A Guide for Using UroDapter® Catheter Free Bladder Instillation Adapter

Introduction

Compared to the traditional way of bladder instillation – which involves a catheter – using UroDapter® has a number of advantages.

The process is minimally invasive and entirely painless. A catheter, even if it is used most cautiously, can cause micro lesions and be the source of infections. These issues cannot be experienced if the UroDapter® is used. Moreover, UroDapter® enables the treatment of the bladder and the urethra at the same time, which is impossible by using a catheter. After the instillation the mucosa of the surface of the urethra becomes covered with a thin layer of the instilled solution, which has a regenerative effect until the next voiding.

We have used UroDapter® more than 4000 times in the last 6 years. With this device, the instillation is quick and easy. However, to make sure that the treatment with the UroDapter® is being performed correctly, it is worth being aware of the experience we have gathered so far.

This summary gives help for using UroDapter®. Knowing the information detailed herein is essential for those who wish to perform this new way of instillation. Both therapists and assistants must be aware of the fact, though, that this summary cannot replace personal experience. The more times UroDapter is being used, the easier and more effectively can the instillation be performed with it.

Female Patients

1. Identifying and Exposing the Orifice of the Urethra

Regarding the size and the exact location of the urethral orifice, the anatomy of the female external reproductive organs is of high diversity.

It is important to know that the fingers used for exploration should lie as close to the orifice as they can be. The exploration has to happen by pulling the labia apart laterally (and not only upwards).

In many cases, the wrinkles located at the edge of the orifice (the pseudolabia) are entirely clenched, which makes the identification of the opening hard. It is worth wiping the area with some antiseptic solution. The piece of gauze used for this process – if it is being moved slowly and downwards – can part the pseudolabia for a short time. The location of the orifice can be identified easily afterward.

2. The Proper Way of Disinfecting the Orifice

It is essential to disinfect not only the orifice but also the surrounding areas thoroughly. Disinfection has to be performed in a 3 cm area of the orifice and on the inner surface of the labia, too.

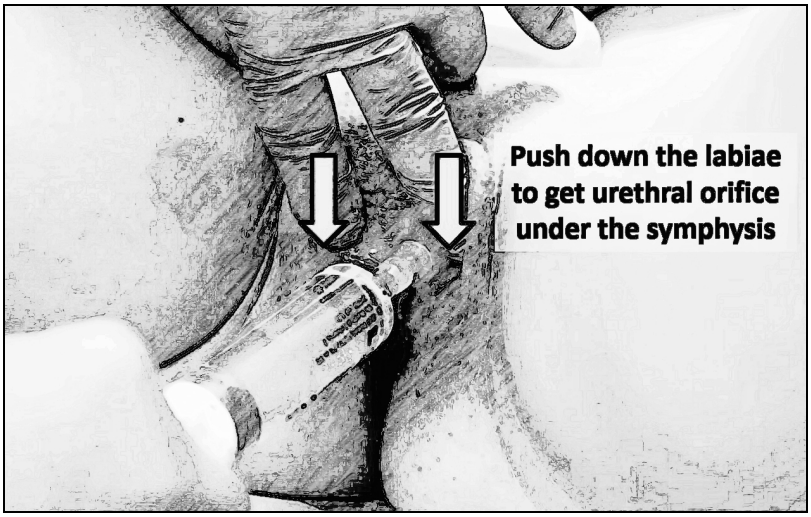
If the disinfection is insufficient, the tip of the UroDapter® might drift some bacteria into the urethra, and with the flow of the instilled solution, they might reach the bladder, too.

Disinfection is to be performed on the tip of the freshly unpacked (sterile) UroDapter®, from the tip to the sealing collar, too. Not only does this prevent the drift of the bacteria, but also it inactivates the bacteria located in the first couple of millimeters of the urethra.

3. Preventing the Dislocation of the Orifice

During the exploration, the orifice of the urethra can be pulled up and moved accidentally under the lower edge of the symphysis. If the adapter is inserted and the instillation is being performed horizontally while the orifice is dislocated, the opening situated on the tip of the adapter might drive the wall of the urethra against the lower part of the symphysis, which makes the instillation impossible.

To prevent this situation, after UroDapter® has been inserted into the orifice, push the orifice gently downwards, in the direction of the rectum with the fingers used for exposing the opening.



By a sort of „spooning” movement, the orifice dives under the symphysis with the adapter and the syringe. (This diving move is being helped by the sealing collar, too.) When the correct position has been found, the resistance of the plunger decreases characteristically.

4. Finding the Best Angle of the Syringe

The optimal instillation (when the least resistance can be experienced) can be performed if the axis of the urethra and the syringe are parallel.

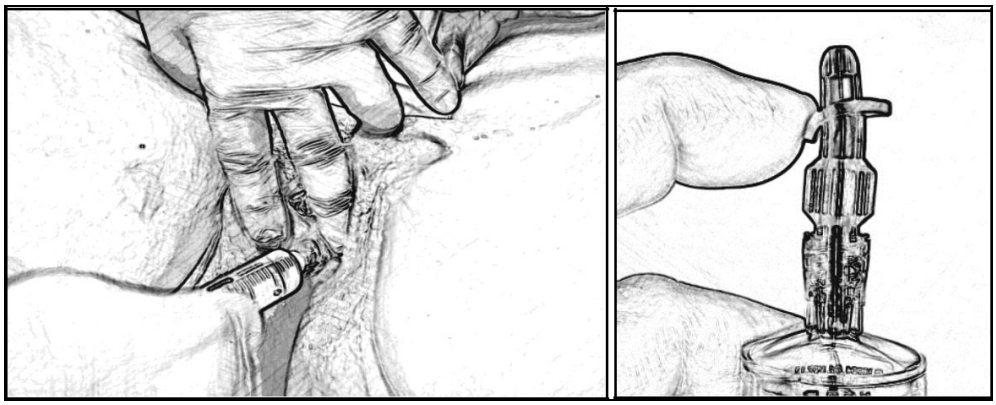
After the orifice has been driven under the symphysis with the „spooning" described before, the best angle for the instillation is the horizontal one – in most of the cases.

The anatomy of the patient must be focused on, too.

In the case of younger patients, the tissues situated nearby are tight. When UroDapter® is located slightly upwards (its tip is slightly above its other end), the instillation can be performed with the most efficiency.

Older patients' tissues are significantly looser (they are particularly „sloppy" after a considerable weight loss). Sometimes cystocele can be observed, too: the bladder wall is characteristically protruded downwards. In these cases, the urethra is orientated downwards; therefore, the angle of the instillation should follow it: the adapter should be situated slightly from up to down (approximately 20–40 degrees).

When the optimal angle has been found, the instillation becomes suddenly easier. Since the sealing collar is flexible, the treatment can be done safely, even if the syringe is not perpendicular to the orifice.

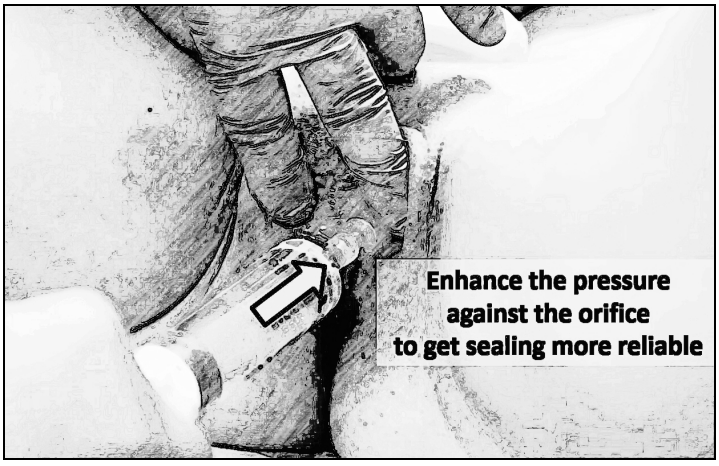


5. Leakage Prevention

One of the most common issues is leakage. If it happens, a part of the solution does not reach the urethra, it flows away instead. In some cases, it can be observed instantly. However, the leaking solution might enter the vagina – which is in a downwards position during the instillation –, and it re-appears only after the instillation has ended and the patient has stood up. Solutions used for bladder instillation do not cause pain nor complications in the vagina, but the liquid coming out of that organ might make patients frightened even if its amount is not more than a few drops. It is worth warning them about this phenomenon before the instillation starts.

During the instillation proper lighting and the constant observation of the sealing collar are essential so that leakage can be noticed immediately, and it can be ceased by certain minor corrections.

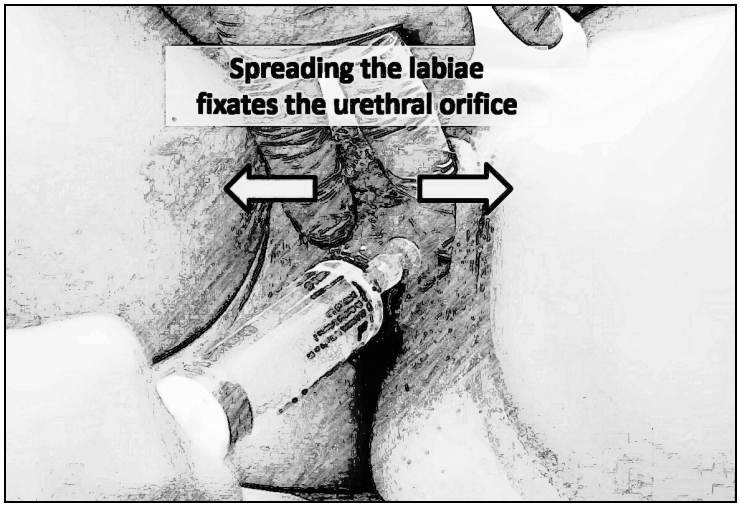
Leakage can occur when the adapter is not pressed properly against the orifice. If there is not enough pressure, the collar cannot cover the nearby tissues properly, and the opening remains „unplugged". By applying more pressure, the flexible collar can adapt itself to the surface of the nearby tissues, and the orifice will be sealed properly.



Too much pressure can cause leakage, also. In this case, the urethra – which is already squeezed longitudinally – may bulge. This is called the kinking. The intra-urethral pressure increases and exceeds the sealing pressure of the collar. If this happens, the applied force has to be decreased gradually.

When the resistance of the plunger of the syringe suddenly disappears, the urethra is in the right condition for the instillation.

In some cases, the urethral orifice is so much mobile that it can easily be pushed up, and even the visual control can be lost. In these cases, the appropriate force for the selling collar cannot be reached. The forced opening of the labias pulls out the orifice and elongates the urethra at the same time, resulting in reduced leakage.



In rare cases, the opening of the urethra is not rounded, but a wide slit can be observed. If the UroDapter® is not able to cover the whole orifice, the solution will flow out through the uncovered section. In this case, the UroDapter® must be put into the lower part of the orifice and pushed with an appropriate force to the orifice. The uncovered part – usually 1–3mm–, which is situated above the collar, can be closed by lifting the adapter with the syringe slightly and pushing it to the dorsal surface of the symphysis.

6. The Speed of Instillation

Given that the isolating collar is covering the orifice properly, the instilled solution raises the intra-urethral pressure, which opens the sphincter; thus, the solution enters the bladder. That said, the instillation itself can be performed in one minute. The exact time, obviously, depends on the patient.

If the sphincter becomes constricted due to pain or fear and muscle tone increases, the pressure in the urethra increases, which can lead to more pain, and the spasmodic contraction of the sphincter.

The patient herself can notice it, but the phenomenon can be identified by the increasing resistance of the plunger of the syringe. Therefore, the patient must be told to relax, although it is worth mentioning this to her earlier, too. A couple of deep sighs may help the patient relax, also. It is essential to wait until the end of the constriction: the speed of the instillation should be decreased, or, if needed, it can be paused.

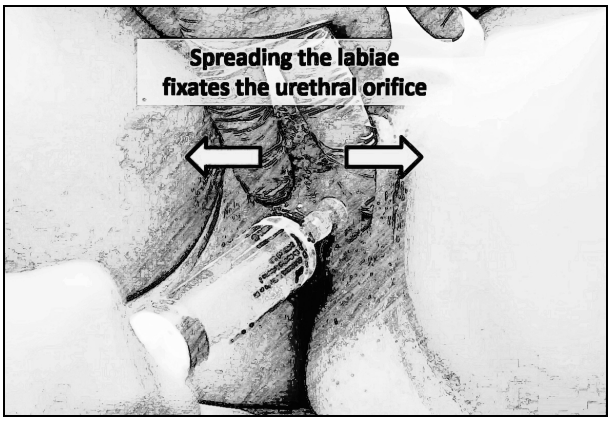
7. Special Cases, Possible Complications

The patients are to be asked not to have sexual intercourse within three days prior to the treatment since sex can raise the risk of ascending infection as a complication of the instillation.

It is possible to treat a patient with the UroDapter® during her period, too. The patient has to be asked before the instillation to insert a new tampon in her vagina. Disinfection of the affected areas must be performed especially carefully. Moreover, 80 mg Gentamycin should be mixed to the (first) solution used for instillation in order to prevent any infection occurring after the treatment. Since the tampon applies some pressure from outside on the urethra, the sealing collar must be pushed against the orifice with a larger force, and the plunger of the syringe must be pushed harder, too. On the other hand, kinking (which was described earlier) rarely occurs because the tampon „ensures the way" for the instillation.

Normally, local anesthesia need not be performed, since the patient feels no pain, only a moderate amount of pressure. However, the urethra is sometimes so severely inflamed that the touch of UroDapter® itself causes pain. In this case lidocaine gel has to be injected into the urethra, this anesthetizes the surroundings of the orifice, too. After 2 minutes, the instillation may be started.

Due to the great diversity of the anatomical structures in rare cases (1–2% of the patients), the orifice is too tight, and the tip of UroDapter® – which is 6mm wide – cannot penetrate it. If this situation causes the patients neither urinary issues nor other symptoms, the instillation can be performed by the careful insertion of the opening on the tip of UroDapter® into the opening. During the instillation the adapter must not slide aside, therefore the fingers exposing the orifice must be situated as close to it, as possible. The surrounding tissues must be pulled apart with pressure higher than usual so that the structures can form a sort of tight membrane.



If the constriction of the orifice prevents the instillation and/or causes other symptoms (eg.urinary retention), the opening may be dilated carefully (with a blunt instrument).

Alternatively, meatotomy may be performed.

In sporadic cases (at elder, sexually inactive patients), the callused opening of the vagina is so constricted that the urethral orifice cannot be exposed. In this situation, the instillation cannot be performed without a catheter.

If the solution is being instilled with great speed, the temporal, high pressure in the urethra may cause pain, and its sudden widening may cause the bleeding of the mucosa. (The same can happen if the patient is not relaxed enough.) The bleeding ceases spontaneously in a short time and causes no complications.

Very rarely, bacteria might drift with the solution into the bladder, and in a couple of days, acute cystitis develops. This might happen if, besides the IC/BPS condition, there is vaginal infection present as well. Therefore, in case of vaginitis, it is recommended to wait with the intravesical instillation until the symptoms of the infection cease (these usually include burning, itching, and secretion) – gynecologic treatment is suggested.

In case of such conditions besides careful sterilization and disinfection 40–80 mg Gentamycin should be mixed to the (first) solution used for instillation. This is sufficient to prevent the reproduction of the bacteria, given that a small number of them is drifted in.

8. After the Instillation

When the treatment has ended, the patient must try to hold her urine back for at least 3 hours, so that the solution can affect the bladder and the urethra for an ample amount of time. Besides this, any action can be performed by the patient.

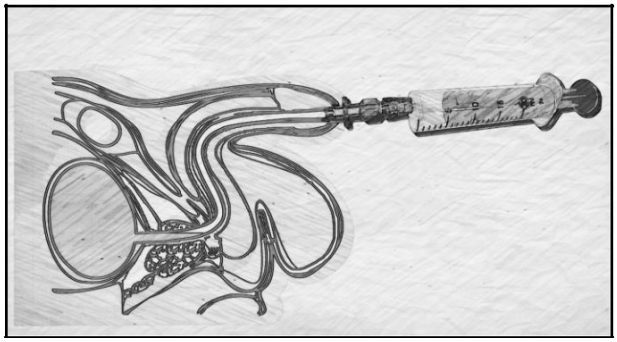
Male Patients

The general guidelines are the same for male patients as those of female patients.

Due to the anatomical differences, there are several things that should be focused on.

The disinfection should be performed just as carefully, and it should include the whole penis, especially the entire glans and external urethral orifice (which should take place after the complete retraction of the foreskin).

The penis should be held in the same way as it is for catheterization: with one hand and straightened with a slight pull, to make sure that the urethra is not being kinked. The syringe with the sterile UroDapter® shall be pushed with the other hand to the urethral opening and fitted into the first, slightly wider section (fossa navicularis) of the urethra. For this, it is worth making the rounded tip of the UroDapter® slippery with a few drops of the drug being instilled. The isolation collar should be lying on the surface of the glans surrounding the urethral opening.



During the instillation of the solution, it is especially important for men to relax well enough; the drug should be delivered slowly and intermittently. Sometimes it is needed to pause the treatment and ask the patient to relax completely. Due to the double sphincter, the urethral pressure can increase, but in the relaxed state, the bladder sphincter can be opened by the liquid being administered in the urethra. In fact, the liquid penetrates the bladder already at an average of 50 cmH_2O pressure (retrograde sphincter opening pressure).

Because the male urethra is significantly longer than the female one, approximately 15–18ml of the solution will stay inside the urethra. To prevent this drug quantity from being wasted, before taking away the syringe, the urethral opening should be closed by a press performed with the thumb and the index finger, so that the solution cannot flow out. After that, approximately 20ml of air should be sucked into the syringe. It should be is pushed back after the liquid –a “buffing” sound indicates that the air has entered the bladder and has pushed in the solution, too.

However, a thin layer of the solution adheres to the surface of the urethra, ensuring simultaneous healing of the surface of the urethra and the bladder.