
PATOLOGIA DO CÂNCER DE PRÓSTATA

Quais as informações críticas para o manejo do paciente ?

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Roteiro – Indicadores prognósticos atuais

- 1) Estadiamento (incluindo AJCC 2018)
- 2) Carcinoma intraductal da próstata
- 3) Invasão vascular
- 4) Invasão perineural
- 5) Graduação do adenocarcinoma prostático (incluindo ISUP)
- 6) Biomarcadores prognósticos



1)Estadiamento – Extensão tumoral

Extensão tumoral , incluindo o estadiamento é um dos fatores preditivos mais importantes do desfecho clínico do paciente

Prostate Cancer – Major Changes in the American Joint Committee on Cancer Eighth Edition Cancer Staging Manual

Mark K. Buyyounouski, MD, MS¹; Peter L. Choyke, MD, FACR²; Jesse K. McKenney, MD³; Oliver Sartor, MD⁴; Howard M. Sandler, MD, MS, FASTRO⁵; Mahul B. Amin, MD⁶; Michael W. Kattan, MBA, PhD⁷; Daniel W. Lin, MD⁸

TABLE 1. Summary of Changes Between the Seventh and Eighth Editions

CHANGE	DETAILS OF CHANGE
Definition of primary tumor (T)	Pathologically organ-confined disease is considered pT2 and no longer subclassified by extent of involvement or laterality.
Histologic grade (G)	The Gleason score (seventh edition criteria) and the grade group (eighth edition criteria) should both be reported.
AJCC prognostic stage groups	Stage III includes select, organ-confined disease based on prostate-specific antigen and Gleason/grade group status.
Statistical prediction models	Those statistical prediction models that satisfy all necessary criteria are included in the staging manual.

Abbreviation: AJCC indicates American Joint Committee on Cancer.

CA CANCER J CLIN 2017;00:00-00

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TABLE 2. Prognostic Models for Prostate Cancer

APPROVED PROGNOSTIC TOOL	WEB ADDRESS	FACTORS INCLUDED IN THE MODEL
Metastatic castration-resistant prostate cancer (Halabi 2014 ⁶)	cancer.duke.edu/ Nomogram/firstlinechemotherapy.html	ECOG performance status, site of metastases, PSA, hemoglobin, albumin, alkaline phosphatase, LDH > 1 ULN, opioid analgesic use
Metastatic castration-resistant prostate cancer treated with second-line chemotherapy (Halabi 2013 ⁵)	cancer.duke.edu/ Nomogram/secondlinechemotherapy.html	ECOG performance status, visceral disease, progression on docetaxel, duration on hormone, measurable disease, pain, PSA, hemoglobin, alkaline phosphatase

Abbreviations: ECOG indicates Eastern Cooperative Oncology Group; LDH, lactate dehydrogenase; PSA, prostate-specific antigen; ULN, upper limit of normal.

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TABLE 4. American Joint Committee on Cancer Prognostic Stage Grouping^a

WHEN T IS...	AND N IS...	AND M IS...	AND PSA IS...	AND GRADE GROUP IS...	THEN THE STAGE GROUP IS...
cT1a-c, cT2a	N0	M0	<10 ng/mL	1	I
pT2	N0	M0	<10 ng/mL	1	I
cT1a-c, cT2a	N0	M0	≥10, <20 ng/mL	1	IIA
pT2	N0	M0	≥10, <20 ng/mL	1	IIA
cT2b-c	N0	M0	<20 ng/mL	1	IIA
T1-2	N0	M0	<20 ng/mL	2	IIB
T1-2	N0	M0	<20 ng/mL	3	IIC
T1-2	N0	M0	<20 ng/mL	4	IIC
T1-2	N0	M0	≥20 ng/mL	1-4	IIIA
T3-4	N0	M0	Any	1-4	IIIB
Any T	N0	M0	Any	5	IIIC
Any T	N1	M0	Any	Any	IVA
Any T	Any	M1	Any	Any	IVB

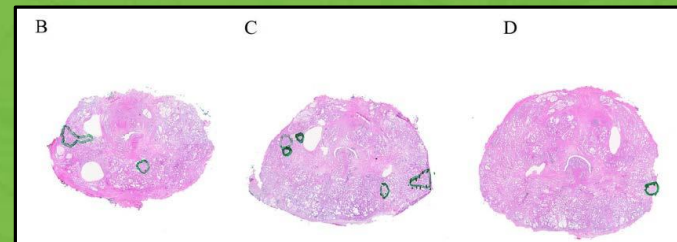
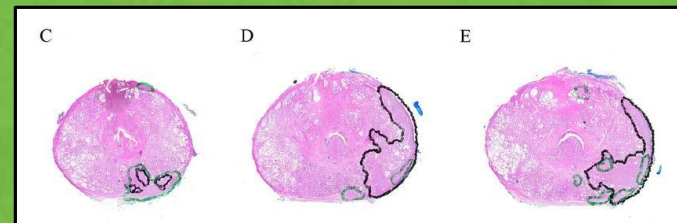
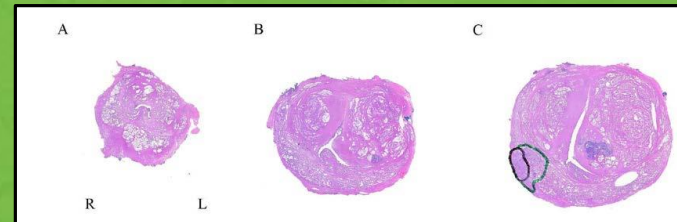
Abbreviation: PSA indicates prostate-specific antigen. ^aNote that, when either PSA or grade group is not available, grouping should be determined by T category and/or either PSA or grade group, as available.

00-00

Estadiamento

Organ-confined disease

- 1992: pT2a, b, c
- 1997: pT2a, b
- 2002: pT2a, b, c
- 2010: pT2a, b, c



Evidence to change pT2 classification

- Substaging does not convey prognostic information
- Correlation between cT & pT substaging poor
- Unilateral large tumor would be assigned lower pT stage than 2 small b/l cancers
- Poor reproducibility: <1/2 v. >1/2 lobe

International Society of Urological Pathology (ISUP) Consensus Conference on Handling and Staging of Radical Prostatectomy Specimens. Working group 2: T2 substaging and prostate cancer volume

Theo H van der Kwast¹, Mahul B Amin², Athanase Billis³, Jonathan I Epstein⁴, David Griffiths⁵, Peter A Humphrey⁶, Rodolfo Montironi⁷, Thomas M Wheeler⁸, John R Srigley⁹, Lars Egevad¹⁰, Brett Delahunt¹¹ and the ISUP Prostate Cancer Group*

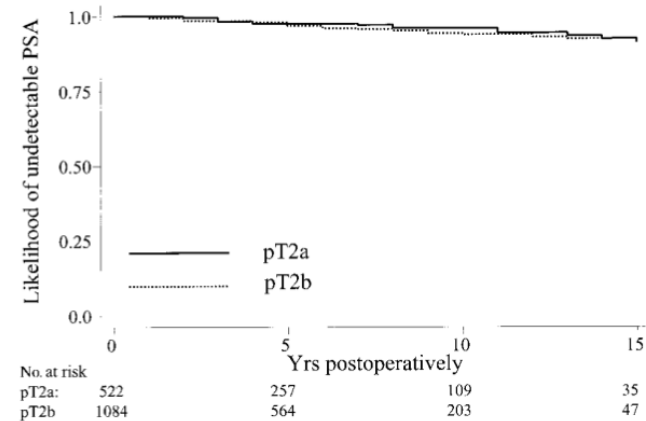
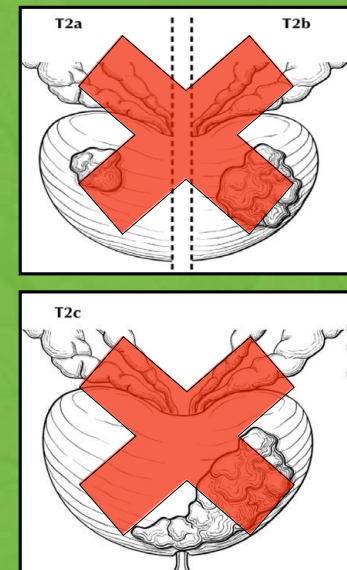


FIGURE 1. Fifteen-year actuarial Kaplan-Meier prostate-specific antigen (PSA) recurrence-free survival curves according to pathologic stage (log-rank test: $P = 0.755$).

Stephenson et al. *Cancer* 2004;100:1646-1649

Summary of Changes #1: Definition of Primary Tumor

- **Pathologically organ-confined** disease is considered **pT2** and no longer sub-classified by extent of involvement or laterality (III)



1) Estadiamento – *Volume tumoral*

Biópsias por agulha :

- Quantificação do volume tumoral:
- N de cilindros positivos para câncer/ N total de cilindros
- Extensão linear da neoplasia e/ou proporção do tecido prostático envolvido por carcinoma

1) Estadiamento - *Volume tumoral*

- A quantidade de tumor presente na biópsia por agulha mostra correlação significativa com o **estadiamento patológico e *status* das margens cirúrgicas**
- Também mostra correlação significativa **com sobrevida livre de recorrência bioquímica** após o tratamento com prostatectomia radical e radioterapia

1) Estadiamento - *Volume tumoral*

Prostatectomias radicais

- Identificação da quantidade de tumor no espécime
- Estudos recentes mostram que volume total do tumor, volume da lesão index/dominante e do nódulo com grau maior são fatores preditores de desfecho clínico
- Volume tumoral total pode ser um fator independente de prognóstico em pacientes de alto risco , incluindo aqueles com score de Gleason alto

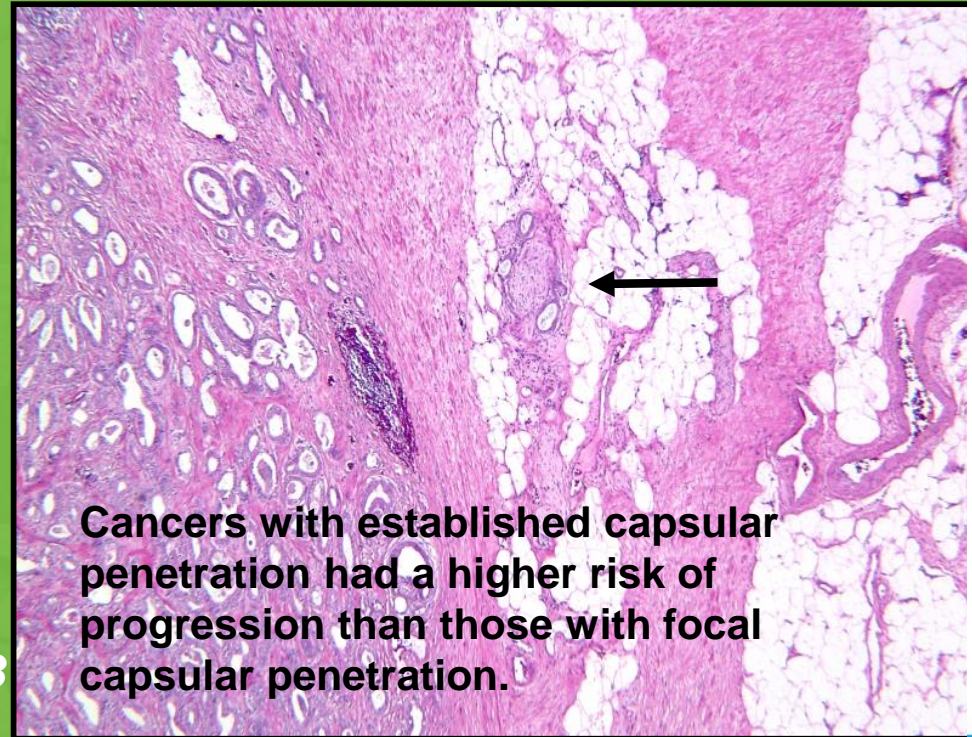
1) Estadiamento - *Extensão extra-prostática (pT3a)*

- Fator prognóstico bem estabelecido (AJCC)
- Definido pela neoplasia encontrada em tecido adiposo extra-prostático
- No colo vesical o envolvimento do músculo detrusor também indica extensão extra-prostática (pT3a)

1) Estadiamento - *Extensão extra-prostática (pT3a)*

EPE QUANTIFICATION

- **Focal** defined as “only a few neoplastic glands”
- **Established** as “more extensive penetration”
- Biochemical Disease Free Survival: 82% vs 65%



Cancers with established capsular penetration had a higher risk of progression than those with focal capsular penetration.

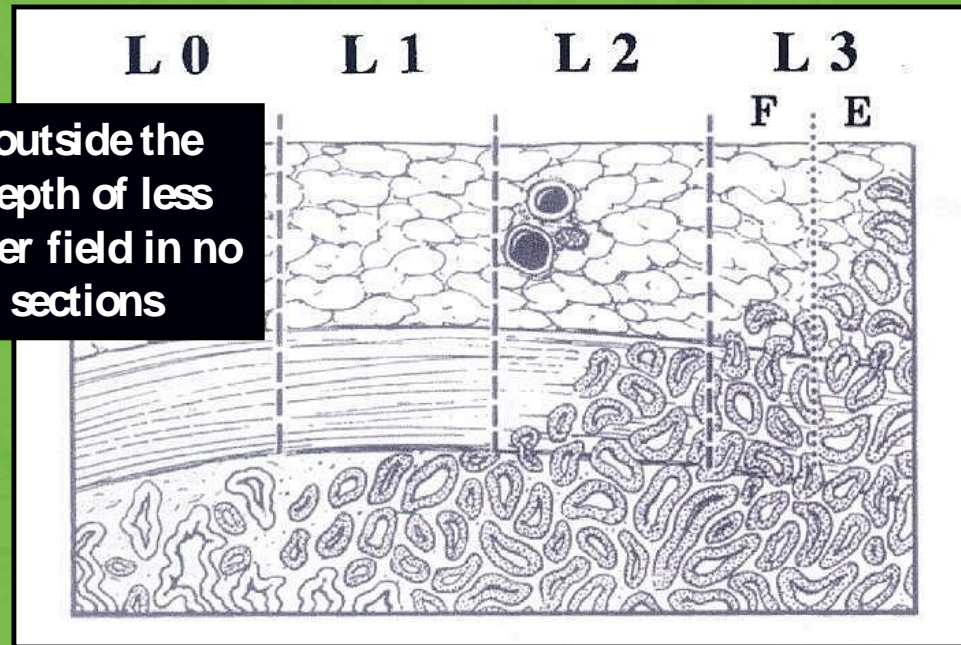
Epstein et al. J Urol 150:135-141,1993



1) Estadiamento - *Extensão extra-prostática (pT3a)*

EXTRA-PROSTATIC EXTENSION

Focal: tumor outside the prostate to a depth of less than 1 high power field in no more than 2 sections



Wheeler et al. Hum Pathol 29:856-862, 1998

73% x 42%

PROSTATE CANCER REPORTING

MOVING INFORMATION

USCAP

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#USCAP2017



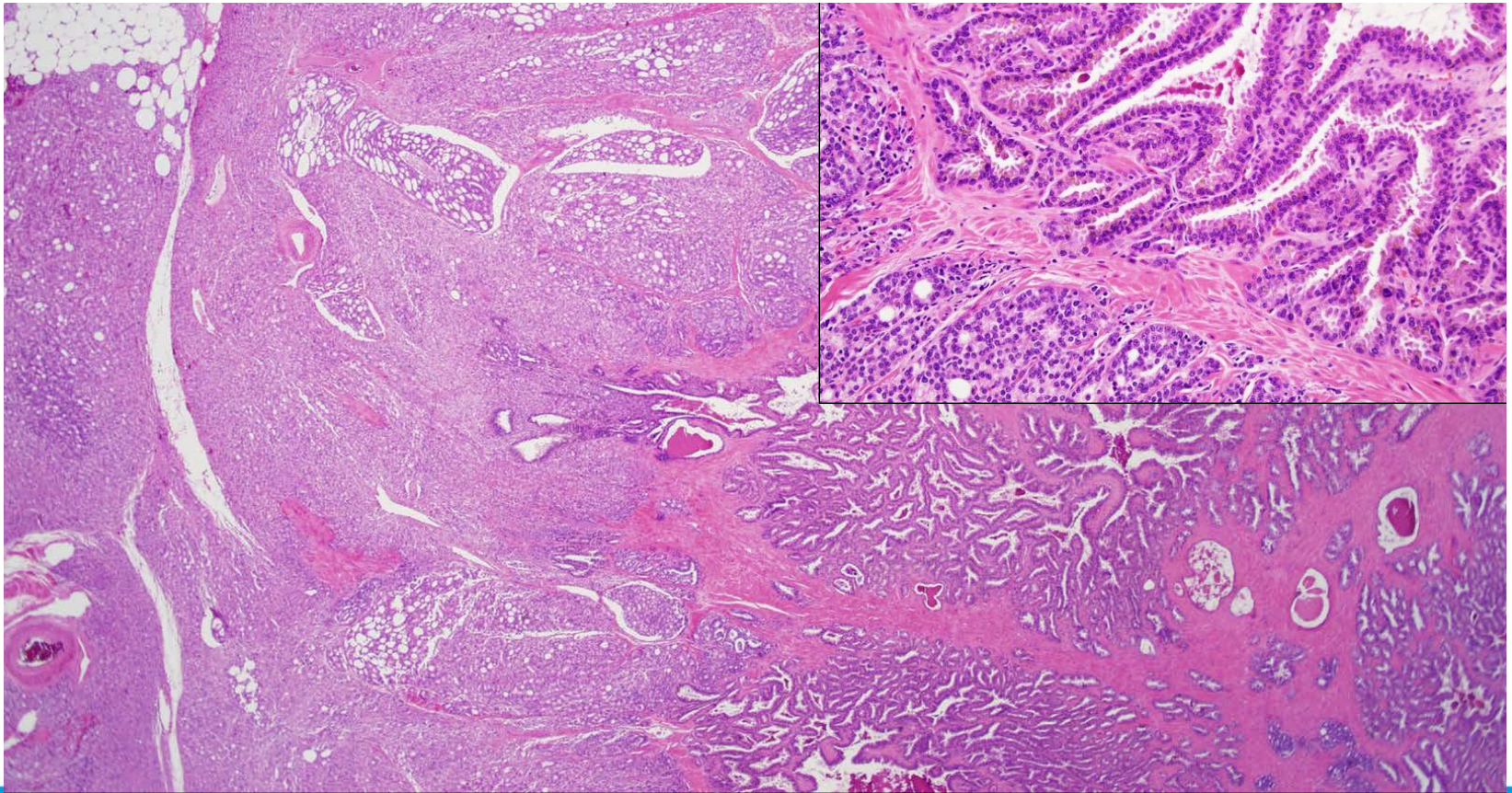
ALBERT EINSTEIN
MEDICINA DIAGNÓSTICA

1) Estadiamento – *Invasão de vesícula seminal (pT3b)*

- **Tumor infiltrando a muscular da VS**
- Envolvimento linfovascular sozinho não indica pT3b
- Não inclui envolvimento de VS intra-prostática e de ducto ejaculatório
- **Neoplasia infiltrando VS extra prostática tem uma influência significativa no desfecho clínico**



1) Estadiamento – *Invasão de vesícula seminal (pT3b)*

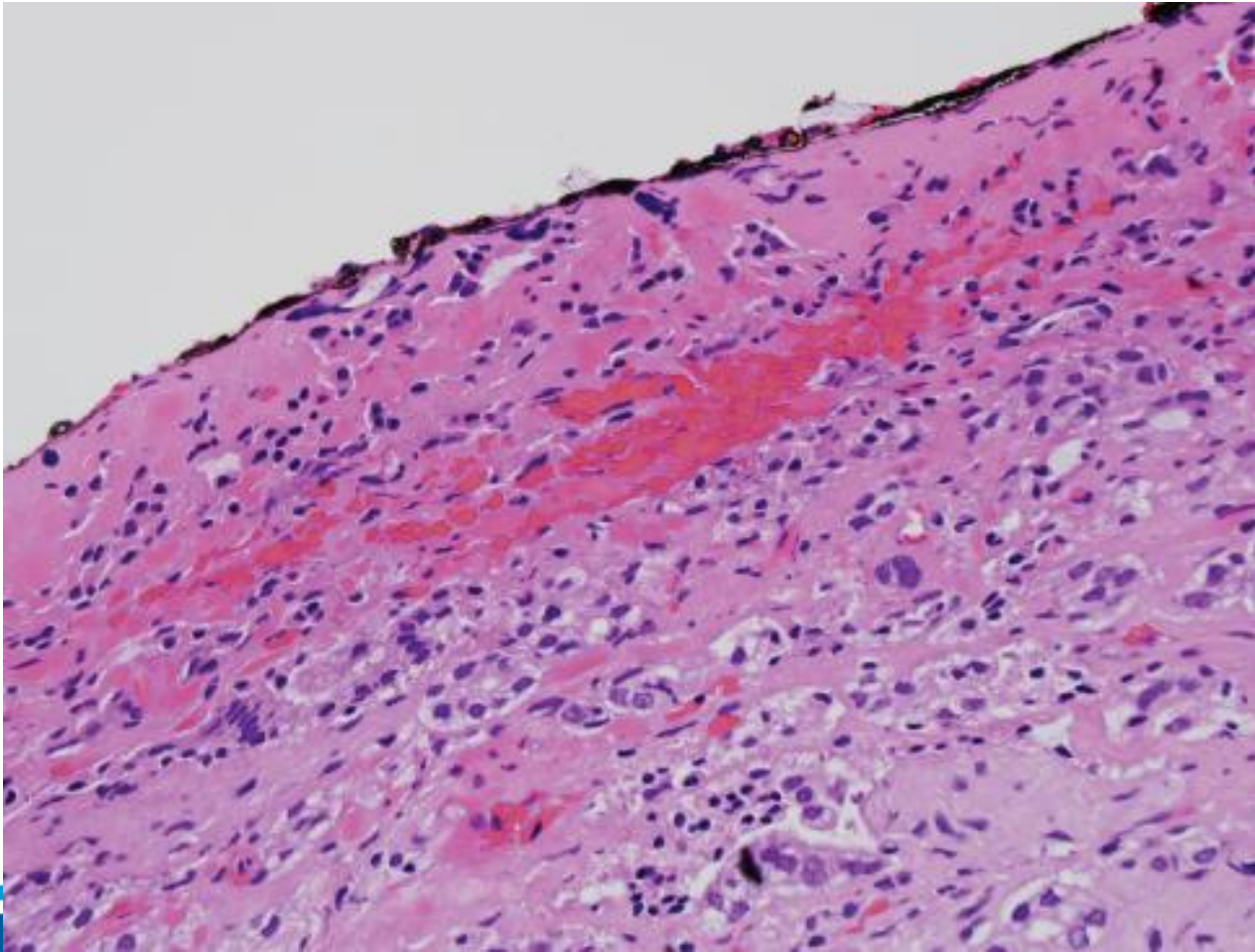


1) Estadiamento - *Linfonodos pélvicos*

- Metástases linfonodais pélvicas estão associadas com adenocarcinomas de alto grau e com estadiamento alto - **impacto negativo significativo na sobrevida**
- Numerosos linfonodos positivos estão associados com aumento do risco de recorrência bioquímica

Fatores prognósticos

Margens



Fatores prognósticos

Margens

Margem positiva: fator prognóstico adverso, preditor de recorrência bioquímica após prostatectomia radical

Aumento no risco de mortalidade por câncer de próstata após PR é discutível

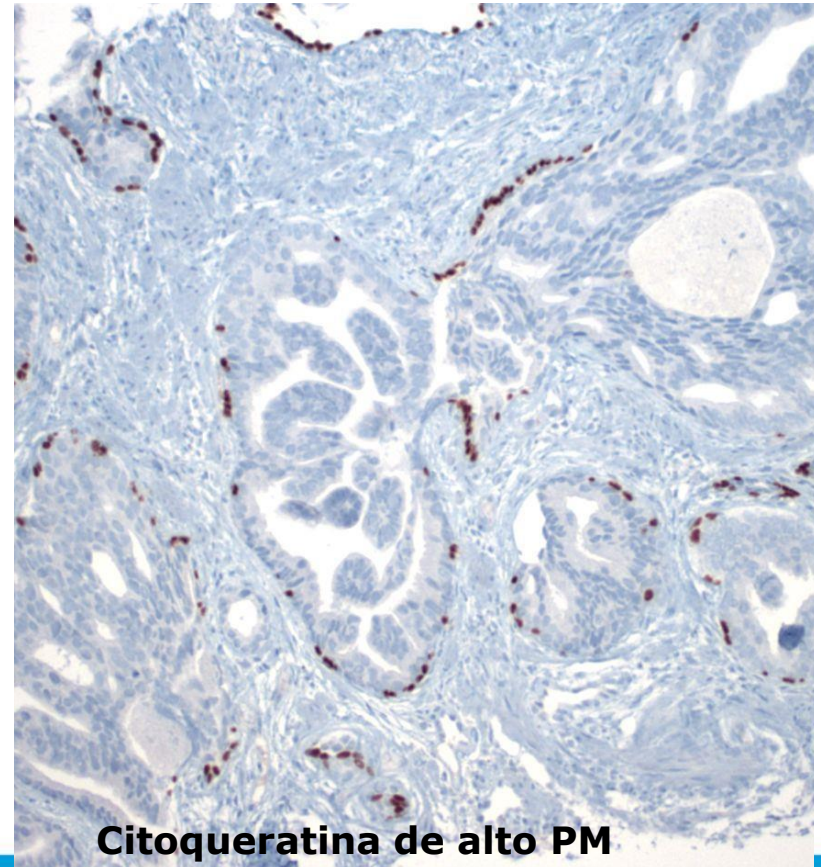
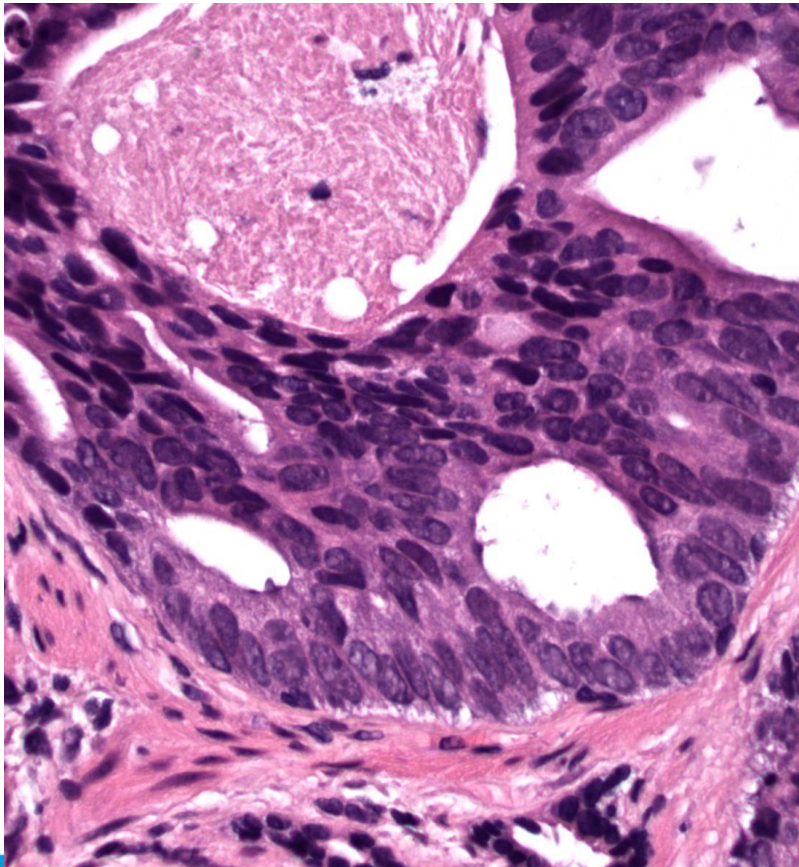
Devem estar presentes no laudo:

- Localização da margem positiva
- Indicação de extensão (medida em mm)
- Grau/score de Gleason na área
- Se a margem positiva é incisional ou numa área de EPE

2) Carcinoma intraductal da próstata

- Na maioria dos casos representa a disseminação intraductal de um carcinoma prostático agressivo
- Deve ser separado do PIN de alto grau
- **Definição:** proliferação epitelial neoplásica intraductal ou intra-acinar que tem algumas características semelhantes ao PIN de alto grau mas exhibe uma atipia arquitetural e/ou citológica muito maior

2) Carcinoma intraductal



Citoqueratina de alto PM



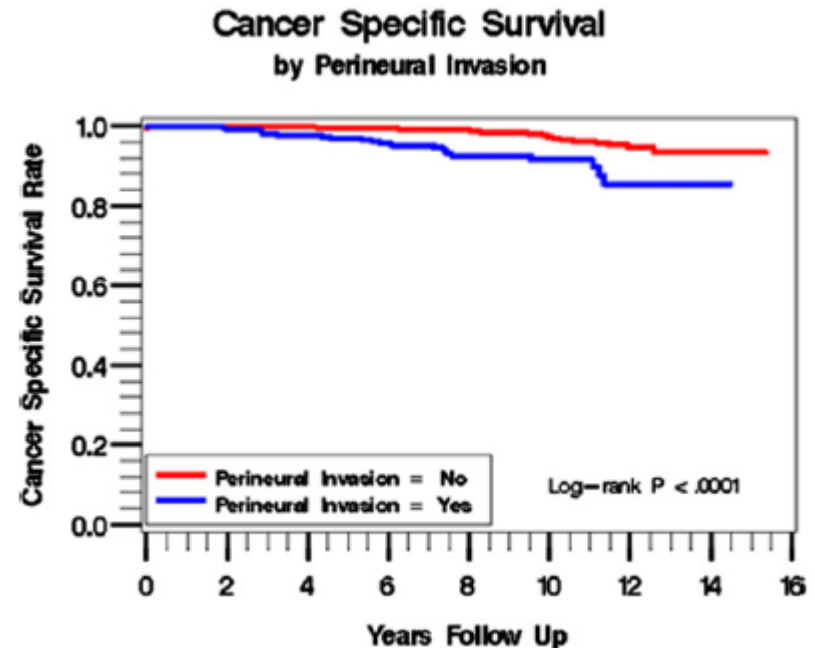
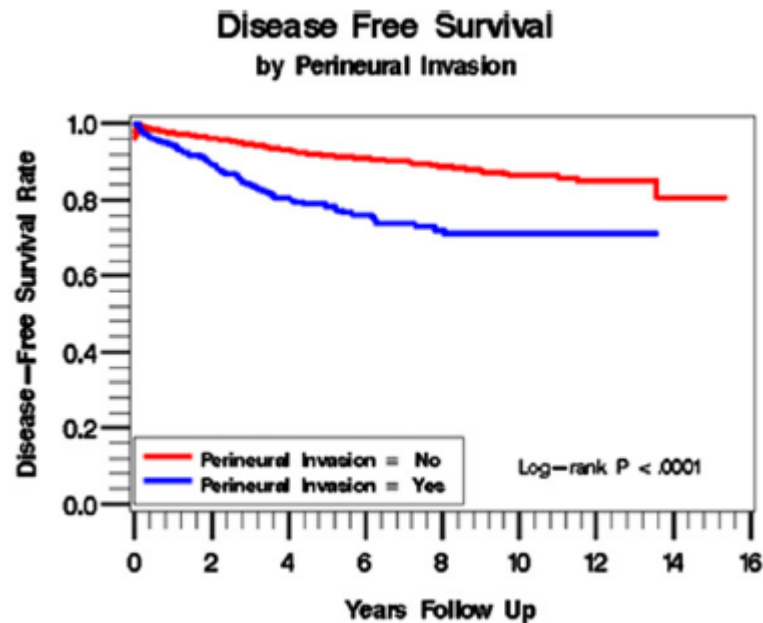
2) Carcinoma intraductal

- Carcinoma intraductal de próstata está associado a achados adversos na prostatectomia radical: **score de Gleason alto, estadio avançado e grande volume tumoral**
- Em biópsias está associado a carcinoma com score de Gleason alto e a parâmetros prognósticos ruins na prostatectomia radical
- **Fator preditor independente de desfecho clínico**

3) Invasão perineural

- Invasão perineural se correlaciona com estadiamento patológico da prostatectomia radical , e é um fator independente associado ao prognóstico (em algumas, mas não em todas as séries)

3) Invasão perineural



UROLOGY 81 (2), 2013

3) Invasão perineural

Perineural invasion as an independent predictor of biochemical recurrence in prostate cancer following radical prostatectomy or radiotherapy: a systematic review and meta-analysis

Li-jin Zhang^{1*}, Bin Wu¹, Zhen-lei Zha^{1†}, Wei Qu^{2†}, Hu Zhao^{1†}, Jun Yuan¹ and Ye-jun Feng¹

BMC Urology

Conclusions: This study suggests that the presence of PNI by histopathology is associated with higher risk of BCR in PCa following RP or RT, and could serve as an independent prognostic factor in patients with PCa.



3) Invasão perineural

The prognostic significance of perineural invasion and race in men considering active surveillance

Joshua A. Cohn, Pankaj P. Dangle, Chihsiung E. Wang*, Charles B. Brendler†, Kristian R. Novakovic†, Michael S. McGuire† and Brian T. Helfand†

**BJU Int 114:
75-80,2014**

Baseline Perineural Invasion is Associated with Shorter Time to Progression in Men with Prostate Cancer Undergoing Active Surveillance: Results from the REDEEM Study

Daniel M. Moreira,* Neil E. Fleshnert† and Stephen J. Freedland

**J Urol 194:
1258-
1263,2015**

3) Invasão perineural

Biopsy Perineural Invasion in Prostate Cancer Patients Who Are Candidates for Active Surveillance by Strict and Expanded Criteria

Robert M. Turner II, Todd S. Yecies, Jonathan G. Yabes, Benjamin T. Ristau, Elen Woldemichael, Benjamin J. Davies, Bruce L. Jacobs, and Joel B. Nelson

CONCLUSION

Biopsy PNI was rare in patients who met strict criteria for AS. Among those men who met expanded criteria, PNI was associated with adverse pathologic findings upon prostatectomy. The presence of biopsy PNI may have a role in further risk stratifying patients who meet expanded criteria for AS. UROLOGY 102: 173–177, 2017. © 2016 Elsevier Inc.



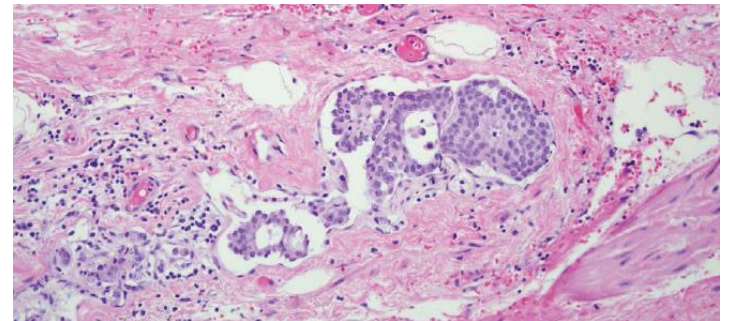
4) Invasão vascular

Achado em cerca de 5-53% das PRs

Assim como outras características patológicas adversas identificadas na PR (alto grau de Gleason, margens positivas, extensão extraprostática e invasão da vesícula seminal) a IV pode estar associada à diminuição do tempo de:

- Recorrência bioquímica
- Metástases à distância
- Sobrevida após PR

- *Sempre relatar no laudo*



Prognostic significance of lymphovascular invasion in radical prostatectomy specimens

Jonathan Ng, Aamer Mahmud*, Brenda Bass[†] and Michael Brundage[‡]

*Department of Family Medicine, *Department of Oncology, [†]Division of Cancer Care & Epidemiology and [‡]Departments of Oncology and Community Health & Epidemiology, Queen's University, Kingston, Ontario, ON, Canada*

CONCLUSIONS

- The existing literature is conflicting and of insufficient homogeneity to definitively establish LVI as an important independent prognostic factor of biochemical recurrence in prostate cancer prostatectomy specimens.



5) Graduação do adenocarcinoma de próstata

- Modificações recentes do score de Gleason foram incorporadas na OMS 2016
- Reportar a % dos padrões 4 e 5 nos score ≥ 7
- Recomendação de utilizar a Graduação ISUP junto com o Gleason

Gleason – score original

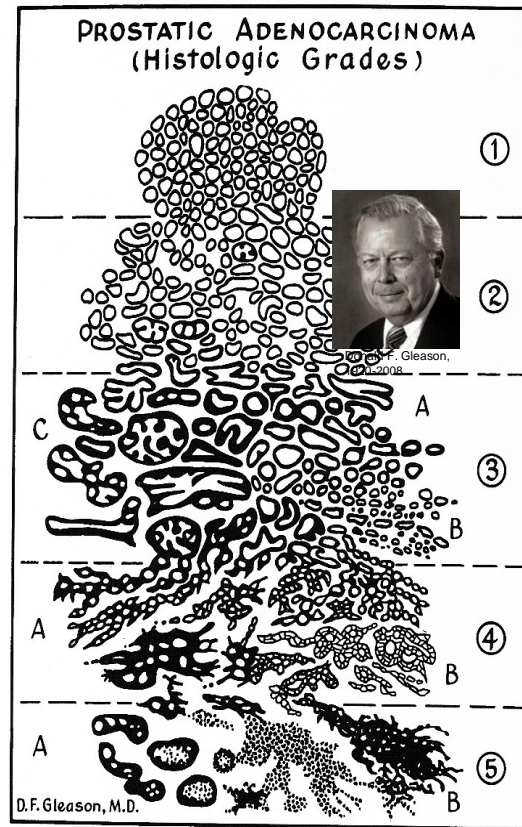
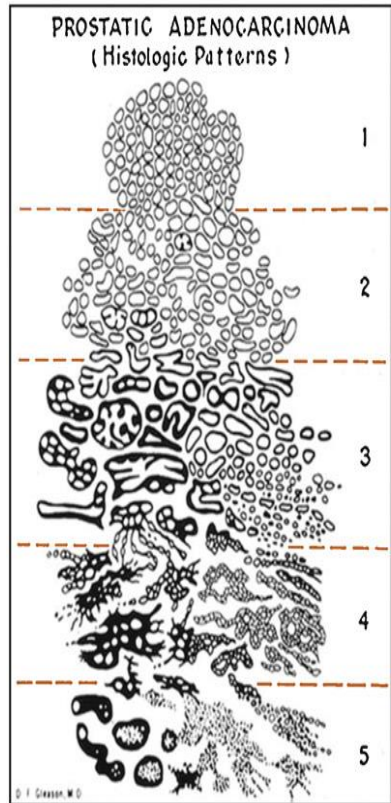


Figure 11-1. Histologic patterns of prostatic adenocarcinoma. Standardized drawing for Gleason grading system. (From Gleason DF: Classification of prostatic carcinoma. Cancer Chemother Rev 50:125-128, 1966.)

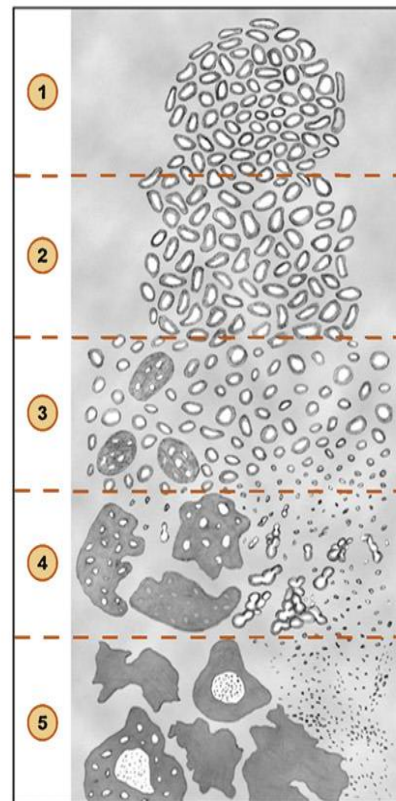
Modificações do Gleason

Original Gleason



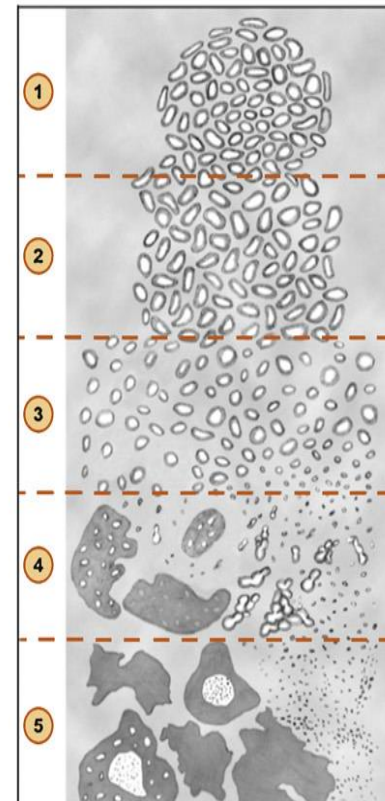
Hum Pathol 23;273-79, 1992

ISUP 2005 Gleason



Am J Surg Pathol 29;1228-42, 2005

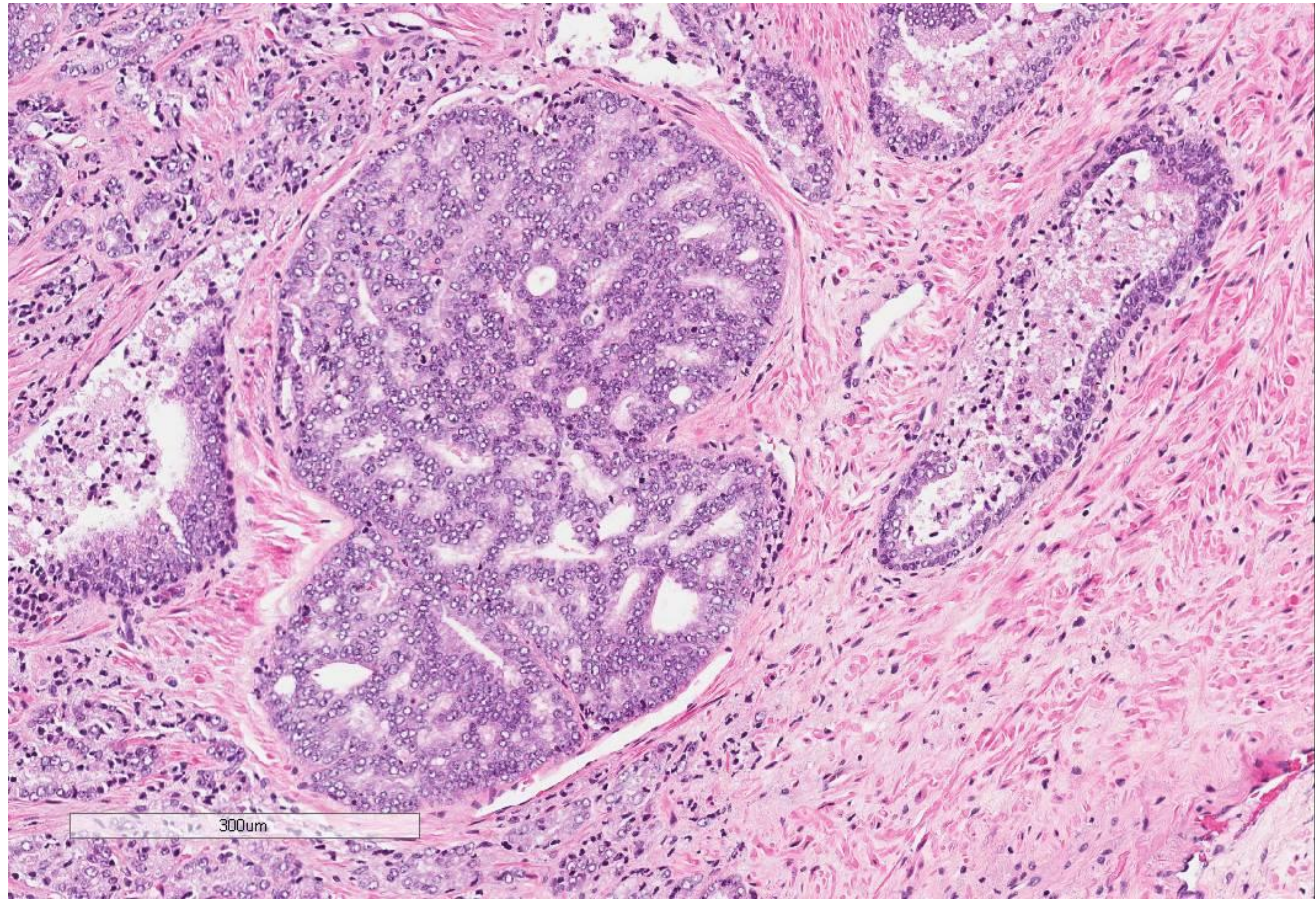
Gleason with proposed refinements
and modifications to ISUP 2005



J Urol 183;433-40, 2010



Gleason padrão 4 (cribriforme)



Graduação do câncer de próstata

Sistema ISUP

Problemas com o sistema Gleason:

- 1) Scores 2-5 na prática não são mais laudados, e certos padrões que Gleason originalmente definiu como score 6 são atualmente graduados como 7 – portanto as neoplasias laudadas atualmente como Gleason 6 têm um melhor prognóstico que as de antigamente

Gradação do câncer de próstata

Sistema ISUP

Problemas com o sistema Gleason:

- 2) A combinação do score de Gleason em 3 grupos (6,7,8-10) é usado mais frequentemente para propostas prognósticas e terapêuticas, apesar $3+4=7$ vs. $4+3=7$ e 8 vs. $9-10$ possuírem prognósticos muito diferentes



Gradação do câncer de próstata

Novo sistema

Problemas com o sistema Gleason:

3) Na prática o menor score laudado é 6, apesar da escala ir de 2-10.

Isso leva a assunção lógica mas incorreta pelos pacientes de que estão no meio de uma escala.

Junta-se ao medo do diagnóstico a crença que a doença é mais séria levando a uma expectativa de que um tratamento é necessário

Gradação do câncer de próstata

Sistema ISUP

- Na tentativa de minimizar estas deficiências a ISUP propôs um sistema de 5 grupos de grau, desenvolvido com base em um estudo de >20,000 carcinomas de próstata tratados com prostatectomia radical e >5,000 casos tratados com radioterapia



Gradação do câncer de próstata

Sistema ISUP

Table 3.03

Grade group 1: Gleason score ≤ 6

Only individual discrete well-formed glands

Grade group 2: Gleason score $3+4=7$

Predominantly well-formed glands with lesser component of poorly formed / fused / cribriform glands

Grade group 3: Gleason score $4+3=7$

Predominantly poorly formed / fused / cribriform glands with lesser component of well-formed glands

Grade group 4: Gleason score $4+4=8$; $3+5=8$; $5+3=8$

Only poorly formed / fused / cribriform glands

Predominantly well-formed glands and lesser component lacking glands

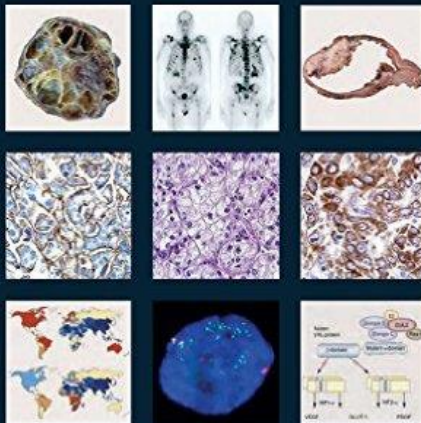
Predominantly lacking glands and lesser component of well-formed glands

Grade group 5: Gleason scores 9-10

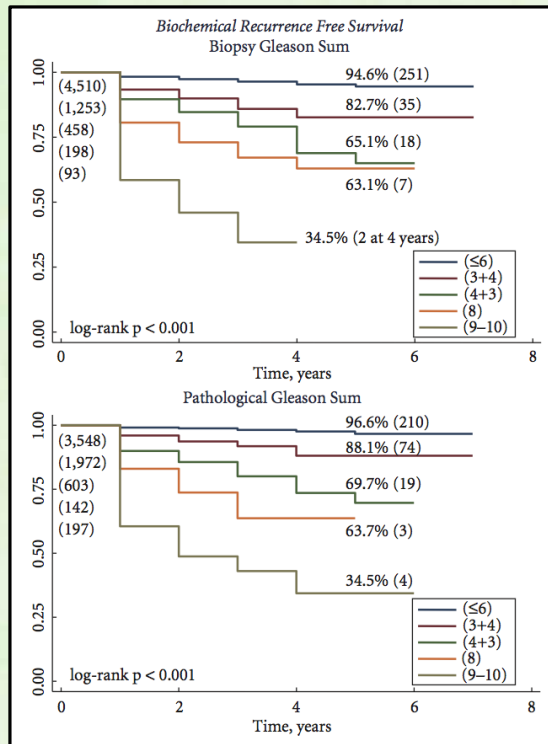
Lack gland formation (or with necrosis) with or without poorly formed / fused / cribriform glands

WHO Classification of Tumours of the Urinary System and Male Genital Organs

Edited by Holger Moch, Peter A. Humphrey, Thomas M. Ulbright, Victor E. Reuter



Gradação do câncer de próstata Sistema ISUP



PROGNOSTIC GRADE GROUPS

Biopsy Gleason score	RP Gleason score	p-value
3 + 4	2.19 (1.35–3.56)	0.002
4 + 3	5.38 (3.33–8.68)	<0.001
8	6.92 (3.99–11.98)	<0.001
9–10	10.27 (5.29–19.92)	<0.001

RP Gleason score	RP Gleason score	p-value
≤6 + Tertiary	1.05 (0.42–2.59)	0.917
3 + 4	2.81 (1.53–5.18)	0.001
3 + 4 + Tertiary	2.88 (1.26–6.61)	0.012
4 + 3	5.66 (3.02–10.59)	<0.001
4 + 3 + Tertiary	7.14 (3.75–13.61)	<0.001
8	10.31 (5.03–21.13)	<0.001
8 + Tertiary	7.70 (3.64–16.31)	<0.001
9–10	12.12 (6.40–22.97)	<0.001

BJU Int 2013; 111:753-760

Updates in TNM Staging of Prostate Cancer

MOVING INFORMATION

USCAP

#IAMUSCAP
#USCAP2017

Graduação do câncer de próstata

Sistema ISUP

- Estratificação de risco mais apurada
- Simplificação do grau em 5 grupos
- Menor grau é 1 (ao invés de Gleason 6), tendo o potencial de reduzir o tratamento do câncer de próstata indolente



6) Biomarcadores moleculares

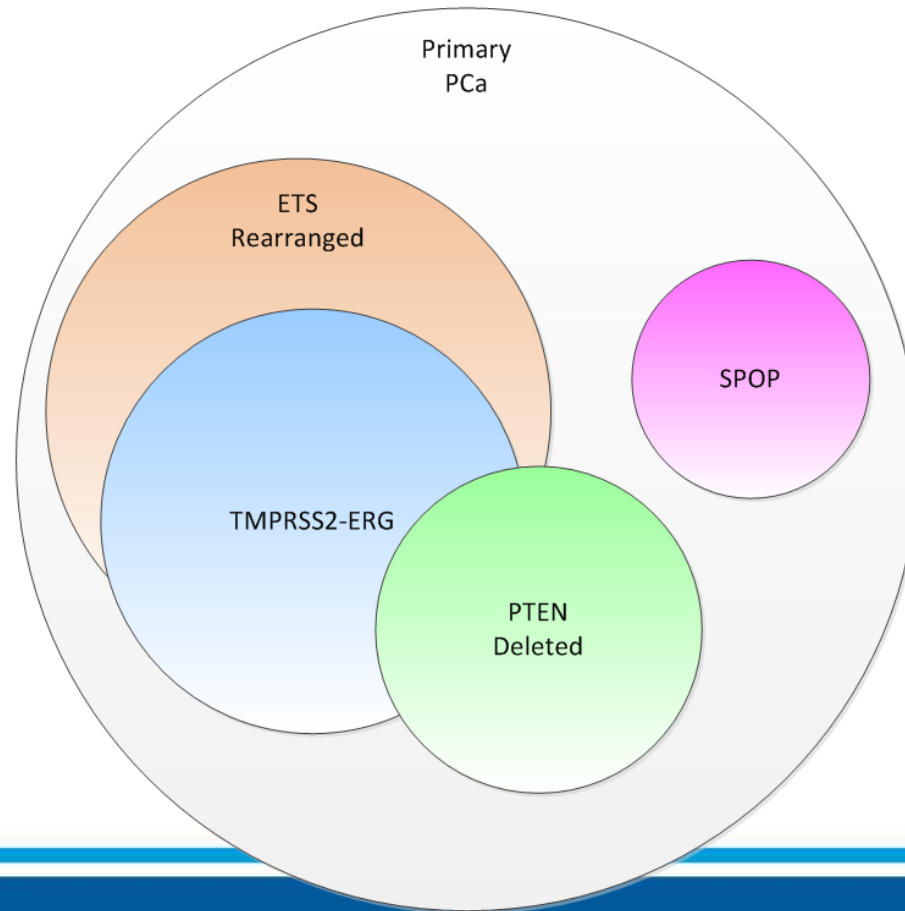
- Câncer de próstata apresenta uma grande heterogeneidade genética, responsável pelo comportamento clínico tão variável destas neoplasias
- Deleções e mutações inativantes no *PTEN* estão presentes em cerca de 50% dos carcinomas de próstata e são ainda mais comuns na doença avançada – *podem ter valor prognóstico*

6) Biomarcadores moleculares

- Fusões gênicas envolvendo membros da família de genes *ETS* ocorrem na maioria dos carcinomas de próstata, com a fusão *TMPRSS2-ERG* sendo a mais comum – *valor prognóstico?*
- Mutações no gene *SPOP* e *CHD1* são frequentes no câncer de próstata e geralmente ocorrem de forma associada (talvez representando um subgrupo de tumores)

Marcadores moleculares

See Barbieri et al



6) Biomarcadores moleculares

- Alterações no gene *AR* levam a um aumento da atividade deste gene, mas estas alterações são restritas ao câncer de próstata metastático resistente à castração e não estão presentes na doença clinicamente localizada
- Esses achados corroboram a hipótese de que alterações no gene *AR* não são responsáveis pela patogênese da doença, mas emergem mais tarde, Talvez como um mecanismo de resistência à terapia – *avaliação para predição de resposta anti-androgênica*



Biomarcadores prognósticos

- *Prolaris* (Myriad Genetics Inc.)
- *Oncotype DX* (Genomic Health)
- *Decipher* (Genome DX)

Prolaris

- 31 genes participantes do ciclo de progressão celular
- Estudo multicêntrico recente com 236 pacientes de baixo risco (NCCN) mostrou que o *score* pode realmente identificar pacientes candidatos a *active surveillance*

Prolaris

BJUI
BJU International

Prognostic utility of biopsy-derived cell cycle progression score in patients with National Comprehensive Cancer Network low-risk prostate cancer undergoing radical prostatectomy: implications for treatment guidance

Jeffrey J. Tosoian*¹, Meera R. Chappidi*¹, Jay T. Bishoff[†], Stephen J. Freedland^{‡§}, Julia Reid[¶], Michael Brawer[¶], Steven Stone[¶], Thorsten Schlomm*^{**} and Ashley E. Ross*

Conclusion

In a cohort of men with NCCN-defined low-risk PCa, the CCP score improved clinical risk stratification of men who were at increased risk of BCR, which suggests the CCP score could improve the assessment of candidacy for active surveillance and guide optimum treatment selection in these patients with otherwise similar clinical characteristics.

Prolaris

Prognostic value of an RNA expression signature derived from cell cycle proliferation genes in patients with prostate cancer: a retrospective study

Lancet Oncol 2011; 12: 245-55

Jack Cuzick^a, Gregory P Swanson^a, Gabrielle Fisher, Arthur R Brothman, Daniel M Berney, Julia E Reid, David Mesher, V O Speights, Elzbieta Stankiewicz, Christopher S Foster, Henrik Møller, Peter Scardino, Jorja D Warren, Jimmy Park, Adib Younus, Darl D Flake II, Susanne Wagner, Alexander Gutin, Jerry S Lanchbury, Steven Stone, on behalf of the Transatlantic Prostate Group

- mRNA Signature of 31 Cell Cycle Progression (CCP) genes, 21 housekeepers
- low density array profiling

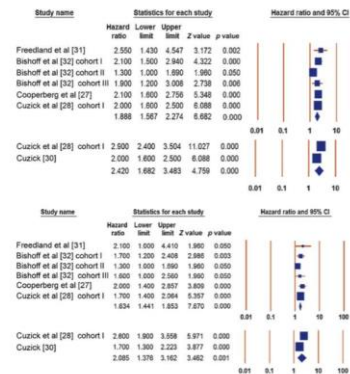
„The final signature consisted of 31 CCP genes (FOXM1, CDC20, CDKN3, CDC2, KIF11, KIAA0101, NUSAP1, CENPF, ASPM, BUB1B, RRM2, DLGAP5, BIRC5, KIF20A, PLK1, TOP2A, TK1, PBK, ASF1B, C18orf24, RAD54L, PTTG1, CDCA3, MCM10, PRC1, DTL, CEP55, RAD51, CENPM, CDCA8, and ORC6L).

These highly correlated genes were used to provide a robust and highly reproducible measurement of cell proliferation and were not intended to capture information related to other factors (eg, invasive potential).“

Prognostic Value of the Cell Cycle Progression Score in Patients with Prostate Cancer: A Systematic Review and Meta-analysis

Silvia Sommariva^{a,*}, Rosanna Tarricone^{a,b}, Massimo Lazzeri^c, Walter Ricciardi^d, Francesco Montorsi^c

Eur Urol (2015), <http://dx.doi.org/10.1016/j.eururo.2014.11.038>



The pooled hazard ratio for biochemical recurrence per 1-unit increase in the CCP score was 1.88 in a univariate model and 1.63 in a multivariate model.

Four studies showed that CCP testing can impact the decisions of physicians regarding treatment, and potentially lead to a decrease in surgical interventions for low-risk patients.

Fig 2 - Meta-analysis of univariate and multivariate models by endpoint biochemical recurrence (BCR) [27,28,30,31] and disease-specific mortality (DSM) [28,30] random-effects model. CI - confidence interval.

Decipher

- 22 marcadores
- Validação feita em vários estudos retrospectivos confirmando seu valor prognóstico em predizer mortalidade pelo câncer de próstata

Decipher

OPEN ACCESS Freely available online



Discovery and Validation of a Prostate Cancer Genomic Classifier that Predicts Early Metastasis Following Radical Prostatectomy

Nicholas Erho^{1,3}, Anamaria Crisan^{1,3}, Ismael A. Vergara¹, Anirban P. Mitra², Mercedeh Ghadessi¹, Christine Buerki¹, Eric J. Bergstralh³, Thomas Kollmeyer⁴, Stephanie Fink⁴, Zaid Haddad¹, Benedikt Zimmermann¹, Thomas Sierocinski¹, Karla V. Ballman³, Timothy J. Triche^{1,2}, Peter C. Black⁵, R. Jeffrey Karnes⁶, George Klee⁶, Elai Davicioni^{1†}, Robert B. Jenkins^{1†*}

Molecular Analysis of Low Grade Prostate Cancer Using a Genomic Classifier of Metastatic Potential

Eric A. Klein,^{*,†} María Santiago-Jiménez,[†] Kasra Yousefi,[†] Bruce A. Robbins, Edward M. Schaeffer,[†] Bruce J. Trock, Jeffrey Tosoian, Zaid Haddad,[†] Seong Ra, R. Jeffrey Karnes, Robert B. Jenkins, John C. Cheville, Robert B. Den, Adam P. Dicker, Elai Davicioni,[†] Stephen J. Freedland† and Ashley E. Rosst



Oncotype DX

A 17-gene Assay to Predict Prostate Cancer Aggressiveness in the Context of Gleason Grade Heterogeneity, Tumor Multifocality, and Biopsy Undersampling

Eric A. Klein^{a,y,*}, Matthew R. Cooperberg^{b,c,y}, Cristina Magi-Galluzzi^d, Jeffrey P. Smko^{b,e}, Sara M. Falzarano^d, Tara Maddala^f, June M. Chan^{b,c}, Janbo Li^f, Janet E. Cowan^b, Athanasios C. Tsiatis^f, Diana B. Cherbavaz^f, Robert J. Pelham^f, Imelda Tenggara-Hunter^b, Frederick L. Baehner^{e,f}, Dejan Knezevic^f, Phillip G. Febbo^f, Steven Shak^f, Michael W. Kattan^g, Mark Lee^f, Peter R. Carroll^{b,**}

Conclusions: Genes representing multiple biological pathways discriminate PCa aggressiveness in biopsy tissue despite tumor heterogeneity, multifocality, and limited sampling at time of biopsy. The biopsy-based 17-gene GPS improves prediction of the presence or absence of adverse pathology and may help men with PCa make more informed decisions between AS and immediate treatment.

Oncotype DX

- 12 genes relevantes para a progressão do câncer de próstata (células basais, resposta estromal , sinalização de andrógenos)
- Resultado expresso no **GPS** (*Genomic prostate score*)
- Prediz recidiva bioquímica e patologia adversa
- Feito em biópsias

...

Which Test to use now?



PRESENTATION TITLE

MOVING INFORMATION

USCAP

#IAMUSCAP
#USCAP2017

Biomarcadores prognósticos Molecular

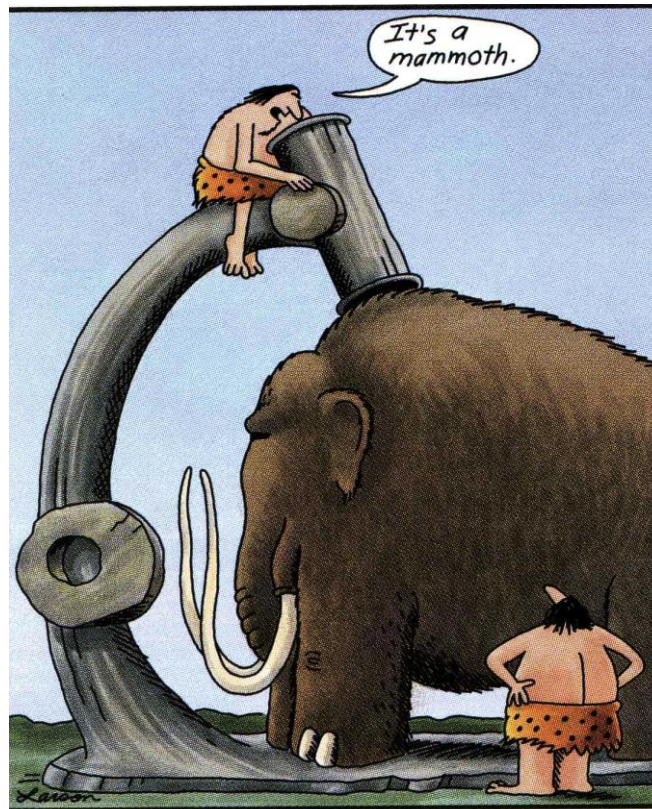
Qual teste usar para identificar possíveis candidatos a AS?

- Ainda não sabemos ao certo
- Testes foram validados retrospectivamente
- Ausência de estudos comparativos
- Ainda não existem *trials* randomizados prospectivos
- Estudos mostrando heterogeneidade genética intra-tumoral

Biomarcadores prognósticos Molecular

- A heterogeneidade do câncer de próstata dificulta a estratificação de risco e a seleção de estratégias de tratamento
- Futuro: conhecer ainda mais as alterações no genoma destas neoplasias na tentativa de se estabelecer uma subclassificação baseada em achados moleculares que possam prever o comportamento biológico destes tumores

Muito obrigada!



Early microscope

