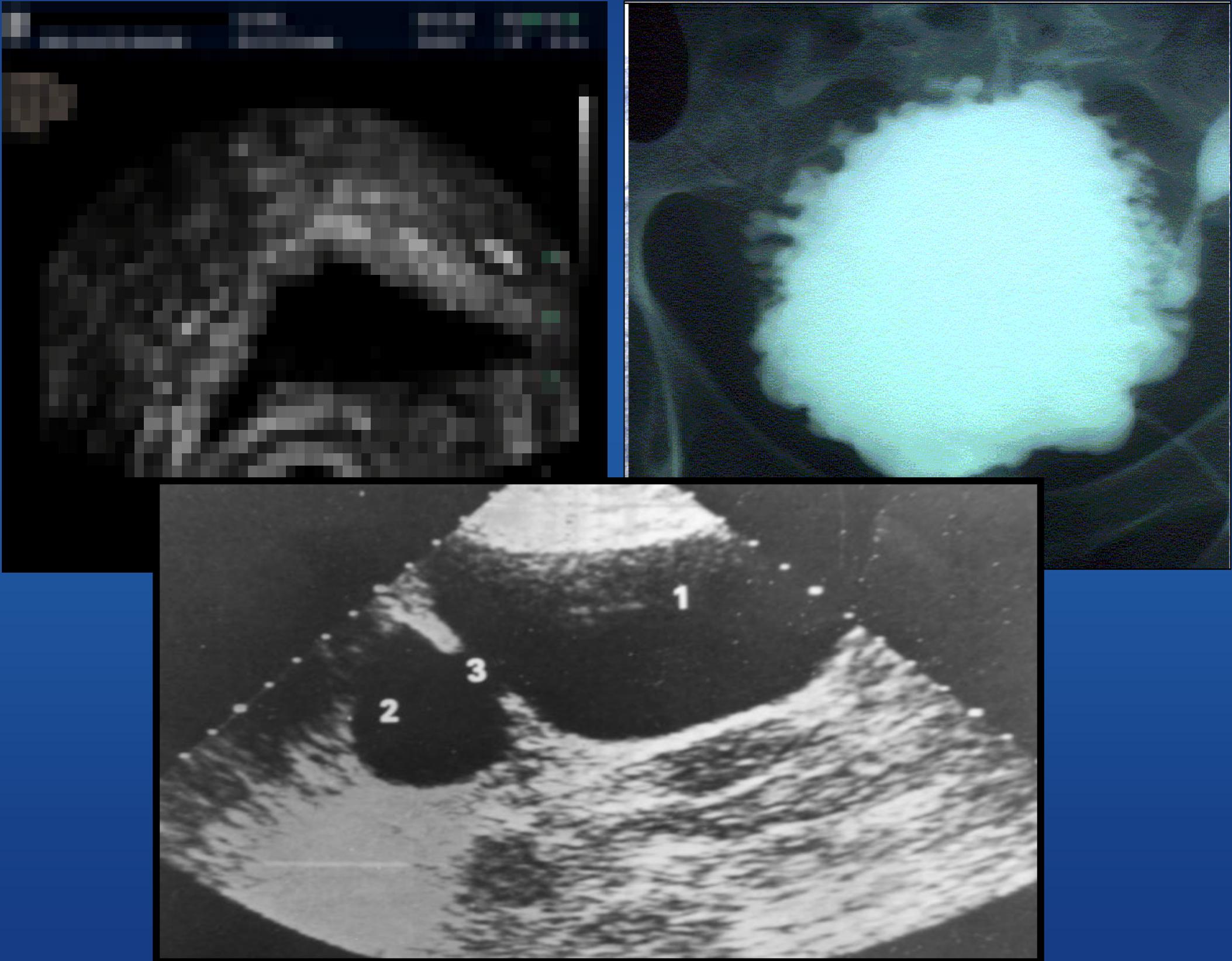
## Lithiase vésicale

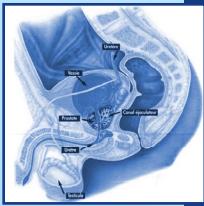




# Evolution complication

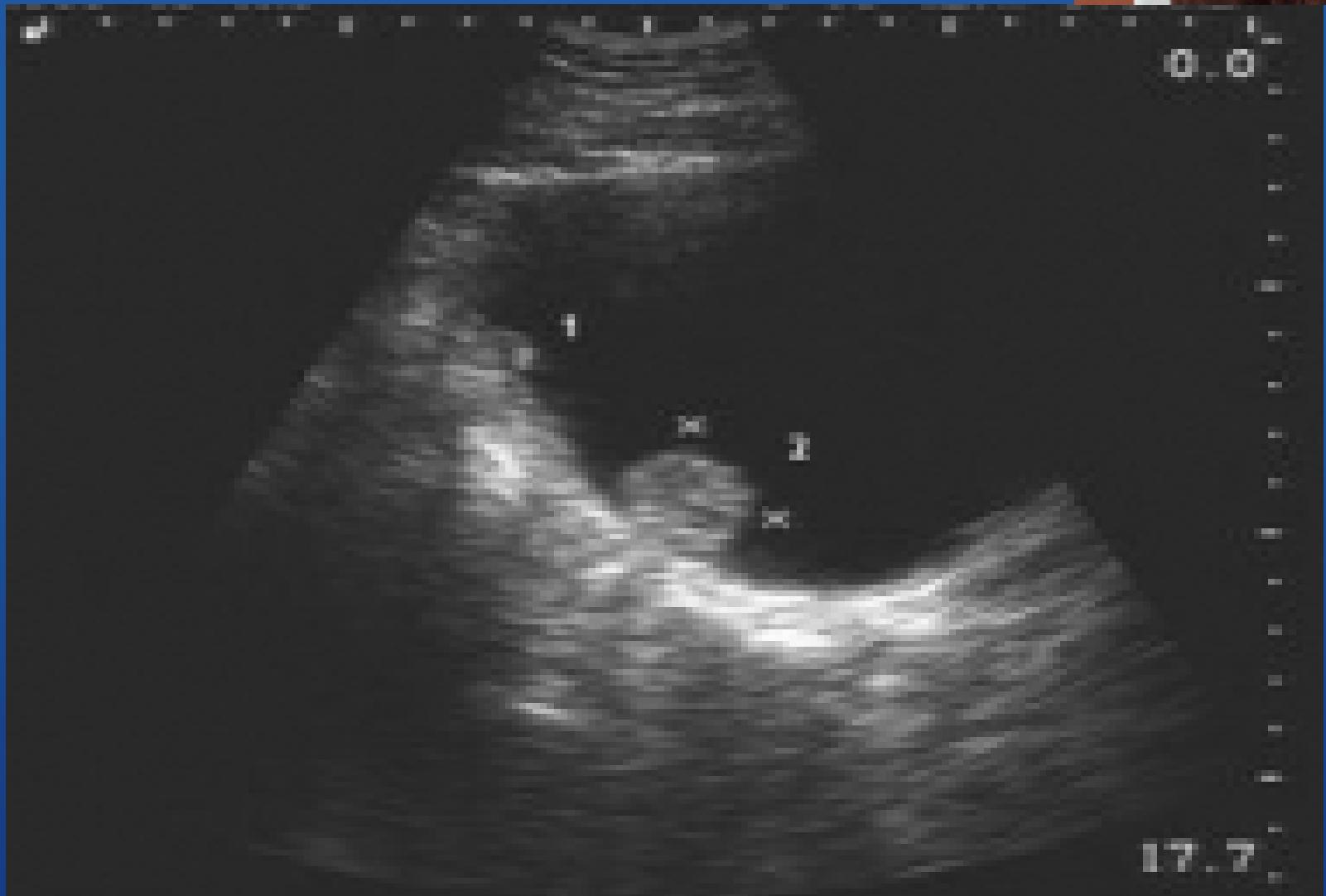
Vessie de lutte et diverticules vésicaux





# Evolution complication

Hématurie !?



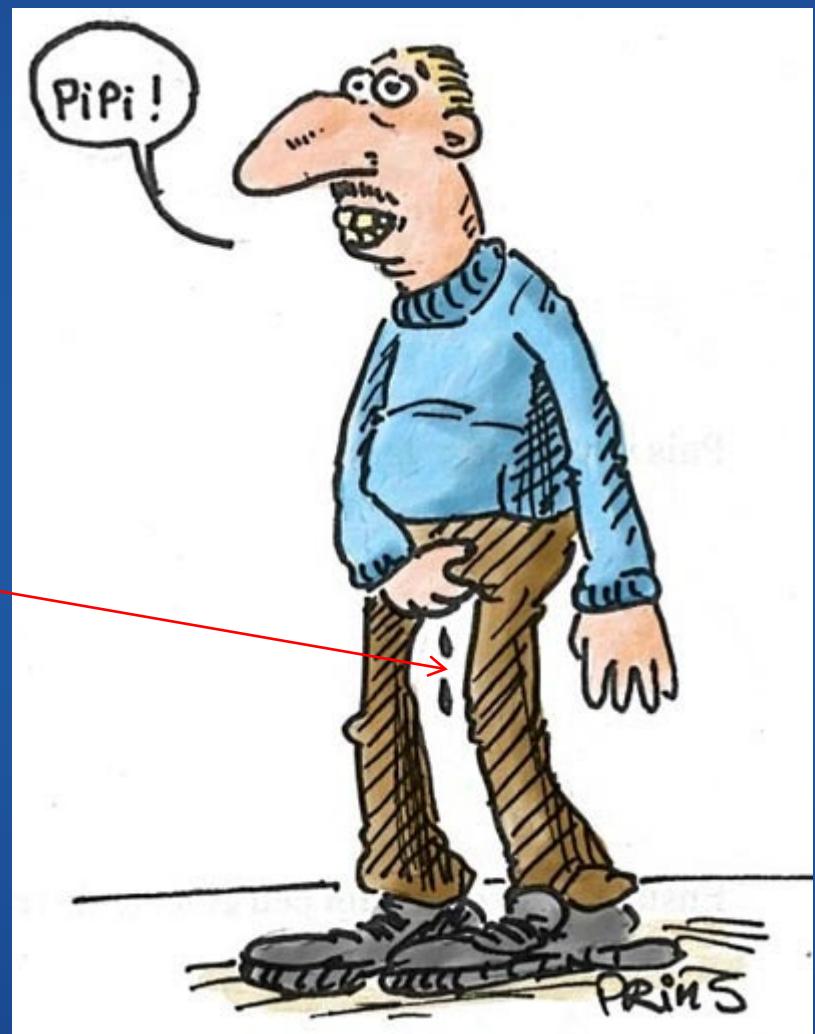
# Evolution complication

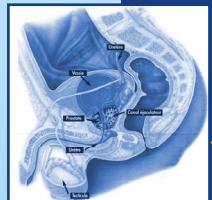
Autres :

Accidents infectieux

Troubles de la continence

Insuffisance rénale





## **Diagnostic différentiel**

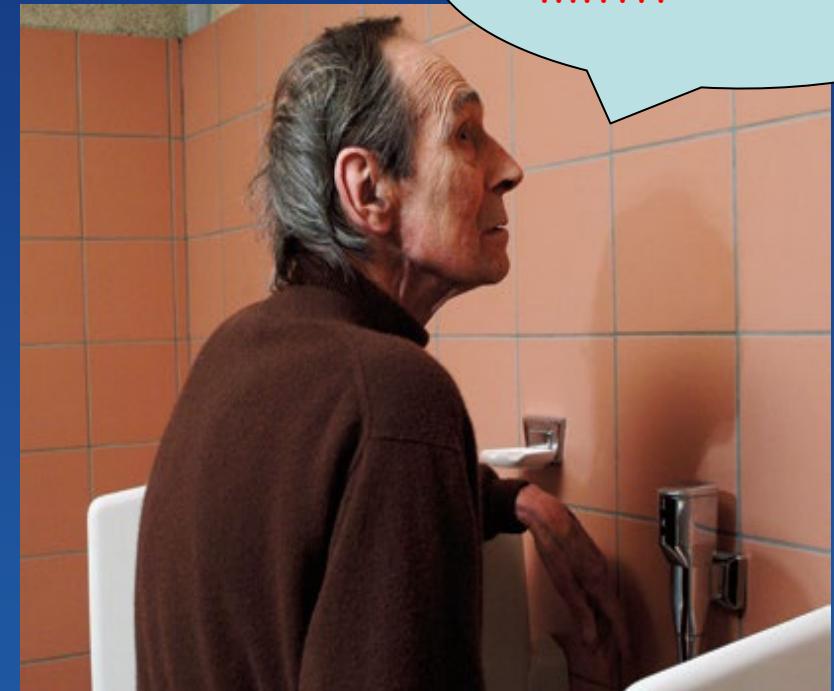
**Cancer de la prostate**

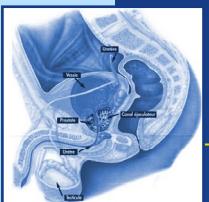
**Prostatite**

**Sténose urétrale**

**Sclérose du col vésical**

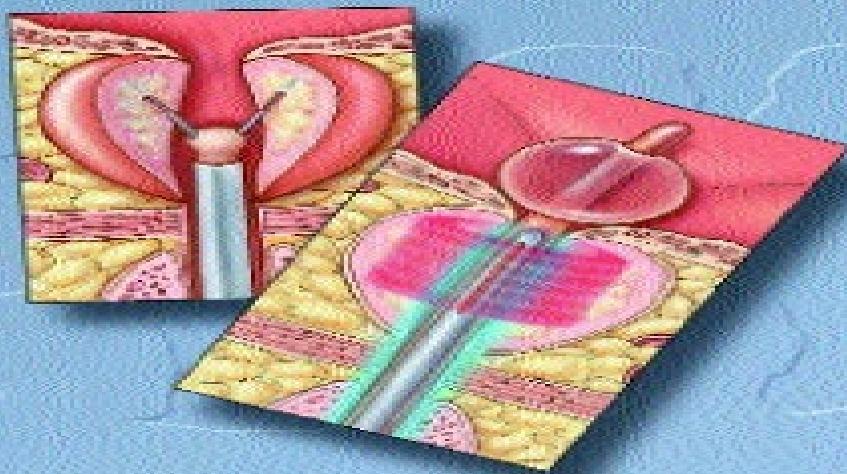
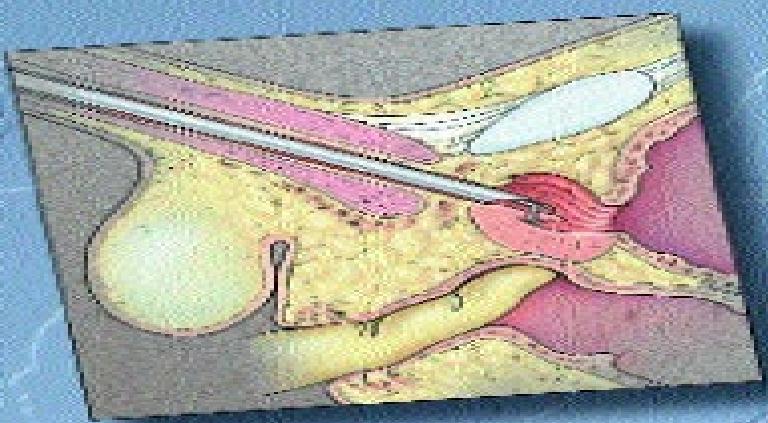
**Maladie neurologique**

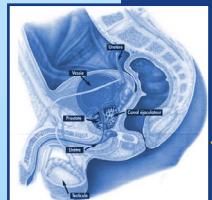




## **Traitements**

**TRAITEMENT(S): QUOI ET POUR QUI ?**





## **Traitement**

*Objectif du traitement*

■ Soulager le patient

■ Améliorer la qualité de vie du patient \* \* \* \*

■ Eviter les complications



# Guidelines On Benign Prostatic Hyperplasia

## *Behavioural and dietary modifications*

It is customary for this type of management to include the following components:

- education (about the patient's condition);
- reassurance (that cancer is not a cause of the urinary symptoms);
- periodic monitoring;
- lifestyle advice [110, 111, 114, 115] such as:
  - reduction of fluid intake at specific times aimed at reducing urinary frequency when most inconvenient (e.g. at night or when going out in public);
  - avoidance/moderation of intake of caffeine or alcohol, which may have a diuretic and irritant effect, thereby increasing fluid output and enhancing frequency, urgency and nocturia;
  - use of relaxed and double-voiding techniques;
  - urethral milking to prevent post-micturition dribble;
  - distraction techniques such as penile squeeze, breathing exercises, perineal pressure, and mental tricks to take the mind off the bladder and toilet, to help control storage symptoms;
  - bladder retraining that encourages men to hold on when they have sensory urgency to increase their bladder capacity and the time between voids;
  - reviewing the medication and optimising the time of administration or substituting drugs for others that have fewer urinary effects (these recommendations apply especially to diuretics);
  - providing necessary assistance when there is impairment of dexterity, mobility, or mental state;
  - treatment of constipation.

# Guidelines On Benign Prostatic Hyperplasia

Recommendations	LE	GR
Men with mild symptoms are appropriate for watchful waiting.	1b	A
Men with LUTS should always be offered lifestyle advice prior to or concurrent with treatment.	1b	A

LUTS = lower urinary tract symptoms.

Recommendations	Strength rating
Offer men with mild/moderate symptoms, minimally bothered by their symptoms, watchful waiting.	Strong
Offer men with LUTS lifestyle advice prior to, or concurrent with, treatment.	Strong

## Pharmacological management

### $\alpha_1$ -Adrenoceptor antagonists ( $\alpha_1$ -blockers)

Recommendation	LE	GR
Alpha1-blockers can be offered to men with moderate-to-severe LUTS.	1a	A

Recommendation	Strength rating
Offer $\alpha_1$ -blockers to men with moderate-to-severe LUTS.	Strong

### $5\alpha$ -Reductase inhibitors

Recommendations	LE	GR
$5\alpha$ -Reductase inhibitors can be offered to men who have moderate-to-severe LUTS and an enlarged prostate (>40 mL).	1b	A
$5\alpha$ -Reductase inhibitors can prevent disease progression with regard to acute urinary retention and the need for surgery.	1b	A

LUTS = lower urinary tract symptoms.

Recommendations	Strength rating
Use $5\alpha$ -reductase inhibitors (5-ARIs) in men who have moderate-to-severe LUTS and an increased risk of disease progression (e.g. prostate volume > 40 mL).	Strong
Counsel patients about the onset of action (three to six months) of 5-ARIs.	Strong

## Pharmacological management



### Muscarinic receptor antagonists

Recommendations	LE	GR
Muscarinic receptor antagonists may be used in men with moderate-to-severe LUTS who mainly have bladder storage symptoms.	1b	B
Caution is advised in men with BOO.	4	C

*BOO = bladder outlet obstruction; LUTS = lower urinary tract symptoms.*

Recommendations	Strength rating
Use muscarinic receptor antagonists in men with moderate-to-severe LUTS who mainly have bladder storage symptoms.	Strong
Do not use antimuscarinic overactive bladder medications in men with a post-void residual volume > 150 mL.	Weak

### Phosphodiesterase 5 inhibitors

Recommendations	LE	GR
PDE5Is reduce moderate-to-severe (storage and voiding) LUTS in men with or without erectile dysfunction. Only tadalafil (5 mg once daily) has been licensed for the treatment of male LUTS in Europe.	1a	A

*LUTS = lower urinary tract symptoms; PDE5I = phosphodiesterase type 5 inhibitors.*

## Pharmacological management

### Plant extracts - phytotherapy

**Practical considerations:** Phytotherapeutic agents are a heterogeneous group and may contain differing concentrations of the active ingredient(s). Hence, meta-analyses do not seem to be justified and results of any analyses have to be interpreted with caution.

**Recommendations:** The Guidelines Panel have not made any specific recommendations on phytotherapy for the treatment of male LUTS because of product heterogeneity, limited regulatory framework, and methodological limitations of the published trials and meta-analyses.

#### EXTRAITS DE PLANTE

Les effets des extraits de plante sur les SBAU sont modestes mais significatifs et ils ont un excellent profil de tolérance qui les rend faciles d'utilisation [30,31](niveau de preuve 2).

Il existe des études contradictoires et des écueils méthodologiques dans la littérature disponible. [32](niveau de preuve 1). L'association de la phytothérapie avec un autre traitement n'a jamais été étudiée.

#### Recommandation 7

- Les extraits de plante peuvent être proposés aux patients présentant une HBP associée à une symptomatologie urinaire (Grade D).

## Pharmacological management

### Plant extracts - phytotherapy

Option thérapeutique	Indication préférentielle	
Traitement médicamenteux	Volume prostatique	Remarque
Alpha-bloquant	Tout volume	SBAU gênants Rétention aiguë d'urine
ISAR	> 40 mL	SBAU gênants
Alpha-bloquants et ISAR	> 40 mL	SBAU gênants
Alpha-bloquant anticholinergiques	et Tout volume	SBAU de la phase de remplissage prédominants ou persistants après alpha-bloquant seul
IPDE5 ± alpha-bloquant	Tout volume	Dysfonction érectile et SBAU
Phytothérapie	Tout volume	SBAU peu gênants et effets indésirables des autres classes thérapeutiques non acceptés

# Guidelines On Benign Prostatic Hyperplasia

## Pharmacological management

### Vasopressin analogue - desmopressin

Recommendation	LE	GR
Vasopressin analogue can be used for the treatment of nocturia due to nocturnal polyuria.	1b	A

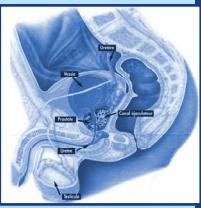
### Combination therapies

Recommendation	LE	GR
Combination treatment with an $\alpha_1$ -blocker together with a 5 $\alpha$ -reductase inhibitor can be offered to men with troublesome moderate-to-severe LUTS, enlarged prostate and reduced $Q_{max}$ (men likely to develop disease progression).	1b	A

$Q_{max}$  = maximum urinary flow rate.

Recommendations	LE	GR
Combination treatment with an $\alpha_1$ -blocker together with a muscarinic receptor antagonist may be used in patients with troublesome moderate-to-severe LUTS if relief of storage symptoms has been insufficient with monotherapy with either drug.	1b	B
Combination treatment should be prescribed with caution in men who may have BOO.	2b	B

BOO = bladder outlet obstruction; LUTS = lower urinary tract symptoms.



## Traitement médical

### Combination therapies !

$\alpha$ -blocker + with 5 $\alpha$ -reductase inhibitor

Combination treatment with  $\alpha$ -blocker together with 5 $\alpha$ -reductase inhibitor should be offered to men with moderate to severe LUTS, enlarged prostates, and reduced Qmax (men likely to develop disease progression). Combination treatment is not recommended for short-term therapy (< 1 year). **EAU 2011**

the addition of a 5 alpha-reductase inhibitor to an alpha blocker significantly

reduced the long-term risk of acute urinary retention and the need

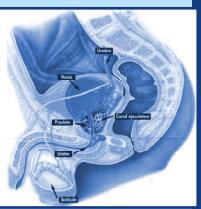
for BPH-related surgery **AUA 2003**

**JALYN** (GSK FDA2010): Dutasteride 0.5 + Tamsulosin 0.4

$\alpha$ -blockers + muscarinic receptor antagonists

Combination treatment with  $\alpha$ -blocker and muscarinic receptor antagonist might be considered in patients with moderate to severe LUTS if symptom relief has been insufficient with the monotherapy of either drug.

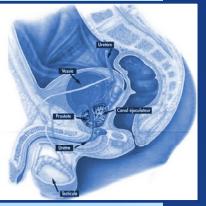




## prise en charge complète

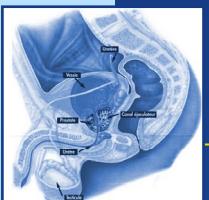


**Le traitement et la prise en charge de l'HBP est aussi un problème de couple: répercussions sur la sexualité, problèmes d'éjaculation, libido ...**



## *Traitement chirurgical*





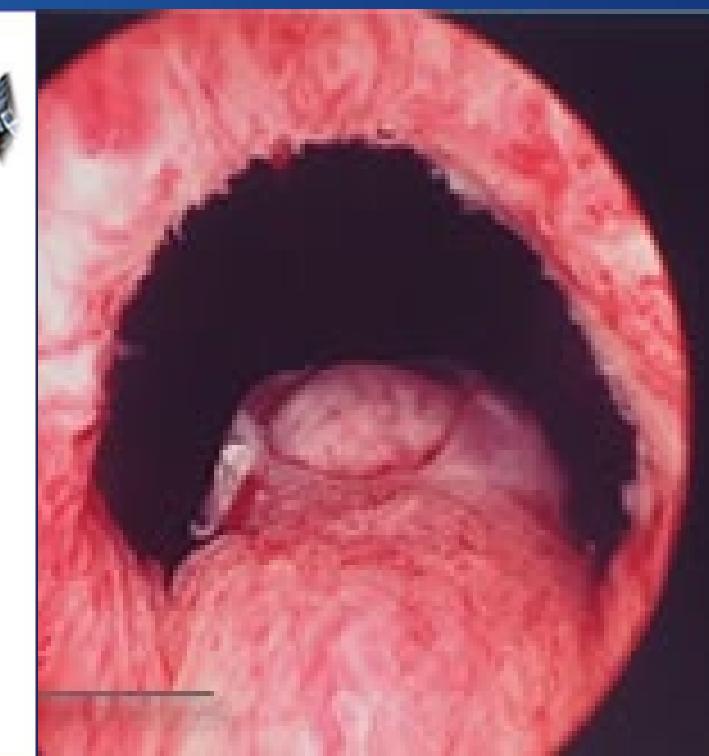
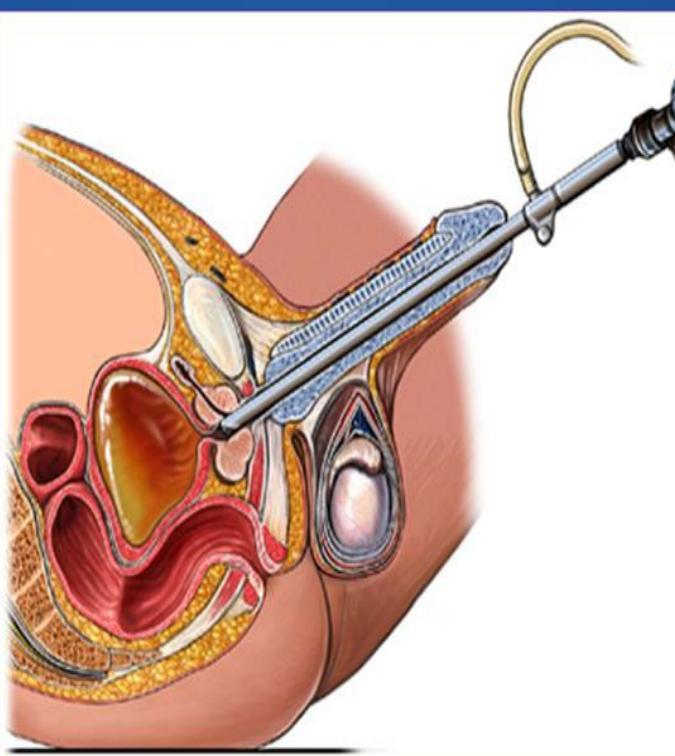
# Traitement chirurgical

*methodes*

**Chirurgie classique par voie ouverte**

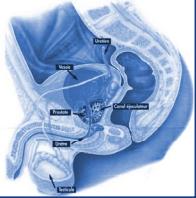


**Resection endoscopique**



**Autre :photovaporisation laser,Trts mini-invasifs (HIFU,TUNA ,TUMT)**





## Traitement

*Le traitement est envisagé selon la symptomatologie et la gêne du patient*

■ Surveillance/abstention/ hygiène de vie



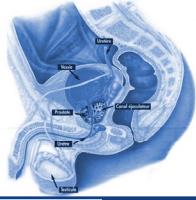
Symptômes  
minimes

■ Traitement médical



Symptômes  
modérés





## Traitement

*Le traitement est envisagé  
selon la symptomatologie et la gêne du patient*

### ■ Chirurgie

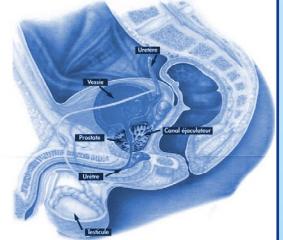


**Symptômes  
sévères et ou  
complications**

### Recommendation:AUA 2010

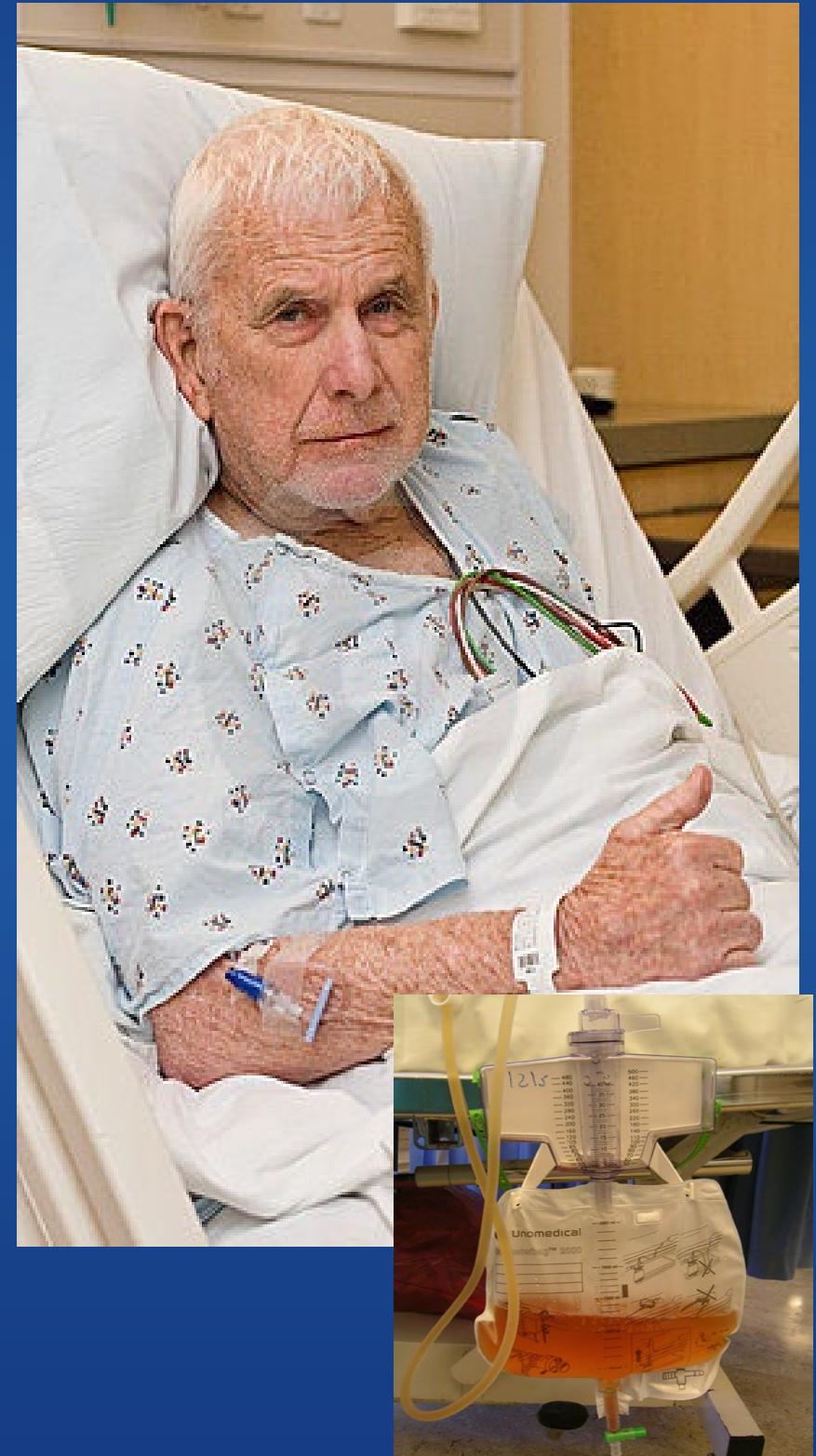
- Renal insufficiency secondary to BPH
  - Recurrent UTIs
  - Bladder stones or gross hematuria
  - LUTS refractory to other therapies.
  - The presence of a bladder diverticulum is not an absolute indication for surgery unless associated with recurrent UTI or progressive bladder dysfunction.
- ✓ Acute urinary retention !

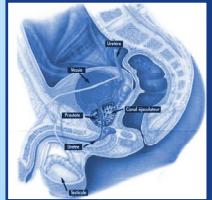




## La Seule alternative!

« la jeunesse est le temps d'étudier  
la sagesse , la vieillesse est le  
temps de la pratiquer » JJR



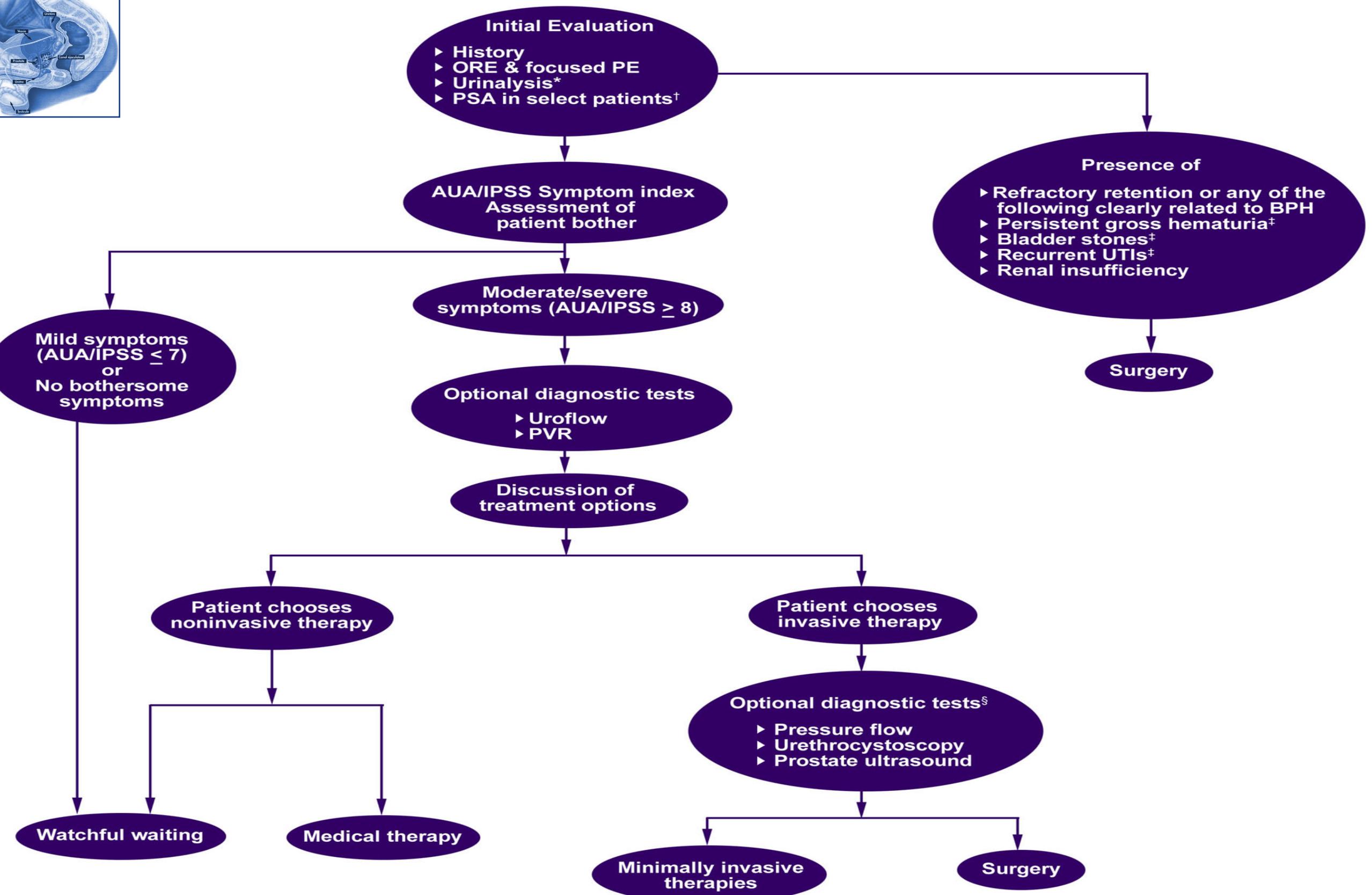
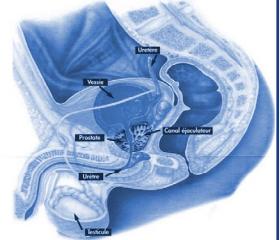


# Surveillance a long terme indispensable

Toucher rectal+Psa !?

En fin libre ..  
peut être je vais me  
re....





\*In patients with clinically significant prostatic bleeding, a course of a 5 alpha-reductase inhibitor may be used. If bleeding persists, tissue ablative surgery is indicated.

†Patients with at least a 10-year life expectancy for whom knowledge of the presence of prostate cancer would change management or patients for whom the PSA measurement may change the management of voiding symptoms.

‡After exhausting other therapeutic options as discussed in detail in the text.

§Some diagnostic tests are used in predicting response to therapy. Pressure-flow studies are most useful in men prior to surgery.

AUA, American Urological Association; DRE, digital rectal exam; IPSS, International Prostate Symptom Score; PE, physical exam; PSA, prostate-specific antigen; PVR, postvoid residual urine; UTI, urinary tract Infection.