



上海交通大学  
SHANGHAI JIAO TONG UNIVERSITY



# 基于解剖标志导航的前列腺剜除技术创新与推广 (附3470例随访)

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# 我科前列腺亚专业团队

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## 华东地区最大剝除中心

- 上海最早大规模开展前列腺剝除单位
- 九院南北两部 (600余例/年)
- 辐射上海浦东新区学科群 (600例/年)
- 钬激光前列腺剝除培训中心
- 等离子前列腺剝除培训中心
- Vela激光培训中心

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## 创新技术、创新管理

创新的激光剝除技术及组织粉碎技术获得国际同道的认可。

发表JU及J Endo; 浦东新区科技进步奖; 专利10项

对于高龄、高危患者, 建立术中监控新模式。

上海市科委项目134119a9800; 发表BJUI;



## 各类技术齐全

2

- 钬激光剝除 (2008年大规模开展)
- 等离子、激光剝除 (2005年开展)
- 2-微米激光剝除、1470激光剝除
- 绿激光PVP和直出剝除

4

## 人才梯队、学科管理

- 王忠教授学科带头人
- 学位博士化
- SCI论文30余篇
- 国自然3项
- 院优青2名

J Urol. 2013 Jan;189(1):217-22. doi: 10.1016/j.juro.2012.08.087. Epub 2012 Nov 20.

**A prospective, randomized clinical trial comparing plasmakinetic resection of the prostate with holmium laser enucleation of the prostate based on a 2-year followup.**

Chen YB<sup>1</sup>, Chen Q, Wang Z, Peng YB, Ma LM, Zheng DC, Cai ZK, Li WJ, Ma LH.

解决非常规前列腺增生问题

JOURNAL OF ENDOUROLOGY  
Volume 26, Number 12, December 2012  
© Mary Ann Liebert, Inc.  
Pp. 1625-1628  
DOI: 10.1089/end.2012.0265

*Transurethral and Lower Tract Procedures*

An Improved Morcellation Procedure  
for Holmium Laser Enucleation of the Prostate

Qi Chen, M.D.,\* Yan-Bo Chen, M.D.,\* Zhong Wang, M.D., Ph.D., Yu-Bing Peng, M.D., Ph.D.,  
Da-Chao Zheng, M.D., Zhi-Kang Cai, M.D., Wen-Ji Li, M.D., Ph.D., and Juan Zhou, M.D.

剷除被誉为“新金标准”

2015年以后

进行切除与剷除RCT研究

2015年

开始国产大功率钬激光研发

创新技术、全国微创会推广

2013年

改进器械

2010年

开始剷除

2008年

➤ 创新：一种方法

了解剷除

2003年

➤ 改进：两套器械

1999年

➤ 解决：若干问题



**Gold standard surgery**

Professor Zhong Wang highlights the potential of a superior new treatment for benign prostatic hyperplasia – a common disease that afflicts men all over the world

In addition, neurogenic bladder dysfunction can make matters worse.

Are minimally invasive treatments such as this becoming standard procedure in medicine?

Yes, there are many clinical trials and cases that are demonstrating how minimally invasive treatments are becoming the norm. Importantly, these minimally invasive treatments are not only applied to prostatic surgery but also to treatments for other diseases, including percutaneous nephrolithotomy and transurethral resection of bladder tumours. Notably, robot-assisted laparoscopic surgery is providing great advances in this area.

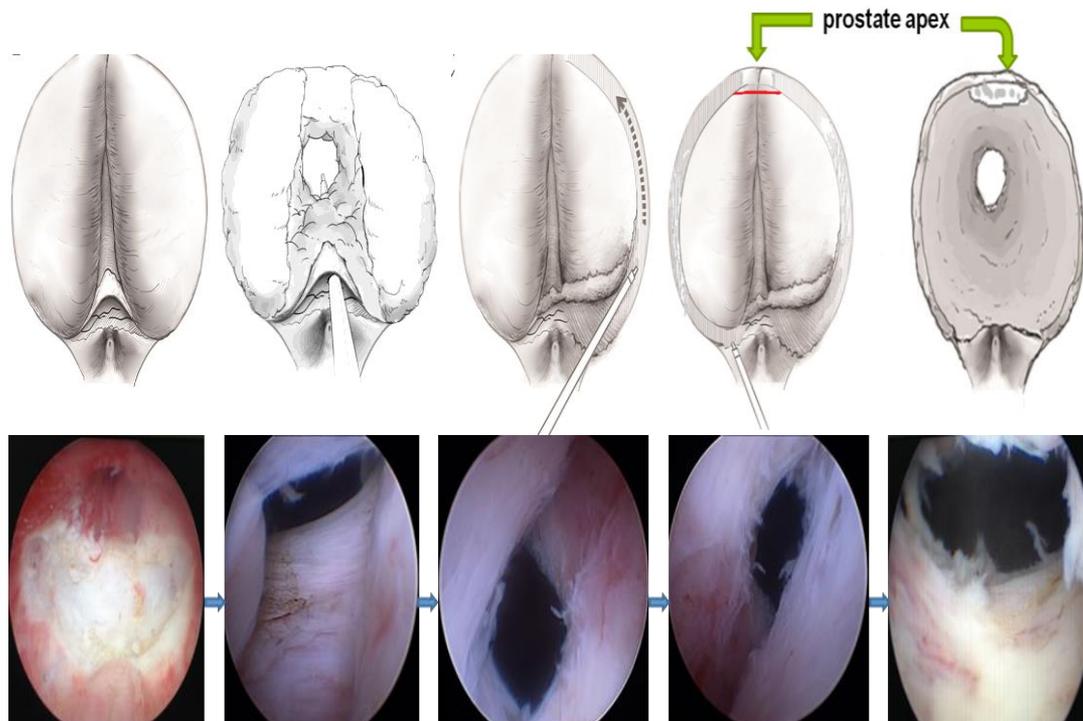
What are the major techniques currently in use to treat this condition? How did you go about comparing these methods in clinical practice?

Currently, there are two major surgical techniques employed to treat BPH all over the world. Transurethral resection of the prostate (TURP) is used for small- or mid-gland prostate and open surgery is used for large-gland prostate. TURP can treat BPH with low levels of trauma; however, complications can be caused by blood loss, high recurrence and TURP syndrome – which results in low blood sodium. For very large-size prostate, open surgery can provide resection and there tends to be a lower recurrence rate, but big wounds are inevitable.

Is this technique currently in widespread use? How do you intend to promote it both within China and on a global level?

What is benign prostatic hyperplasia (BPH)?

# 提出基于解剖标志导航的隧道法剝除



- 一、精阜前横切找包膜
- 二、打通中叶下隧道，模拟手指
- 三、沿包膜剝除两侧叶
- 四、前列腺尖部保留部分尿道黏膜

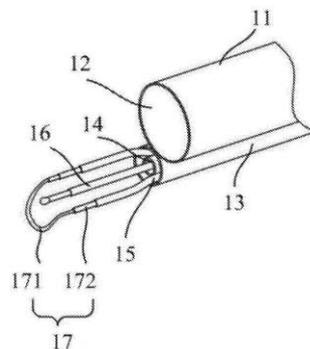
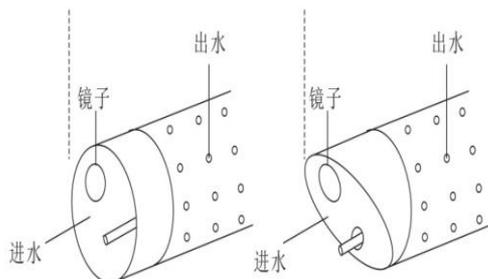
入选中国精品科技期刊顶尖学术论文领跑者



# 改进剝除器械，研发国产大功率激光

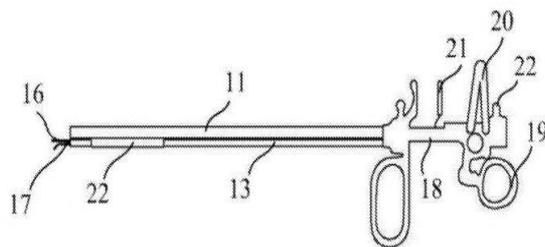
改进了器械的可控性及稳定性

上海市科委资助，我科“医企研”国产钬激光研发



**100W技术  
参数**

## 不可控组件



进出水：不平衡  
激光操控：不方便  
损伤镜子：容易

## 可操控手件

更平衡、更通畅  
很方便  
不容易



## 3400余例剜除病例数据:

	剜除 (本中心)	剜除 (国内外同 类研究数据)
输血比例	0.5%	1-3%
包膜穿孔率	0.6%	0.6-2%
去除组织比 例	69%	50-70%
膀胱颈狭窄	1%	0.5-5%
偶发癌比例	4.3%	3-7%
膀胱损伤情 况	0.8%	0.5-8.3%

## 高质量电切临床研究数据

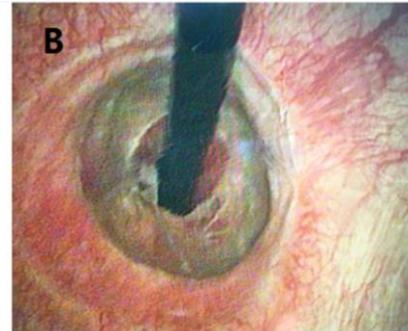
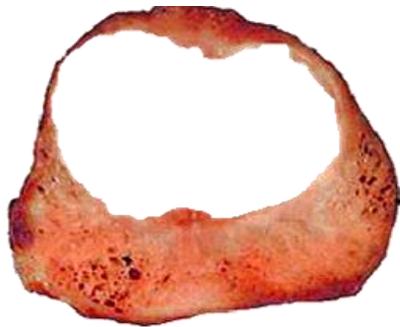
TABLE I. Summary of intraoperative and perioperative complications

Complication	Patients (n)
Death	0 (0)
Myocardial infarction	0 (0)
Pulmonary embolism	0 (0)
TUR syndrome	0 (0)
Transfusion	2 (1.0)
Capsular perforation	3 (1.5)
Bladder neck false passage	1 (0.5)
Incomplete tissue morcellation (blade malfunction)	4 (1.9)
Bladder mucosal engagement by morcellator blades	4 (1.9)

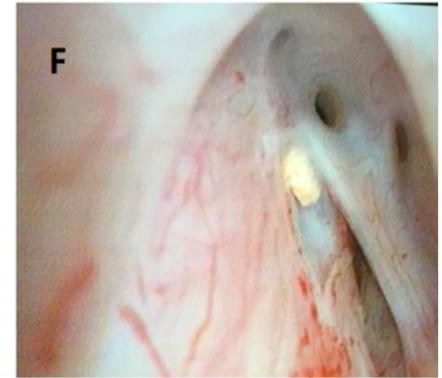
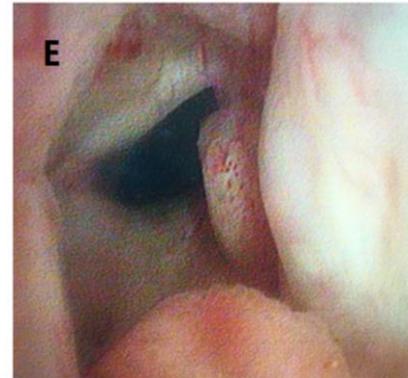
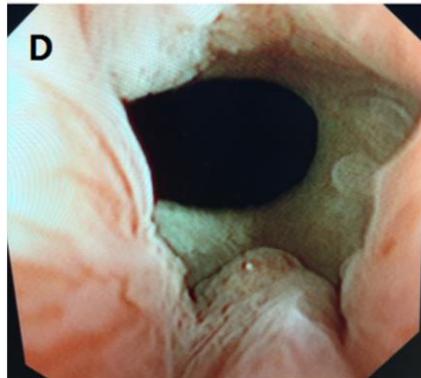
KEY: TUR = transurethral resection.  
Numbers in parentheses are percentages.

剜除术患者获益优于切除，我科剜除随访数据与国内外最好结果相似，处于领先

证实剜除优于切除，并全国推广该技术



剜除术组

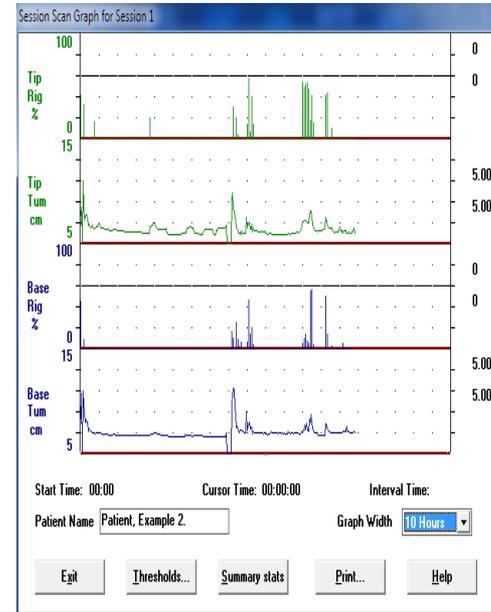
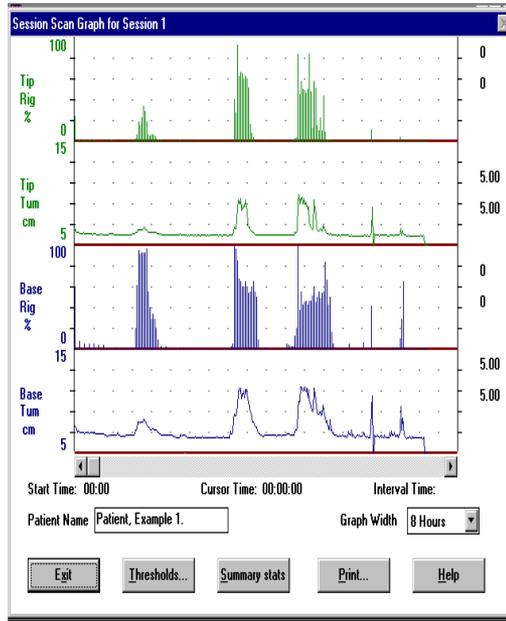


切除术组

剜除术较切除术，腺体去除更彻底，长期随访腺体复发少

Gu M\* ; Chen YB\* ; Liu C; Wang X; Cai ZK; Chen Qi# ; Wang Z#, Comparison of holmium laser enucleation and plasmakinetic resection of prostate: a randomized trial with 72-month follow-up, Journal of Endourology, 2018.2.1, 32(2): 139~143

## 明确剔除不影响勃起功能



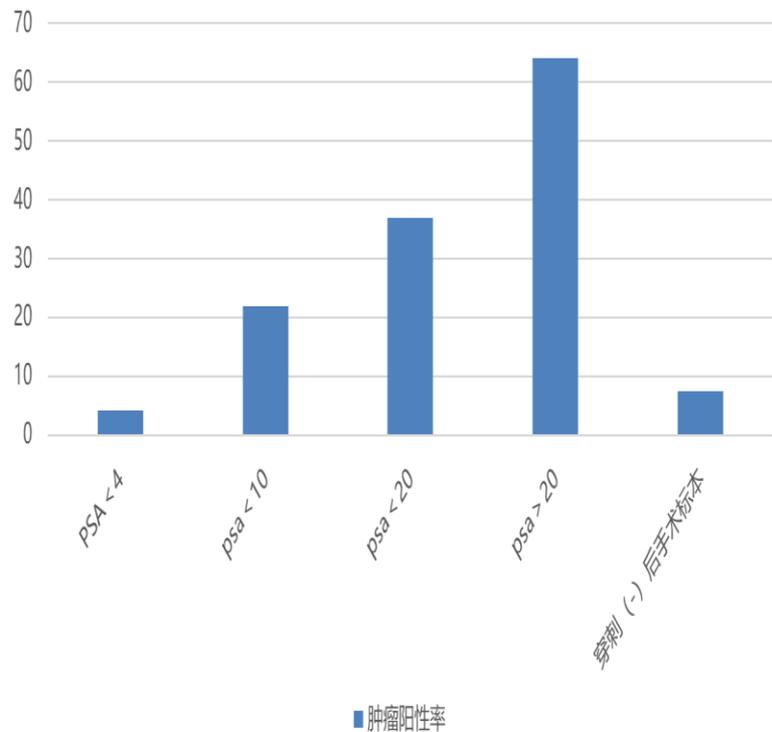
140例BPH术前术后勃起功能调查，平均年龄68岁（55-82）

	IIEF		RigiScan	
术前ED比例	80%	112/140	70%	98/140
术后6月ED比例	61.4%	86/140	50%	70/140

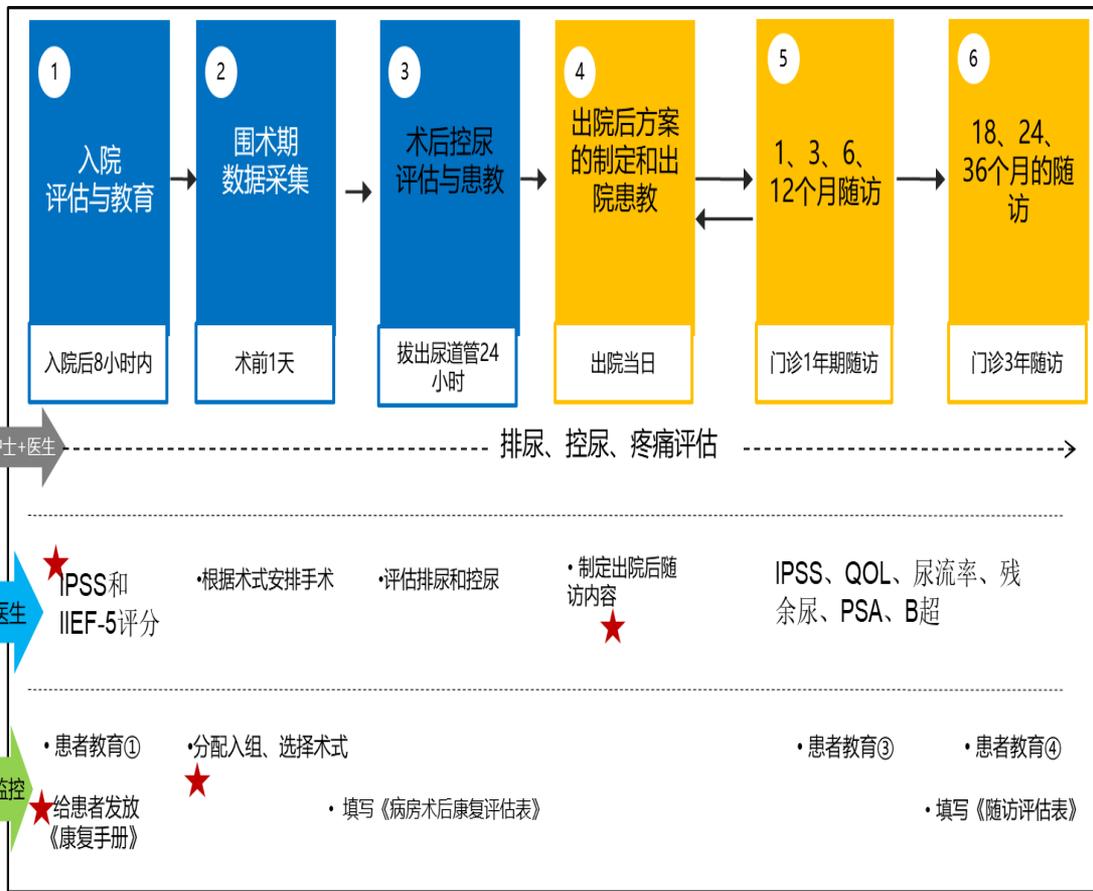
结论：  
 1. RigiScan较IIEF评分能减少ED诊断的假阳性比例，评估更准确  
 2. 剔除术可以改善患者勃起功能

## 提供剷除偶发癌中国数据及日间手术模式

肿瘤阳性率



单中心大样本数据：**BPH偶发癌患者高达4.3%**，穿刺 (-) 的患者手术标本前列腺癌检出率高达**7.5%**，前列腺癌发生率随**PSA增高而增大**。



规范化前列腺增生剷除手术接近临床路径化管理，强化管理流程，提高临床疗效，合理精确的总结临床数据，反馈指导临床并推广，逐步增加日间手术比例



## Take home message

- “工欲善其事必先利其器” —改善器械;
- 基于解剖标志导航的隧道法剜除—安全高效;
- 剜除优于切除, 不降低性功能、可优化患者管理, 提高日间手术比例及拔管成功率。

