

## Male Urethral Strictures: A National Survey Among Urologists in Italy

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<b>OBJECTIVE</b>	To determine national practice patterns in the management of male urethral strictures among Italian urologists.
<b>METHODS</b>	We conducted a survey using a nonvalidated questionnaire mailed to 700 randomly selected Italian urologists. Data were registered into a database and extensively evaluated. Analysis was performed using SAS statistical software (version 9.2). Statistical significance was defined as $P \leq .05$ .
<b>RESULTS</b>	A total of 523 (74.7%) urologists completed the questionnaire. Internal urethrotomy and dilatation were the most frequently used procedures (practiced by 81.8% and 62.5% of responders, respectively), even if most urologists (71.5%) considered internal urethrotomy appropriate only for strictures no longer than 1.5 cm; 12% of urologists declared to use stents. Overall, minimally invasive techniques were performed more frequently than any open urethroplasty ( $P = .012$ ). Particularly, 60.8% of urologists did not perform urethroplasty surgery, 30.8% performed 1-5 urethroplasties yearly, and only 8.4% performed >5 urethroplasty surgeries yearly. The most common urethroplasty surgery was one-stage graft technique, particularly using oral mucosa and ventrally placed. Diagnostic workup and outcome assessment varied greatly.
<b>CONCLUSION</b>	In Italy, minimally invasive procedures are the most commonly used treatment for urethral stricture disease. Only a minimal part of urologists perform urethroplasty surgery and only few cases per year. The most preferred techniques are not traditional anastomotic procedures but graft urethroplasties using oral mucosa; the graft is preferably ventrally placed rather than dorsally. There is no uniformity in the methods used to evaluate urethral stricture before and after treatment. UROLOGY 83: 477–484, 2014. © 2014 Published by Elsevier Inc.

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Urethral stricture disease is one of the oldest pathologies known in urology.<sup>1-3</sup> In the last decades, its management has undergone significant changes, passing from various minimally invasive but often unsuccessful procedures to definitive open urethroplasty as the procedure of choice.<sup>1,4</sup>

Although long-term results are excellent, urethroplasty can be technically demanding and time-consuming. Thus, the decision on how to treat urethral stricture often remains midway between a highly efficacious but complex surgical procedure and a minimally invasive but less effective approach. Despite the fact that multiple studies have demonstrated the long-term inefficacy of

internal urethrotomy (IU) and urethral dilatations, these procedures remain by far, the most commonly performed treatments, probably because of their simplicity, ease of repetition, and lack of familiarity with the open urethroplasty.<sup>5-9</sup>

Currently, no consensus exists for the treatment of urethral stricture disease. Moreover, the number and types of procedures performed nationwide are yet to be ascertained in different countries.

Two interesting surveys among urologists in the Netherlands and the United States revealed that most of them have little experience with urethroplasty, and despite predictable failure minimally invasive techniques are often performed.<sup>3,10</sup>

We performed a similar survey in Italy to obtain information on the current strategies in the management of urethral stricture disease and to ascertain if there were any significant differences between Italy and other nations.

### MATERIALS AND METHODS

A nationwide survey of practicing Italian urologists was performed by mailed questionnaires.

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The nonvalidated questionnaire (see [Appendix](#)) was based on a nationwide survey first performed in the United States and subsequently in the Netherlands.<sup>3,10</sup>

The survey elicited information on respondent demographics, number of urethral strictures managed yearly, diagnosis, treatment, and follow-up strategy of male urethral stricture disease.

A total of 700 board-certified, practicing urologists from the Italian Urological Association directory were randomly selected from each of the 3 wide areas of Italy (Northern, Central, and Southern Italy). The questionnaire was mailed to all of them in June 2009, and a total of 523 of 700 (74.7%) completed the questionnaire.

On receipt of the completed questionnaires, data were entered into a computer database and extensively evaluated. Analysis was performed on all completed and partially completed surveys using SAS statistical software (version 9.2). Statistical significance was defined as  $P \leq .05$ .

Responding urologists were classified by age group, geographic distribution, practice type, and field of interest.

## RESULTS

Responders were divided into 4 groups according to their age: 102 of 523 (19.5%) in group 30-39 years, 155 of 523 (29.6%) in group 40-49 years, 210 of 523 (40.1%) in group 50-59 years, and 56 of 523 (10.8%) in group >60 years. The geographic distribution was as follows: 197 of 523 (37.7%) urologists in Northern Italy, 161 of 523 (30.8%) in Central Italy, and 165 of 523 (31.5%) in Southern Italy. The practice type was private in 43 of 523 (8.2%) urologists, government 432 of 523 (82.6%), and academic 48 of 523 (9.2%). The field of interest was endourology in 196 of 523 (37.5%) urologists, andrology 86 of 523 (16.4%), general urology 79 of 523 (15.1%), lithiasis 53 of 523 (10.2%), oncology 49 of 523 (9.4%), reconstructive surgery 22 of 523 (4.2%), pediatric urology 7 of 523 (1.3%), and others 31 of 523 (5.9%).

**Table 1** lists the number of urethral strictures treated annually and also the type and number of procedures performed in the last year.

**Table 2** lists the management of bulbar urethral strictures: when presented with a long (3.5 cm) primary bulbar urethral stricture (case 1) or a short (1 cm) bulbar urethral stricture refractory to IU (case 2), 53.3% and 26% of urologists, respectively, would continue to manage the stricture by repeated endoscopic and minimally invasive procedures, despite predictable failure. Almost 68.8% and 83.5%, respectively, would perform some type of urethroplasty.

**Table 3** lists details on maximum stricture length, which IU is considered appropriate for and the duration of transurethral catheter after IU: most of urologists (374 of 523; 71.5%) considered IU to be recommended only for strictures no longer than 1.5 cm.

According to the published data, 342 of 523 (65.4%) of the responders thought that urethroplasty is the best option only after failed minimally invasive treatments. Only 177 of 523 (33.8%) would also consider urethroplasty as a primary treatment option.

**Table 1.** Urologists categorized by number of urethral strictures treated annually, type of procedures performed, and number of open urethroplasties performed in last year

Variables	No. of Urologists (%)
No. of stricture patients treated per year	
None	45 (8.6)
1-5	228 (43.6)
6-10	153 (29.3)
11-20	66 (12.6)
>20	31 (5.9)
Procedures*·†	
Dilatation	327 (62.5)
IU	428 (81.8)
• By Otis	• 222 (42.4)
• By Sachse	• 344 (65.8)
• With laser	• 75 (14.3)
Endourethral stent	66 (12.6)
Meatotomy	225 (43)
End-to-end urethroplasty	45 (8.6)
Perineostomy	32 (6.1)
One-stage urethroplasty using skin flap	47 (9)
One-stage urethroplasty using graft‡	111 (21.2)
Oral mucosa graft	88 (16.8)
• From cheek	• 72 (13.8)
• From lip	• 13 (2.4)
• From tongue	• 3 (0.6)
Skin graft	23 (4.4)
• From prepuce	• 14 (2.7)
• From extragenital area	• 7 (1.3)
• Other tissues	• 2 (0.4)
Graft location§	
• Ventral	• 59 (11.3)
• Dorsal	• 22 (4.2)
• Not available	• 30 (5.7)
Staged urethroplasty	36 (6.9)
No. of urethroplasties	
None	318 (60.8)
1-5	161 (30.8)
6-10	27 (5.2)
11-20	17 (3.2)
>20	3 (0.6)

IU, internal urethrotomy.

\* The sum of the percentages is not 100% because many urologists answered to perform more than one procedure.

† Dilatation, IU, and endourethral stent are performed more frequently than any open urethroplasty technique ( $P = .012$ ).

‡ The most preferred technique was oral mucosa graft than skin graft (16.8% vs 4.4%;  $P < .001$ ).

§ Surgeons preferred ventral graft location compared with dorsal location (11.3% vs 4.2%;  $P = .014$ ).

The method to evaluate a urethral stricture before performing surgery varied widely, and most urologists use many options: uroflowmetry was performed by 274/523 (52.4%) of responders, urethroscopy by 116/523 (22.2%) (particularly, 11.3% declared to use a rigid urethroscope and 10.9% a flexible urethroscope), retrograde urethrography and voiding cystourethrography by 85 of 523 (16.3%), ultrasonography by 57 of 523 (10.9%), urography by 11 of 523 (2.1%), urethral calibration by 11 of 523 (2.1%), and undeclared by 3 of 523 (0.6%). Regarding the methods to evaluate stricture treatment outcomes, uroflowmetry was performed by

**Table 2.** Management of bulbar urethral strictures\*

Management	Primary 3.5-cm Bulbar Urethral Stricture (Case 1) No. (%)	1-cm Bulbar Urethral Stricture With 2 Failed Prior IUs (Case 2) No. (%)
IU	219 (41.9)	105 (20.1)
Dilatation	47 (9)	21 (4)
Urethral stent	13 (2.5)	10 (1.9)
Meatotomy	17 (3.3)	10 (1.9)
Perineostomy	24 (4.6)	6 (1.1)
End-to-end urethroplasty	14 (2.7)	118 (22.6)
One-stage urethroplasty using skin flap	25 (4.8)	55 (10.5)
One-stage urethroplasty using graft	192 (36.7)	201 (38.4)
Oral mucosa graft	185 (35.4)	189 (36.1)
Skin graft	7 (1.3)	12 (2.3)
Graft location		
Ventral	63 (12)	51 (9.8)
Dorsal	51 (9.8)	43 (8.2)
Other	78 (14.9)	107 (20.4)
Staged urethroplasty	70 (13.4)	47 (9)

Abbreviation as in [Table 1](#).

\* The sum of the percentages is not 100% because some urologists have responded more than one procedure.

325 of 523 (62.1%) of responders, retrograde urethrography and voiding cystourethrography by 91 of 523 (17.4%), urethroscopy by 66 of 523 (13%) (particularly, 4.6% declared to use a rigid urethroscope and 8.4% a flexible urethroscope), ultrasonography by 15 of 523 (2.9%), urography by 8 of 523 (1.5%), urethral calibration by 14 of 523 (2.7%), and undeclared by 2 of 523 (0.4%).

## COMMENT

Our survey describes the current management of male urethral stricture disease in Italy.

The response rate (74.7%) was very similar to the Dutch study (74%)<sup>10</sup>; of the 523 responders, 467 (89%) were aged <60 years, and the main field of interest was endourology (196 of 523; 37.5%) that could explain the trend to perform mainly IU.

Initial analysis shows the lack of uniformity among the responders about diagnostic procedures. Only 16% of the urologists stated that they perform urethrography, which is considered the fundamental test/investigation for correct diagnostic evaluation. In contrast, 72% of Dutch urologists reported using urethrography.<sup>10</sup> We were very surprised by the low use of radiography: probably it is because the method is considered invasive and not well accepted by Italian patients. However, the fact that methods for the evaluation of urethral strictures vary greatly has been shown in published data.<sup>11</sup> Even the methods to assess postoperative outcomes have shown to vary greatly.

Most (81.5%) Italian urologists treat few cases ( $\leq 10$ ) per year ([Table 1](#)), similar to the American responders and slightly inferior to the number of cases treated by Dutch urologists.

Similar to the US and the Netherlands, minimally invasive methods (dilatation, IU, and endourethral stent)

confirmed to be performed more frequently than any open urethroplasty technique ( $P = .012$ ). Indeed, the most practiced treatment was IU (81.8% of urologists): specifically, 65.8% of urologists use the traditional cold knife (Sachse), 42.4% the blind IU (Otis), and 14.3% the modern laser.

A high percentage of responders admitted performing IU even in cases ([Table 2](#)) in which the published data has clearly demonstrated the uselessness of this treatment and, on the contrary, the efficacy of urethroplasty surgery. However, in this study, 374/523 (71.5%) of respondents considered IU appropriate only for short (<1.5 cm) bulbar strictures ([Table 3](#)), in contrast to 50% of Dutch urologists who considered the use of IU appropriate for even longer strictures.<sup>10</sup>

After IU, most Italian responders (442 of 523; 84.5%) commonly leave the catheter in place for 1 week or less.

The palliative dilatation represents the second most frequently practiced treatment in Italy (62.5% of the responders) and the Netherlands (83.6%), whereas in the US, it comes on the first place (92.8%).

Surprisingly, 12% of urologists still uses stents ([Table 1](#)), which have been shown not only to have no long-term efficacy, but also on the contrary to worsen the urethral stricture and compromise the result of further treatments.<sup>12-15</sup> Dutch urologists showed to reduce considerably the use of stents (1.3%), whereas the American ones seem to maintain an inexplicably frequent use of them (23.4%).

Interestingly, most urologists believe that the best evidence-based treatment strategy is reconstructive surgery, but only after a failed minimally invasive procedure: this belief has always generated many debates and partly explains why many cases (ie, long or panurethral strictures, lichen sclerosus strictures, strictures after failed hypospadias repair, and so forth) are still managed by procedures that have a predictable failure.

**Table 3.** Maximum stricture length for which internal urethrotomy is considered appropriate and duration of transurethral catheter after urethrotomy

Variables	No. (%)
Maximum stricture length for which IU is appropriate	
<1 cm	182 (34.8)
<1.5 cm	192 (36.7)
<2 cm	86 (16.4)
<2.5 cm	31 (5.9)
<3 cm	29 (5.6)
I do not know	3 (0.6)
Duration of transurethral catheter after IU	
1 d	162 (31)
1 wk	280 (53.5)
2 wk	55 (10.5)
3 wk	20 (3.8)
>3 wk	3 (0.6)
I do not know	3 (0.6)

Abbreviation as in Table 1.

Overall, 318 of 523 (60.8%) of Italian responders did not perform urethroplasty surgery, 161 of 523 (30.8%) performed 1-5 cases yearly, and only 44 of 523 (8.4%) performed >6 urethroplasty per year (Table 1).

The most preferred techniques were not traditional anastomotic procedures (45 of 523; 8.6%) but graft urethroplasties (111 of 523; 21.2%) more often by using oral mucosa than skin graft (16.8% vs 4.4%;  $P < .001$ ); surgeons preferred ventral graft location compared with dorsal location (11.3% vs 4.2%;  $P = .014$ ). In the Netherlands and the US, the frequency of use of anastomotic procedures (16.4% and 15.3%, respectively)<sup>3,10</sup> is similar to that of graft techniques, and ventral grafting seems to be slightly more practiced than dorsal grafting.

The aforementioned data seem to confirm the persistence of an old philosophy in the management of urethral stricture disease, characterized by the repeated use of minimally invasive and unsuccessful procedures. In our personal opinion, the cases treated by any urologist per year are few: this hinders acquiring an adequate surgical experience and raises the ethical and debated dilemma whether it is proper to perform urethroplasty in non-specialized centers.<sup>1,3</sup>

To optimize the management of urethral stricture disease, familiarity with indications and state-of-the-art performance of the procedures seem to be of utmost importance. Our and other national surveys<sup>3,10</sup> on practice patterns among urologists revealed little experience with urethroplasty and the repeated use of unsuccessful maneuvers. Knowledge of the number and type of procedures performed nationwide represents important baseline information, extremely precious in determining what should be changed in urethral stricture disease management strategies.

Our study has some limitations. It was based on a questionnaire mailed to selected urologists, with a response rate of 75%. This study design always has the possibility that people who are more interested in the

subject are more likely to complete the questionnaire; the 25% who did not respond might not be interested in urethral strictures at all, so the findings might not be representative, and might even overestimate the proportion of urologists who treat strictures or who perform urethroplasty. However, in general, 523 urologists represent a sufficiently large sample.

The questionnaire has some shortcomings. For example, it would be interesting to know the mean age of the stricture patients treated by the various respondents, because the choice of management might be influenced by patient age and comorbidities. At the same time, it would be interesting to know what type of exposure to urethroplasty the respondents had during their urology training or additional training in reconstructive urology.

However, our data might be used for further studies on optimal treatment of urethral strictures in Italy and to define nationwide training needs in urethral surgery.

## CONCLUSION

In Italy, despite predictable failure confirmed by the published data, minimally invasive procedures remain the most commonly performed treatment for urethral stricture disease.

Only a minor number of urologists perform urethroplasty surgery and only few cases per year. The most preferred techniques are not traditional anastomotic procedures but graft urethroplasties using oral mucosa; the graft is preferably ventrally placed rather than dorsally. In addition, diagnostic workup and outcome assessment varied greatly.

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## APPENDIX

1. Your age:
  - 30-39 yr
  - 40-49 yr
  - 50-59 yr
  - 60-69 yr
  - > 70 yr
2. Type of practice:
  - Private practice
  - Government (Public Health Service, National Health Service)
  - Academic
3. Practice location:
  - Northern Italy
  - Central Italy
  - Southern Italy
4. Number of patients with urethral strictures that you have treated in the last year:
  - None
  - 1-5
  - 6-10
  - 11-20
  - More than >20
5. What is your field of interest?
  - Endourology
  - Andrology
  - General urology
  - Lithiasy
  - Oncology
  - Reconstructive surgery
  - Pediatric Urology
  - Other
6. Which of the following procedures have you performed in the last year? (Check all that apply)
  - Internal urethrotomy
    1. by Otis
    2. by Sachse
    3. by Laser
  - Urethral dilatation
  - Urethral stent
  - Meatotomy
  - Perineostomy
  - End-to-end urethroplasty
  - Urethroplasty using skin flap
  - One-stage urethroplasty using graft
    - buccal mucosa
      1. from cheek
      2. from lip
      3. from tongue
    - skin graft
      1. from prepuce
      2. from extragenital area
    - other tissues
    - graft location
      1. ventral
      2. dorsal
      3. other
7. Number of open urethroplasties performed in the last year:
  - None
  - 1-5
  - 6-10
  - 11-20
  - >20
8. How would you manage the following patient in your practice setting?  
34 year-old male with primary 3.5 cm bulbar urethral stricture of unknown aetiology. Peak urinary flow rate of 7 ml/s. Normal circumcised phallus:
  - Internal urethrotomy
    1. by Otis
    2. by Sachse
    3. by Laser
  - Urethral dilatation
  - Urethral stent
  - Meatotomy
  - Perineostomy
  - End-to-end urethroplasty
  - Urethroplasty using skin flap
  - One-stage urethroplasty using graft

- buccal mucosa
    1. from cheek
    2. from lip
    3. from tongue
  - skin graft
    1. from prepuce
    2. from extragenital area
  - other tissues
  - graft location
    1. ventral
    2. dorsal
    3. other
  - Staged urethroplasty
    - without graft or flap
    - using flap
    - using graft
      1. buccal mucosa from cheek
      2. buccal mucosa from lip
      3. buccal mucosa from tongue
      4. skin from prepuce
      5. skin from extragenital area
      6. other tissues
    - graft or flap location
      1. ventral
      2. dorsal
      3. other
9. How would you manage the following patient in your practice setting?  
26 year-old healthy male with a 1 cm bulbar urethral stricture of unknown aetiology who has failed 2 prior internal urethrotomies in the past 2 years. Peak urinary flow rate of 6 ml/s. Normal circumcised phallus.
- Internal urethrotomy
    4. by Otis
    5. by Sachse
    6. by Laser
  - Urethral dilatation
  - Urethral stent
  - Meatotomy
  - Perineostomy
  - End-to-end urethroplasty
  - Urethroplasty using skin flap
  - One-stage urethroplasty using graft
    - buccal mucosa
      1. from cheek
      2. from lip
      3. from tongue
    - skin graft
      1. from prepuce
      2. from extragenital area
    - other tissues
    - graft location
      1. ventral
      2. dorsal
      3. other
  - Staged urethroplasty
    - without graft or flap
    - using flap
      - using graft
        1. buccal mucosa from cheek
        2. buccal mucosa from lip
        3. buccal mucosa from tongue
        4. skin from prepuce
        5. skin from extragenital area
        6. other tissues
      - graft or flap location
        1. ventral
        2. dorsal
        3. other
10. When managing urethral strictures, which policy do you feel the literature generally supports?
- starting with minimally invasive procedures (urethrotomy, dilatation), and considering urethroplasty only after repeated failure of these procedures.
  - Always primary urethroplasty, if indicated
  - I do not know
11. What methods do you commonly use to evaluate an anterior urethral stricture before performing surgery? (Check all that apply)
- Urinary flow rate
  - RUG/VCUG (urethrography/cystography)
  - rigid cystoscopy
  - flexible cystoscopy
  - ultrasonography
  - urography
  - urethral calibration
  - I do not know
12. What is the maximal stricture length for which you will typically perform an internal urethrotomy?
- <1 cm
  - <1.5 cm
  - <2 cm
  - <2.5 cm
  - <3 cm
  - I do not know
13. After internal urethrotomy (cold knife) for a short urethral stricture, how long do you typically leave a Foley catheter in place?
- 1 d
  - 1 wk
  - 2 wk
  - 3 wk
  - >3 wk
  - I do not know
14. During routine follow-up after anterior urethral stricture surgery, how do you usually reevaluate the urethra for patency/recurrence? (Check all that apply)
- Urinary flow rate
  - RUG/VCUG (urethrography/cystography)
  - rigid cystoscopy
  - flexible cystoscopy
  - ultrasonography
  - urography
  - urethral calibration
  - I do not know

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## EDITORIAL COMMENT

Urethral strictures have been documented in the literature since the ancient Egyptian and Greek times. Although the disease process is not uncommon, a systematic approach to diagnosis, treatment, and follow-up is often vexing to the urologist. This lack of standardization has led to multiple different treatment algorithms in use today. Treatment options for urethral strictures continue to include dilatation, urethrotomy, urethral stents, and a wide spectrum of reconstructive surgical techniques. The choices depend heavily on stricture characteristics and location. Although no one procedure is appropriate for all, dilatation and urethrotomy continue to be most common but have high recurrence rates, with many patients eventually progressing to surgical repair.

In this interesting article, the authors have provided us with a snapshot of the current thoughts of Italian urologists regarding the evaluation, treatment, and follow-up of men with urethral stricture disease. The authors created a comprehensive, well-designed survey and sent it to 700 registered urologists in Italy. The response rate was excellent with >74% completing the questionnaire. However, one must always use caution when making conclusions from studies of this nature. The combination of a nonvalidated questionnaire and a less than perfect response rate might significantly bias the results. Missing 25% of those surveyed who did not respond might significantly skew the findings if these represent providers who do not care at all for patients with urethral strictures by significantly overestimating the number of urologists who actually treat this disease process.

The data in this study with respect to preoperative evaluation are extremely interesting. I am very surprised by the low use of radiography (16.3%) in the initial evaluation of strictures. The authors comment that the low rate of use is probably because the x-ray is considered invasive and not well accepted by Italian patients. In our practice we have noticed that although patients do not particularly enjoy the retrograde urethrogram, it is invaluable for preoperative planning serving as a literal roadmap, giving us information on stricture location, length, severity, and the amount of associated spongiofibrosis. Although others have recommended the use of magnetic resonance imaging and ultrasonography, we have not found these modalities particularly useful. One wonders if more clinicians in Italy used the retrograde urethrogram if the high rates of endoscopic procedures would be affected. In other words, if the clinician has any information on the severity of these strictures would the use of these temporizing procedures decrease?

Another alarming aspect to this review is the perceived persistence of the belief in the "therapeutic ladder" in the treatment of urethral stricture disease. This is an idea that relies on the use and failure of minimally invasive procedures before moving on with definitive urethroplasty. In fact, 79% of the respondents stated they would continue to manage even long strictures with repeated endoscopic and minimally invasive therapies despite the promise of failure. In addition, this study also clearly shows that the minimally invasive techniques in Italy (as in the US) are performed much more often than definitive repair with some authors commenting that these techniques might be overused.<sup>1</sup> This is most concerning in the face of recent data, indicating great success with the definitive

urethroplasty with minimal morbidity. Although endoscopic therapy might hold a place in the initial management, most authors recommend moving on to urethroplasty after a single initial failure.<sup>2</sup>

This excellent survey study clearly indicates the need for standardized recommendations for the diagnosis, evaluation, treatment, and follow-up of patients with urethral stricture disease. Several studies now indicate that poor understanding of urethral stricture disease is a worldwide phenomenon needing education and guidance on the basis of sound scientific evidence. The American Urological Association is currently developing practice guidelines to this end. It will be interesting to conduct this same survey study in the years to come after the availability of these guidelines to evaluate the enactment of change.

**Andrew C. Peterson, M.D.**, Division of Urology, Department of Surgery, Duke University, Durham, NC

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## REPLY

Despite the previously cited limitations, our study analyses some points concerning the debated management of urethral stricture disease in western countries.<sup>1,2</sup> From data analysis, some interesting issues emerge, worthy of reflection.

Although evidence suggests that urethroplasty surgery is more successful, the wide use of palliatively repeated internal urethrotomies and dilatations confirms the lack of familiarity with the more technically demanding open surgery. However, it is should always be kept in mind that the choice of the treatment should not be conditioned by what the doctor is or is not technically capable of performing.

The grafting techniques have overcome the traditional and "untouchable" anastomotic procedures. The oral mucosa and cheek have become, respectively, the preferred graft material and donor site.

Regarding the debated issue of ventral vs dorsal graft, the study shows that the ventral grafting by the ventral approach is preferred to the dorsal grafting by the dorsal approach.

We agree that efforts should be made to develop practice guidelines that establish pre- and post-treatment assessment methods to be used. Moreover, an assessment of the disease without the 2 essential exams, uroflowmetry and urethrography, cannot be acceptable.

Regarding the eventual advocated standardization of treatment, we are aware that the management of such a complex pathology cannot be easily confined within the preset borders of

rigid algorithms. Instead, it is often the result of personal highly specialistic experience that mixes urologic and plastic surgery notions: the reconstructive urethral surgeon can be compared with a “craftsman” who has perfected his art along the years and applies it according to the case.

All this leads to the legitimate question of whether the surgical treatment of urethral stricture disease should only be performed in high-volume specialized centers, instead of organizing various training programs of urethral surgery in peripheral centers in which this type of surgery is performed only occasionally.

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