

# Distraction Reduces the Sensation of Pain on Flexible Cystoscopy: A Prospective Observational Study

## Dikkatin Dağıtılması Fleksibl Sistoskopi Sırasında Ağrı Hissini Azaltır: Prospektif, Gözlemsel Bir Çalışma

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**ABSTRACT Objective:** With the common use of flexible cystoscopy (FC), patients' comfort improved, and many procedures began to be performed under local anesthesia. Previous studies showed that explaining the steps in detail and the patients monitoring the procedure on the screen reduces the patients' anxiety and pain. We investigated the effect of monitoring of the procedure through the screen on the pain scores in patients undergoing FC. **Material and Methods:** The data of male patients who underwent FC under local anesthesia between March and July 2020 were prospectively collected. Patients who underwent FC without any distraction method included in Group 1. Patients who underwent FC with the real-time visualization by the screen which was placed so that the surgeon and patient both could see it and the patients could follow the entire procedure included in Group 2. After the procedure, the patients' pain score was measured using the Visual Analogue Scale (VAS). **Results:** Data of 112 male patients were analyzed. Group 1 consisted of 58 and Group 2 54 patients. The mean procedure time was 4.8±0.8 minutes and the mean VAS score was 3.8±2.2. While the VAS value measured after the procedure was found to be 3.2±2.2 in Group 2, it was 4.3±2 in Group 1 and a significant difference was detected between the two groups (p=0.011). **Conclusion:** In males, during the FC, informing the patient in detail and real-time visualization on the screen provides a significant decrease in the pain sensation.

**ÖZET Amaç:** Fleksibl sistoskopi (FS) kullanımının yaygınlaşmasıyla, hastaların konforunda belirgin iyileşmeler sağlanmış, birçok işlem lokal anestezi altında gerçekleştirilmeye başlanmıştır. İşlemin aşamalarının hastaya detaylıca anlatılması ve hastanın işlemi ekrandan izlemesinin, hasta anksiyetesini ve ağrıyı belirgin azalttığı önceki çalışmalarda gösterilmiştir. Biz de bu çalışmamızda, FS uygulanan hastalarda ekran vasıtasıyla işlemi izlemenin ağrı skorları üzerindeki etkisini araştırmayı hedefledik. **Gereç ve Yöntemler:** Mart 2020 - Temmuz 2020 tarihleri arasında lokal anestezi altında FS uygulanan erkek hastaların verileri prospektif olarak incelendi. Herhangi bir dikkat dağıtma yöntemi kullanılmadan işlem gerçekleştirilen hastalar, Grup 1 olarak sınıflandırıldı. Ekranın, cerrahın ve hastanın tüm prosedürü izleyebileceği şekilde yerleştirildiği ve eş zamanlı görüntüleme ile FS işlemi uygulanan hastalar ise Grup 2 olarak sınıflandırıldı. İşlem sonrası hastanın ağrı skorlaması, Vizüel Analog Skala (VAS) kullanılarak ölçüldü. **Bulgular:** Toplam 112 erkek hastanın verileri incelendi. Grup 1 58, Grup 2 ise 54 hastadan oluşmaktaydı. Ortalama işlem süresi 4,8±0,8 dk ve ortalama VAS 3,8±2,2 olarak tespit edildi. Grup 2'de işlem sonrası ölçülen VAS değeri 3,2±2,2; Grup 1'de 4,3±2 olarak tespit edildi ve iki grup arasında anlamlı fark saptandı (p=0,011). **Sonuç:** Erkek hastalarda, FS sırasında hastaya işlemin detaylıca anlatılması ve işlem esnasında hastanın ekrandan işlemi eş zamanlı olarak izlemesi, hissedilen ağrı oranlarında belirgin azalma sağlamaktadır.

**Keywords:** Urinary bladder; flexible cystoscopy; pain management

**Anahtar Kelimeler:** Mesane; fleksibl sistoskopi; ağrı yönetimi

Rigid cystoscopy is the gold standard treatment method in the evaluation of the lower urinary system and therapeutic procedures.<sup>1,2</sup> However, it is a diffi-

cult method to apply under local anesthesia in outpatients due to its disadvantages such as the necessity of positioning, the need for a lithotomy table, and par-

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ticularly the pain and discomfort in men.<sup>3</sup> Before the common use of flexible cystoscopy (FC), rigid cystoscopy was performed mostly in women with intraurethral anesthesia.<sup>4</sup> After the definition of flexible cystoscopy, it is among the most frequently applied endourological procedures.<sup>1</sup> With the use of FC, significant improvements in patient comfort have been achieved and many procedures have been performed under local anesthesia without sedation.<sup>5</sup> However, FC improves the results on pain, but does not completely eliminate it.

In previous studies, it has been shown that explaining the steps of the procedure in detail to the patient before and during endoscopy and following the procedure with the help of a screen reduces patient anxiety and provides less pain.<sup>1</sup> Clement et al. reported lower pain scores with visualization during flexible cystoscopy.<sup>6</sup>

In this study, we aimed to investigate the effect of monitoring the procedure on the pain scores of patients who underwent ambulatory FC.

## MATERIAL AND METHODS

This observational, prospective, non-randomized study was conducted between March and July 2020 in the Endourology Unit of Bakirkoy Dr. Sadi Konuk Training and Research Hospital. All FC procedures were performed by a single surgeon (M.T). The data of male patients between the ages of 18 and 75 years who underwent FC under local anesthesia were prospectively collected. The patients who underwent diagnostic cystoscopy for the evaluation of hematuria or lower urinary tract symptoms (LUTS) (incontinence, nocturia, hesitancy, etc.) were included in the study. Patients who had a history of prior local cystoscopy or any transurethral surgery, prior intravesical therapy or needed additional procedures such as biopsies, urethral dilatation, stent removal, cystodiathermy during the procedure were excluded from the study. Also, patients with lidocaine allergy, mental and psychiatric disability, urinary tract infection, urethral anatomic problems, history or evidence of urethral stricture, patients using analgesics for any reason within 24 hours, patients who were not eli-

gible for evaluation due to speech problems and who were unsuitable for evaluation were excluded from the study. All patients were given detailed information before the procedure. The presence of a urinary tract infection was ruled out with a complete urinalysis taken before the procedure. Patients were divided into two groups according to the use of distraction. Patients who underwent FC without any distraction method were included in Group 1. Patients who underwent FC with the real-time visualization by the screen which was placed so that the surgeon and patient both could see it and the patients could follow the entire procedure included in Group 2. In Group 2, the surgeon informed the patient simultaneously in all steps of the procedure, such as administration of local anesthetics, initiation of the procedure, placement of the scope, and the info of the remaining time.

Without any sedation or systemic anesthesia, the processing area was stained with the povidone-iodine solution in the supine position, and periurethral 2% lidocaine gel was given into urethra (administered 10 minutes before the procedure and waited until penile block started). FC was performed with 16 Fr Flexible Cystoscopes (Karl Storz Endoscopy-America, Inc., Culver City, CA).

After the procedure, the patients were asked to record their pain with a Visual Analogue Scale (VAS) score. On this scale, the score of 10 described severe pain, while the score of 0 described being completely painless.

The study has been approved by the ethics committee of the institution and it conforms to the provisions of the Declaration of Helsinki (T.R. Health Sciences University Bakirkoy Dr. Sadi Konuk Training and Research Hospital, Date: 16.03.2020, Number: 2020-44).

## STATISTICAL ANALYSIS

SPSS 20.0 program was used for statistical analysis. (SPSS Inc., Chicago, IL). Distribution normality was assessed by the Kolmogorov-Smirnow test. Independent sample t-test and chi-square test were used for categorical variables.  $p < 0,05$  was considered statistically significant.

**TABLE 1:** Demographic characteristics and VAS value of all patients and comparison between two groups.

Mean± SD	Group 1 (n=58)	Group 2 (n=54)	p
Age (years)	54.5 ± 8.3	55 ± 9	0.737
Time (min)	4.7 ± 0.8	4.9 ± 0.8	0.188
VAS	4.3 ± 2	3.2 ± 2.2	<b>0.011</b>
VAS Subgroups			
No pain	5 (8.6)	5 (9.2)	0.139 <sup>n</sup>
Mild	21 (36.2)	28 (51.8)	
Moderate	31 (53.4)	20 (37)	
Severe	1 (1.7)	1 (1.8)	
Indication (n; %)			0.670 <sup>*</sup>
LUTS	17 (29.3)	13 (24)	
Hematuria	41 (70.6)	41 (75.9)	

VAS: Visual Analogue Scale LUTS: Lower urinary tract symptoms.

<sup>n</sup>chi-square test <sup>\*</sup>Mann-Whitney U.

## RESULTS

Data of 112 male patients who met the inclusion criteria were analyzed. Group 1 consisted of 58 patients and Group 2 consisted of 54 patients. The average age of the patients participating in the study was 54.7 ± 8.6 years. The mean procedure time was 4.8 ± 0.8 minutes and the mean VAS score was 3.8 ± 2.2. There was no significant difference between the two groups in terms of age, procedure time and the rate of indications. VAS subgroups comparison was detected no significant differences while the mean VAS score value measured after the procedure was found to be 3.2 ± 2.2 in Group 2, it was determined as 4.3 ± 2 in Group 1 and a significant difference was detected between the two groups. (p = 0.011) (Table 1). The VAS score showed a negative correlation with age (p=0.003).

## DISCUSSION

Rigid cystoscopy is the gold standard in the evaluation of LUTS, hematuria and in the follow-up of TCC of the bladder.<sup>1</sup> Considering the length of the male urethra, rigid cystoscopy in the lithotomy position disrupts patients' comfort, causes pain and therefore it often requires sedation.<sup>3</sup> Such disadvantages restrict the administration of rigid cystoscopy with local anesthesia, especially in men. Therefore, before the

widespread usage of FC, cystoscopies were usually performed under intraurethral anesthesia mostly for women.<sup>4</sup> With the common use of FC, diagnostic procedures were frequently performed under local anesthesia.<sup>3</sup>

The effects of distraction methods on patient anxiety and pain scores in previous studies are controversial.<sup>7-9</sup> Colt et al. showed that distracting methods such as listening to music or watching videos had no effect on pain during bronchoscopy.<sup>7</sup> However, there are studies reporting that distracting methods have significant relieving effects on pain during procedures such as sigmoidoscopy and gastroscopy.<sup>8,9</sup> Previously, Kesari et al. applied a distraction method similar to our study and stated that it reduces patients' anxiety and pain scores during the FC, but there is no significant difference between them.<sup>10</sup> In a randomized controlled study by Patel et al., it was reported that monitoring the procedure resulted in a 40% reduction in pain score, but in another randomized controlled study, Cornel et al. found no difference between the two groups.<sup>1,11</sup> Clements et al. reported that visualization of the procedure with a screen provides a low anxiety score and less pain compared to patients who were not visualized during FC.<sup>6</sup> In our study, it was found that patients who watch the monitor during the procedure and actively participate by being informed about the steps in the process experienced less pain.

One of the factors affecting the perception of pain during FC is the patient's position.<sup>3</sup> In the study conducted by Cornel et al., which determined that the simultaneous visualization of the patients did not reduce the pain, the procedure was applied to the patients in the lithotomy position.<sup>11</sup> In the studies conducted by Patel et al. and Soomro et al., stating that simultaneous visualization alleviates the pain of the patient, FC was applied to the patients in the supine position.<sup>1,3</sup> In our study, FC was performed in the supine position and it was shown that simultaneous visualization reduces pain significantly.

Taghizadeh et al. reported that the most painful stage during cystoscopy was the stage where the membranous urethra was passed with a median VAS score of 2.82.<sup>12</sup> The other parts of the cystoscopy

showed significantly less pain scores range from 0.14 to 0.33. Although the design of our study did not evaluate the pain scores at different stages of the procedure, we observed lower pain scores using distracting methods such as deep breathing at the membranous urethra level and monitoring of the patients' spindle relaxation. However, there is a need for randomized controlled trials designed for this purpose.

Applying intraurethral anesthesia with lidocaine gel is a commonly used method for local anesthesia during FC.<sup>13</sup> Patel et al.'s metaanalysis on randomized controlled trials showed that the use of lidocaine gel or plain/neutral gel did not make a significant difference in pain control during FC.<sup>13</sup> In our clinic, we routinely use intraurethral lidocaine gel for local anesthesia.

The main limitation of our study was the small number of patients. Although the VAS score is a reliable and validated method to assess the severity of pain, additional parameters are needed to measure pain, which is a subjective finding.

## CONCLUSION

Explaining the procedure step by step and let the patient follow the procedure through the monitor will result in a significant reduction in pain rates for male patients.

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## Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

## Authorship Contributions

**Idea/Concept:** Murat Tüken, Ahmet Hacıslamoğlu, Mithat Ekşi; **Design:** Deniz Noyan Özlü, Murat Tüken, Mithat Ekşi; **Control/Supervision:** Yusuf Arıkan, Murat Tüken, Abdullah Hızır Yavuzsan, Ali İhsan Taşçı; **Data Collection and/or Processing:** Deniz Noyan Özlü, Osman Özdemir, Yusuf Arıkan; **Analysis and/or Interpretation:** Abdullah Hızır Yavuzsan, Ahmet Hacıslamoğlu, Murat Tüken; **Literature Review:** Mithat Ekşi, Deniz Noyan Özlü, Yusuf Arıkan, Osman Özdemir; **Writing the Article:** Murat Tüken, Mithat Ekşi, Ahmet Hacıslamoğlu; **Critical Review:** Abdullah Hızır Yavuzsan, Murat Tüken, Ali İhsan Taşçı; **References and Findings:** Osman Özdemir, Yusuf Arıkan, Abdullah Hızır Yavuzsan; **Materials:** Deniz Noyan Özlü, Mithat Ekşi, Abdullah Hızır Yavuzsan, Ahmet Hacıslamoğlu.

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