

在间质性膀胱炎/膀胱疼痛综合征时膀胱颈狭窄的手术治疗

BLADDER NECK STENOSIS SURGERY IN INTERSTITIAL CYSTITIS / BLADDER PAIN SYNDROME TREATMENT

© V.L. Medvedev^{1, 2, 3}, I.V. Mihailov^{1, 2}, S.N. Lepetunov^{1, 2, 3}, Yu.N. Medoev^{2, 3}, M.I. Kogan³¹ Kuban State Medical University, Krasnodar, Russia;² Regional Clinical Hospital No. 1 named after prof. S.V. Ochapovsky, Krasnodar, Russia³ Rostov State Medical University, Rostov-on-Don, Russia;

For citation: Medvedev VL, Mihailov IV, Lepetunov SN, et al. Bladder neck stenosis surgery in interstitial cystitis / bladder pain syndrome treatment. *Urology reports (St. Petersburg)*. 2020;10(1):5-10. <https://doi.org/10.17816/uroved1015-10>

Received: 14.01.2020

Revised: 17.02.2020

Accepted: 19.03.2020

✎ **绪论** 间质性膀胱炎/膀胱疼痛综合征 (IC/PBS) 的现代治疗方法不能实现长期临床缓解。**研究的目的。** 目的探讨膀胱颈经尿道切开手术 (TUI) 治疗对有间质性膀胱炎/膀胱疼痛综合征患者的临床疗效。**材料与方法。** 对间质性膀胱炎/膀胱疼痛综合征及经证实膀胱颈部狭窄的患者 ($n = 29$) 行膀胱颈部的经尿道切开手术。在手术治疗后1个月、3个月、6个月对手术结果进行评估。治疗效果评估采用 GRA (Global Response Assessment) 量表、间质性膀胱炎/膀胱疼痛综合征症状量表 (尿急症状评分)、排尿日记, 通过分析, 可以确定膀胱的功能容量, 排尿频率和夜尿。疼痛采用视觉模拟评分法 (VAS) 进行评估。功能效率是通过尿动力学研究确定的, 其中包括膀胱测量能力, 最大流量, 和残余尿量。将治疗结果与39例无膀胱颈狭窄征象的间质性膀胱炎/膀胱疼痛综合征患者进行比较。**结果:** 在膀胱颈经尿道切开手术后1个月和3个月GRA指标 ≥ 2 的分别有96.5和72.4%。术后VAS、尿急症状评分、膀胱容量、最大排尿率、残余尿量、排尿频率、夜尿率等指标均有明显改善。**结论。** 这项前瞻性临床研究是首次研究膀胱颈狭窄女性间质性膀胱炎/膀胱疼痛综合征的病程。在膀胱颈部经尿道切开手术后1个月, 96.5%的患者间质性膀胱炎/膀胱疼痛综合征症状减轻, 无尿路感染及局部并发症发生。与此同时, 72.4%的患者术后3个月和68.9%的患者术后6个月都保持了这种效果。

✎ **关键词:** 间质性膀胱炎/膀胱疼痛综合征; 膀胱颈部狭窄; 膀胱颈的经尿道切口

✎ **Introduction.** Current methods of interstitial cystitis / bladder pain syndrome (IC/BPS) treatment don't allow to achieve long-term clinical remission. **Aim of the study** was to investigate the clinical efficacy of bladder neck transurethral incision (TUI) in women with IC/BPS, who had bladder outlet obstruction signs. **Materials and methods.** TUI was performed to patients with IC/BPS and proven bladder neck stenosis ($n = 29$). Assessment of the results of this operation was provided after 1, 3 and 6 months after surgical treatment. Treatment efficacy was evaluated by using Global Response Assessment (GRA) Scale, Pelvic Pain and Urgency / Frequency (PUF) Patient Symptom Scale, urination diaries, analysis of which allowed to determine functional bladder capacity, urinary frequency and nocturia. Pain assessment was made with 10-point Visual Analogue Pain Scale (VAS). Functional efficacy was evaluated with urodynamic examination, which included cystometric bladder capacity, maximal urinary flow rate and residual volume rate. Treatment results were compared with such in 39 patients with IC/BPS without signs of bladder neck stenosis. **Results.** GRA score ≥ 2 had 96.5% and 72.4% in 1 and 3 months after bladder neck TUI, respectively. VAS, PUF Scale parameters, cystometric bladder capacity, maximal urinary flow rate, residual volume rate, urinary frequency and nocturia values also significantly improved after surgery. **Conclusions.** This prospective clinical study is the first, in which IC/BPS course in women with bladder neck stenosis was investigated. It was noticed, that in 1 month after bladder TUI in 96.5% of patients decreased severity of IC/BPS symptoms, there were no urinary tract infection and local complications. In addition, this effect lasted for 3 months after surgery in 72.4% of patients and for 6 months in 68.9% of patients.

✎ **Keywords:** interstitial cystitis / bladder pain syndrome; bladder neck obstruction; transurethral incision of the bladder neck.

绪论

间质性膀胱炎/膀胱疼痛综合征(IC/PBS)是一种慢性疾病,表现为膀胱疼痛和尿频。对该病的研究已有多,但目前尚无一种治疗方法能给患者提供完全可接受的结果[1]。膀胱扩张、玻璃质酸的静脉注射、硫酸软骨素、注射A型肉毒杆菌毒素、口服阿米替林、戊糖多硫酸钠、环孢霉素A的治疗效果是不够且短暂的[2-8],这是由于在治疗这种病理中缺乏一种致病途径。

分析IC/PBS的诊断和治疗的临床经验,显而易见的是,IC/PBS疼痛的性质可能不同,可以认为,这不仅与Hunner's溃疡的定位有关,还与膀胱的解剖和功能状态有关[9-12]。

本研究的目的是研究膀胱颈经尿道切开手术(TUI)治疗对有间质性膀胱炎/膀胱疼痛综合征患者的临床疗效。

材料与方法

该研究包括68名患有典型间质性膀胱炎/膀胱疼痛综合征的女性,她们通过膀胱镜检查发现了Hunner's溃疡。回顾疾病至少2年,根据尿液细菌学检查,所有患者没有明显的临床菌尿。平均年龄为 60.1 ± 10.5 岁。所有患者根据NIDDK(National Institute of Diabetes and Digestive and Kidney Diseases)标准进行检查并纳入研究范围[13]。

所有患者均已接受治疗,包括:

- 生活方式的改变;
- 膀胱扩张;
- 服用非甾体类抗炎药;
- 三环类抗抑郁药;
- 膀胱内注入利多卡因、二甲亚砷和肝素;
- Hunner's溃疡经尿道凝固术。

在开始治疗前,受试者被要求记录排尿日记,以确定膀胱功能、排尿次数(尿急)和夜尿症。IC/PBS症状的严重程度采用尿急症状评分(PUF)评估,疼痛强度采用10分视觉模拟评分法(VAS)确定。调查也使用全球反应评估(GRA)量表进行[14,15]。进行了尿动力学研究:膀胱测量,研究灵敏度,膀胱收缩和膀胱测量能力。膀胱镜检查发现膀胱颈部梗阻,2周后行尿流测量和尿动力学检查。

在膀胱扩张术和随后膀胱容量增加后,29例(42.6%)患者发现排尿时疼痛增加,疼痛部位改变。在内镜检查过程中,29例患者被诊断为膀胱颈狭窄,并经尿动力学检查证实。

以膀胱颈狭窄患者为主要组($n = 29$),行经尿道切开手术。十二点位置用L形电极进行5-7毫米的膀胱粘膜、粘膜下和膀胱肌肉层的一部分的解剖。使用了切除镜(22 Ch, Karl Storz, 德国)。之后再次进行膀胱扩张术。手术是通过14Ch尿道导尿管引流膀胱完成的,导尿管在第二天被移除。

对照组39例无膀胱颈狭窄患者行标准IC/PBS治疗:进行Hunner's溃疡的经尿道微波凝固;膀胱扩张术;开三环抗抑郁药;膀胱内注入利多卡因、二甲亚砷和肝素。治疗结束后1个月、3个月、6个月进行对照检查。

采用Wilcoxon检验分析两个相关样本的差异(对同一组患者进行重复测量)。 $p < 0.05$ 为差异有统计学意义。

结果

主组在膀胱颈经尿道切开手术后1、3、6个月GRA值大于等于2的患者分别为96.5、72.4、68.9%。因此,在大多数妇女中,在治疗后的6个月内观察到满意的结果。

在手术后,主要组的患者根据尿急症状评分问卷和VAS中记录了疾病症状的改善,增加了膀胱容量、最大尿流量、残余尿减少、昼夜排尿次

数(表1)。所有患者均无膀胱下梗阻症状或尿路感染症状。值得注意的是,29例患者中只有1例(3.5%)没有注意到手术治疗的临床效果。

在标准治疗后3个月和6个月,对照组76.8和69.3%的患者GRA值为大于或等于2。根据尿急症状评分和VAS疼痛问卷,这些间质性膀胱炎/膀胱疼痛综合征患者的发现症状严重程度下降,膀胱功能和膀胱测量能力增加,每日和夜间排尿次数减少。同时,比较组患者的临床改善程度低于主组患者(表2)。

由于该病病程不稳定,且病情有规律恶化,需要反复治疗,因此患者在6个月以上未进行监测。

膀胱颈狭窄患者在进行经尿道切开手术前的尿动力学参数与无膀胱颈狭窄患者的尿动力学参数有显著差异。但经过手术治疗观察

6个月后,两组患者在这些参数上均无显著差异。

研究结果显示,42.6%的间质性膀胱炎/膀胱疼痛综合征患者有膀胱颈狭窄的内窥镜和尿动力学征象。与初始状态相比,在膀胱颈经尿道切开手术后1个月28例(96.5%)、3个月后21例(72.4%)和6个月后20例(68.9%)的29个患者中观察到临床改善。同时无急性尿路感染及手术并发症发生。这类患者行膀胱颈经尿道切开手术后疼痛程度明显减轻,排尿次数减少,下尿路尿动力学参数改善。

结论

对于标准治疗无效的间质性膀胱炎/膀胱疼痛综合征患者,进行额外检查以发现膀胱颈狭窄的迹象是有意义的,因为这种病理的手术纠正是治疗的一个重要阶段,有助于疾病的长期缓解。

表1 / Table 1

主组患者经尿道切开手术后排尿症状及功能参数的动态变化 (n = 29)
Dynamics of symptoms and functional urination parameters after bladder neck TUI in patients of the main group (n = 29)

指标	治疗前	1个月后	3个月后	6个月后
PUF Scale, 分	24.6±6.0	15.8±6.1	15.9±6.1	14.1±6.1
VAS 疼痛评分, 分	7.6±1.5	3.2±1.8	3.3±2.1	3.2±1.1
膀胱容量, 毫升	178.2±51.6	338.5±133.6	351.8±149.1	343.6±108.6
Q _{max} , 毫升/秒	10.6±7.8	23.0±10.2	21.7±10.4	21.2±9.8
残余尿量, 毫升	66.4±139	21.7±27.6	23.9±31.8	22.5±33.7
每天小便次数	17.9±3.8	11.5±4.9	11.4±4.9	11.6±5.7
夜间小便次数	3.7±0.7	3.0±1.0	3.0±1.1	2.9±1.1
GRA, 分	0	2.0±1.1	2.0±1.0	1.8±1.0

注: PUF量表—尿急症状评分, VAS 疼痛评分—10分视觉模拟评分法, Q_{max}—最大尿流率, GRA (Global Response Assessment)

表2 / Table 2

主组与对照组患者治疗前、治疗后3个月、6个月排尿症状及功能参数动态 (n = 68)
Dynamics of symptoms and functional urination parameters before and 3 and 6 months after treatment of patients of the main and comparison groups (n = 68)

指标	主要组 (n = 29)			比较组 (n = 39)		
	治疗前	3个月后	6个月后	治疗前	3个月后	6个月后
PUF Scale, 分	24.6±6.0	15.9±6.1*	14.1±6.1*	27.4±5.7	20.3±8.0*	21.2±8.1*
VAS 疼痛评分, 分	7.6±1.5	3.3±2.1*	3.2±1.1*	7.5±2.2	4.0±2.3	5.1±2.3
膀胱容量, 毫升	178.2±51.6	351.8±149.1*	343.6±108.6*	201.7±80.7	325.3±144.5	319.0±147.3
Q _{max} , 毫升/秒	10.6±7.8	21.7±10.2*	21.2±9.8*	21.6±5.3	23.9±12.4	22.6±11.5
残余尿量, 毫升	66.4±139	23.9±31.8*	22.5±33.7*	22.4±21	15.4±17.2	15.7±12.4
每天小便次数	17.9±3.8	11.4±4.9	11.6±5.7*	16.9±4.5	12.7±5.3	13.2±4.7*
夜间小便次数	3.7±0.7	3.0±1.1*	2.9±1.1*	3.6±1.0	2.5±1.4*	1.8±0.9*

注: PUF量表—尿急症状评分, VAS 疼痛评分—10分视觉模拟评分法, Q_{max}—最大尿流率, GRA (Global Response Assessment) 与处理前的状态的比较 $p < 0.05$ 。

REFERENCES

1. Hanno PM, Sant GR. Clinical highlights of the National institute of diabetes and digestive and kidney diseases / interstitial cystitis. *Urology*. 2001;57(6 Suppl 1):2-6. [https://doi.org/10.1016/s0090-4295\(01\)01112-8](https://doi.org/10.1016/s0090-4295(01)01112-8).

2. Gülpınar Ö, Esen B, Kayış A, et al. Clinical comparison of intravesical hyaluronic acid and chondroitin sulfate therapies in the treatment of bladder pain syndrome/interstitial cystitis. *Neurourol Urodyn*. 2018;37(1):257-262. <https://doi.org/10.1002/nau.23284>.

3. Nickel JC, Barkin J, Forrest J, et al. Randomized, double-blind, dose-ranging study of pentosan polysulfate sodium for interstitial cystitis. *Urology*. 2005;65(4):654-658. <https://doi.org/10.1016/j.urology.2004.10.071>.

4. Sant GR, Propert KJ, Hanno PM, et al. A pilot clinical trial of oral pentosan polysulphate and oral hydroxyzine in patients with interstitial cystitis. *J Urol*. 2003;170(3):810-815. <https://doi.org/10.1097/01.ju.0000083020.06212.3d>.

5. Hanno PM, Buehler J, Wein AJ. Use of amitriptyline in the treatment of interstitial cystitis. *J Urol*. 1989;141(4):846-848. [https://doi.org/10.1016/s0022-5347\(17\)41029-9](https://doi.org/10.1016/s0022-5347(17)41029-9).

6. Sairanen J, Forsell T, Ruutu M. Long-term outcome of patients with interstitial cystitis treated with low dose cyclosporine A. *J Urol*. 2005;171(6):2138-2141. <https://doi.org/10.1097/01.ju.0000125139.91203.7a>.

7. Giannantoni A, Porena M, Costantini E, et al. Botulinum A toxin intravesical injection in patients with painful bladder syndrome: 1-year followup. *J Urol*. 2008;179(3):1031-1034. <https://doi.org/10.1016/j.juro.2007.10.032>.

8. Медведев В.Л., Лепетунов С.Н. Ботулинический токсин в лечении интерстициального цистита // Вестник урологии. — 2017. — Т. 5. — № 3. — С. 68–78. [Medvedev VL, Lepetunov SN. Botulinum toxin A for the management of interstitial cystitis / bladder pain syndrome. *Urology herald*. 2017;5(3):68-78. (In Russ.)]. <https://doi.org/10.21886/2306-6424-2017-5-3-68-78>.

9. Зайцев А.В., Шаров М.Н., Арефьева О.А., Пушкарь Д.Ю. Синдром болезненного мочевого пузыря / интерстициальный цистит: факторы прогноза клинического течения заболевания // Вестник урологии. — 2018. — Т. 6. — № 3. — С. 26–35. [Zaitsev AV, Sharov MN, Arefieva OA, Pushkar DYU. Interstitial cystitis/bladder pain syndrome: factors predicting the clinical course of the disease. *Urology herald*. 2018;6(3):26-35. (In Russ.)]. <https://doi.org/10.21886/2308-6424-2018-6-3-26-35>.

10. Пушкарь Д.Ю., Касян Г.Р. Ошибки и осложнения в урогинекологии. — М.: ГЭОТАР-Медиа, 2017. — 377 с. [Pushkar' DYU, Kasyan GR. Oshibki i oslozhneniya v uroginekologii. Moscow: GEOTAR-Media; 2017. 377 p. (In Russ.)].

11. Глыбочко П.В., Коган М.И., Набока Ю.Л. Инфекции и воспаления в урологии. — М.: Медфорум, 2019. — 888 с. [Glybochko PV, Kogan MI, Naboka YuL. Infekcii i vospaleniya v urologii. Moscow: Medforum, 2019. 888 p. (In Russ.)].

12. Петрос П. Женское тазовое дно. Функции, дисфункции и их лечение в соответствии с интегральной теорией / Пер. с англ. под ред. Д.Д. Шкарупы. 2-е изд. — М.: МЕДпресс-информ, 2016. — 396 с. [Petros P. The female pelvic floor. Function, dysfunction and management according to the Integral theory. Transl. from English ed. by D.D. Shkarupa. 2nd ed. Moscow: MEDpress-inform; 2016. 396 p. (In Russ.)]
13. Gillenwater JY, Wein AJ. Summary of the National institute of arthritis, diabetes, digestive and kidney diseases workshop on interstitial cystitis, National Institutes of Health, Bethesda, Maryland, August 28-29, 1987. *J Urol.* 1988;140(1):203-206. [https://doi.org/10.1016/s0022-5347\(17\)41529-1](https://doi.org/10.1016/s0022-5347(17)41529-1).
14. Lubeck DP, Whitmore K, Sant GR, et al. Psychometric validation of the O'Leary-Sant interstitial cystitis symptom index in a clinical trial of pentosan polysulfate sodium. *Urology.* 2001;57(6 Suppl 1):62-66. [https://doi.org/10.1016/s0090-4295\(01\)01126-8](https://doi.org/10.1016/s0090-4295(01)01126-8).
15. Probert KJ, Mayer RD, Wang Y, et al. Responsiveness of symptom scales for interstitial cystitis. *Urology.* 2006;67(1):55-59. <https://doi.org/10.1016/j.urology.2005.07.014>.

Information about the authors:

Vladimir L. Medvedev — Doctor of Medical Science, Professor, Chairman of the Department of Urology, Kuban State Medical University, Krasnodar, Russia; Professor of the Department of Urology and Human Reproductive Health (with a Course in Pediatric Urology-Andrology), Rostov State Medical University, Rostov-on-Don, Russia; Deputy Chief Physician for Urology, Head of the Urological Center of Scientific Research Institute — Regional Clinical Hospital No. 1 named after prof. S.V. Ochapovsky, Krasnodar, Russia. E-mail: medvedev_vl@mail.ru.

Igor V. Mihailov — Doctor of Medical Sciences, Professor, Department of Urology, Kuban State Medical University, Krasnodar, Russia; Doctor of the Oncourology Department of Scientific Research Institute — Regional Clinical Hospital No. 1 named after prof. S.V. Ochapovsky, Krasnodar, Russia. E-mail: miv67@yandex.ru.

Sergey N. Lepetunov — Postgraduate, Department of Urology and Human Reproductive Health (with a Course in Pediatric Urology-Andrology), Rostov State Medical University, Rostov-on-Don, Russia; Assistant of the Department of Urology, Kuban State Medical University, Krasnodar, Russia; Urologist, Scientific Research Institute — Regional Clinical Hospital No. 1 named after prof. S.V. Ochapovsky, Krasnodar, Russia. E-mail: lepetunov@gmail.com.

Yuriy N. Medoev — Postgraduate, Department of Urology and Human Reproductive Health (with a Course in Pediatric Urology-Andrology), Rostov State Medical University, Rostov-on-Don, Russia; Urologist, Scientific Research Institute — Regional Clinical Hospital No. 1 named after prof. S.V. Ochapovsky, Krasnodar, Russia. E-mail: dadoev@list.ru.

Mikhail I. Kogan — Doctor of Medical Science, Professor, Chairman of the Department of Urology and Human Reproductive Health (with a Course in Pediatric Urology-Andrology), Rostov State Medical University, Rostov-on-Don, Russia. E-mail: dept_kogan@mail.ru.