

**USEFUL INFORMATION FOR PATIENTS WITH
SUSPICIOUS BLADDER CANCER AND ARE
ELIGIBLE FOR TRANS-URETHRAL RESECTION OF
BLADDER TUMOUR (TURBT)**

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Dear Patient,

After a careful evaluation of your case, you have been deemed eligible for trans-urethral resection of bladder tumour (TURBT).

We are glad that, for your surgery, you have chosen our Department, where hundreds of TURBTs are performed every year. The experience we have gathered over the years on this type of surgery makes the San Raffaele Hospital one of the top institutions in the field.

Additionally, in our research hospital we have conducted many studies (and many are ongoing) on what are the major determinants of postoperative outcomes.

We hope that this reinforces your trust in our Department and our Team and that these aspects reassure you.

In this document, we summarize essential information that will help to make your hospital stay, and subsequent complete recovery, as short as possible.

Bladder cancer is an insidious but curable disease! We are here to fight it with you.

"You never know how strong you are until being strong is the only choice you have."

Cayla Mills

PRE-SURGICAL ASSESSMENT

Before surgery, your overall health status will be carefully evaluated and, in general, the following examinations will be performed or ordered:

- **Laboratory blood tests**
- **Electrocardiogram and cardiological examination**
- **Anesthesiologic assessment**, during which:
 1. The suitability for surgery is ascertained
 2. Additional exams or other physician evaluations may be ordered
 3. Any changes in, or suspensions of, chronic therapies are agreed upon
- **Chest x-ray** (if the patient has not recently undergone a chest CT scan)

We are glad to inform you that the need for blood transfusions is extremely low for this type of surgery.

Yet, it is extremely important to inform us whether you are taking any anti-platelet or anti-coagulant (“blood thinners”) medication. The suspension and/or replacement with other medications must be determined by your physician or by the anesthesiologist before surgery. These medications might increase the risk of intraoperative bleeding and their suspension or titration have to be carefully examined before surgery.

In some cases, it may be necessary to replace oral anti-coagulants (“blood thinners”) with low molecular weight heparin (injections). The anesthesiologist or coagulation specialist from our hospital will advise you in this regard.

If you do not inform us on time about these medications and they are subsequently not interrupted on time, the surgical procedure will have to be postponed, thus wasting precious time for your health!

A cardiological evaluation, in the 30 days prior to surgery is required.

BLADDER ANATOMY AND BLADDER TUMOR

The bladder

The urinary bladder is a hollow organ located in the pelvis, responsible for the collection of urine produced by the kidneys. The urine reaches the bladder through the ureters. From the bladder, urine is periodically expelled externally through the urethra (Fig. 1)

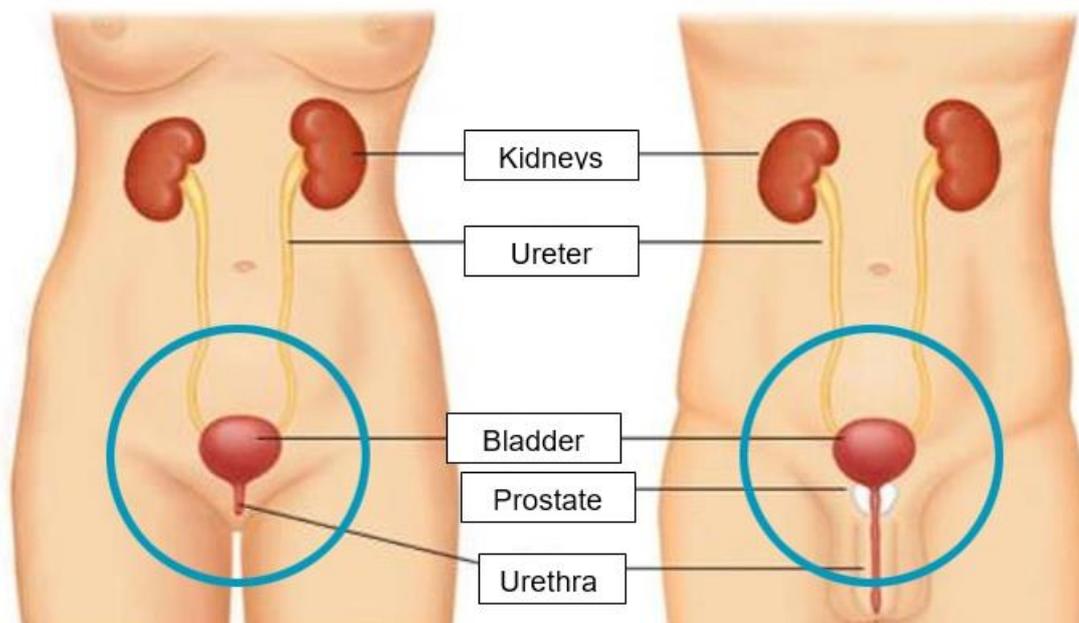


Fig 1. Urinary tract anatomy

The muscle that forms the bladder wall is called the “detrusor muscle”, a smooth muscle whose activity is regulated by nerve fibres, which perceive the bladder filling up and communicate this information to the central nervous system.

The urethra runs through the urogenital diaphragm, which consists of a striated muscle subjected to voluntary control, called the external sphincter. Micturition leads to the periodic emptying of the urinary bladder by an automatic reflex of the spinal cord, mediated by the central nervous system (Fig.2).

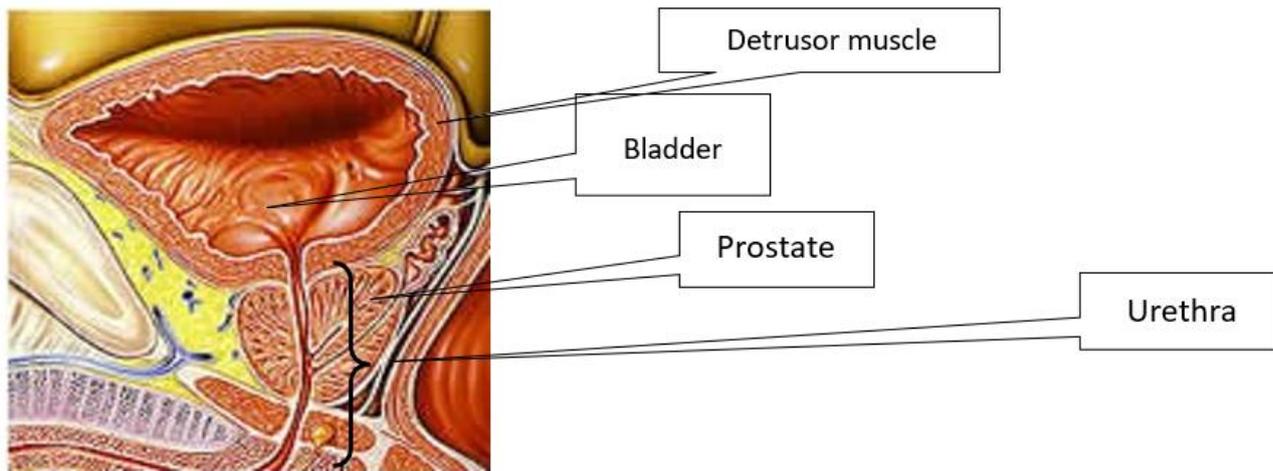


Fig. 2 Urinary tract structures involved in urination

Bladder cancer

Bladder cancer is the world's ninth most common cancer. Currently, there are about 430,000 new cases per year. Bladder cancer is also characterized by a high mortality rate, ranking thirteenth among the causes of death for cancer. This tumour affects men more often than women, with a ratio ranging from 6:1 to 2:1, depending on the geographical areas. However, mortality is higher in women due to a more aggressive biology, along with a more frequent diagnostic delay. The risk of developing bladder cancer generally increases with age and more frequently affects people over 50 years old.

Cigarette smoking is undoubtedly the most important risk factor associated with bladder cancer, linked to approximately 50% of bladder cancer cases. In addition to smoking, some occupational agents are responsible for an increased risk of bladder cancer. These include aromatic amines and nitrosamine (frequent in workers in the textile, dyes, rubber, and leather industries), toluene, polyaromatic hydrocarbons, chloro-ethylene, dichloromethane, diesel and fuels derivatives. Some classes of workers, such as those in the industries of tobacco, chemical dyes and metals, are at a higher risk of developing bladder cancer because of their exposure to the chemical agents mentioned above.

If you fall into one of these risk classes, you MUST ABSOLUTELY INFORM US AT THE TIME OF THE UROLOGICAL VISIT!!! In fact, exposure to these agents must be stopped immediately as it could favour the development of a second tumour in a different location, such as the kidneys or ureters.

Bladder cancer can occur in several histological forms. The most common type of bladder cancer is the transitional cell carcinoma or urothelial carcinoma, that is, the tumour that originates from the transitional epithelium. These tumours represent about 90% of all bladder neoplasms. The remaining 10% consists of squamous cell carcinomas (squamous cells), adenocarcinomas, small cell carcinomas, sarcomas, and mixed forms where multiple histology patterns are present.

Tumours are usually located on the lateral walls of the bladder (Fig. 3): in most cases (75%) they have a papillary shape (i.e. like a small growth) or a flat or nodular shape (carcinoma in situ, CIS).



Fig. 3 Ultrasound allows the physician to identify a suspected bladder cancer

Bladder cancer symptoms are common to other diseases that affect the urinary tract: presence of blood in the urine and clot formation, a burning sensation in the bladder when compressing the abdomen, difficulty in and pain while urinating, greater susceptibility in getting infections. These symptoms become more and more prevalent as the disease progresses.

There are currently no reliable screening programs or early diagnostic methods, so it is necessary to take preventative measures regarding lifestyle such as quitting smoking and eating healthy and balanced meals.

Indications for trans-urethral resection of bladder tumour (TURBT)

Trans-urethral endoscopic removal of bladder cancer (TURBT) is recommended when the presence of a neoplastic lesion inside the bladder is discovered or even strongly suspected.

Surgery is the only method to make a definite diagnosis of bladder cancer, and it allows us to evaluate its extension (local staging).

GETTING READY FOR SURGERY

Anaesthesia

Epidural (spinal) anaesthesia is commonly used for endoscopic removal of bladder cancer. It is painless and characterized by an excellent postoperative pain control, less blood loss during surgery and lower frequency of thrombosis of the lower limbs or pulmonary embolism. For these reasons, spinal anaesthesia is the standard approach for this type of surgery.

However, if the anaesthesiologist considers the use of general anaesthesia safer according to your case, the latter approach will be used.

Before surgery, an antibiotic prophylaxis is administered (to prevent infections) and, depending on the anaesthesiologist's evaluation, a pre-anaesthesia anxiolytic drug may be given.

At the same time, intravenous drugs for nausea and vomiting, gastro-protection and pain therapy (preventive analgesia) are administered. Pain killers are continued through the post-operative period. The pain control is thus optimal, allowing the patient to overcome the surgery trauma faster. Some muscle and joint pain due to the position on the operating table may appear after surgery, but this usually responds well to analgesic drugs and early mobilization. The minimal invasiveness of this surgical technique allows for a rapid recovery. In fact, the patient is encouraged to immediately resume normal feeding and to mobilize from the day following surgery.

The prevention of thrombotic and thromboembolic phenomena is implemented by placing elastic stockings on the lower limbs before surgery, as well as by the early mobilization of the patient.

(Further clarifications will be provided during the preoperative evaluation with the Anaesthesiologist specialist).

SURGICAL TECHNIQUE

The first surgical step consists of positioning the patient in a lithotomy position (with legs raised and spread apart). A "resectoscope" is then introduced into the bladder under direct vision through the penis (or, in the case of a female patient, through the urethral meatus) to remove the tumour lesion (Fig 4 and Fig 5).

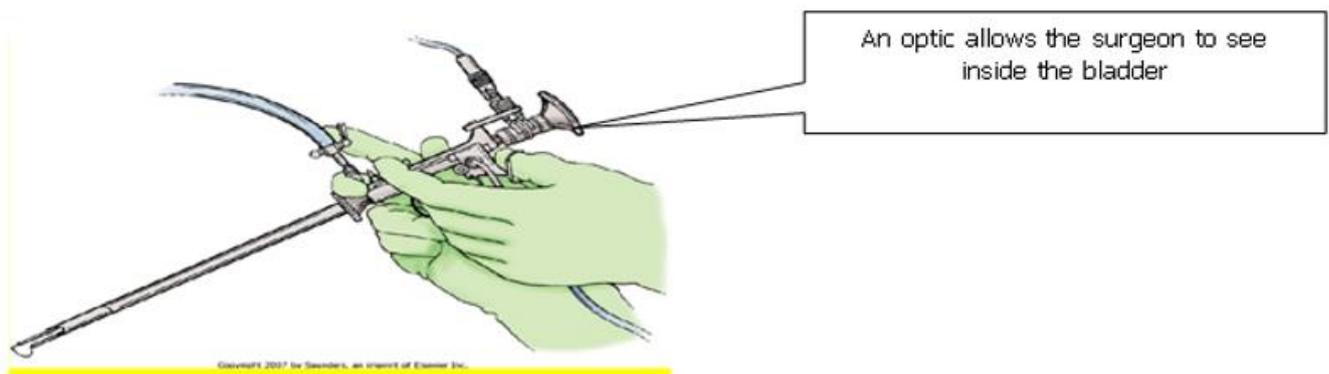


Fig. 4 Surgical instrument used to remove the bladder cancer

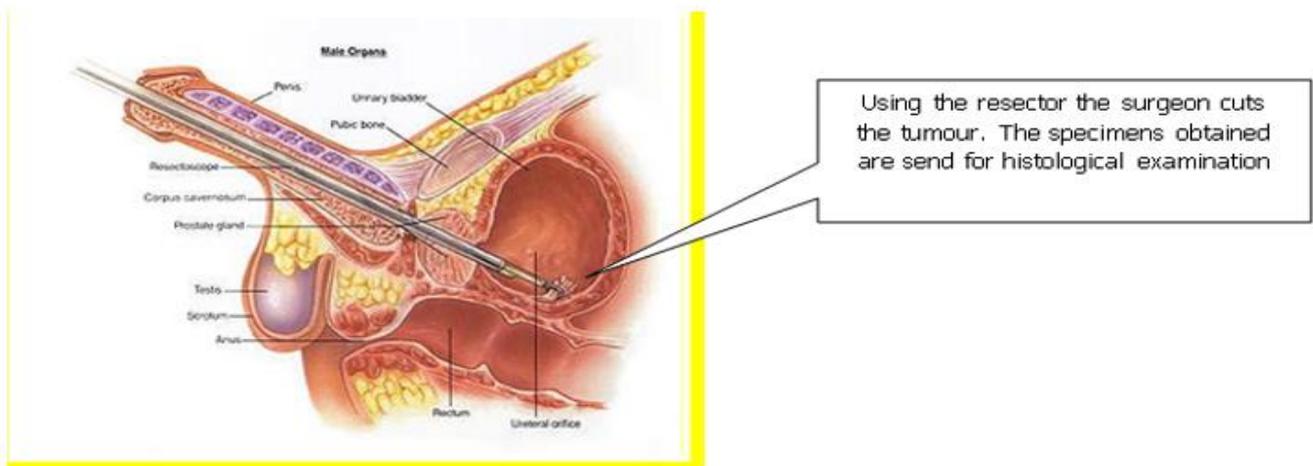


Fig. 5 The resectoscope is placed inside the bladder

Using electrical energy, the resectoscope allows the surgeon to "slice" the tumour lesion and remove it completely. Once the resection and haemostasis are completed, the resected tissue is extracted from the bladder and sent to the Pathology Department for histological evaluation.

A bladder catheter will then be placed. This can be removed any time between the day following the surgery up to 2 weeks later, based on the complexity of

the surgery, intraoperative findings and the clinical judgment of the operating surgeon.

In selected cases, intravesical instillations with chemotherapy can be performed in the operating room which acts immediately on the bladder mucosa as this reduces the risk of late recurrence.

POST-OPERATIVE COURSE

Patients normally get out of bed on the first postoperative day and are gradually mobilized as they recover energy. This promotes the recovery of normal blood flow, aids in avoiding the formation of thrombi ("clots") in the veins of the lower limbs and facilitates the resumption of intestinal activity.

AS A GENERAL RULE, THE PATIENT MUST BE BEDRIDDEN FOR THE SHORTEST AMOUNT OF TIME!!!

The hospital stay usually varies between 2 and 5 days, depending on patient's clinical condition and eventual complications.

The discharge usually takes place on the day following surgery and in some cases the patient leaves the hospital with a bladder catheter. In such cases, the surgeon will provide with an appointment at our clinics for the removal of the catheter.

HOSPITALIZATION ON THE WARD MUST BE LIMITED TO THE MINIMUM LENGTH OF TIME IN ORDER TO REDUCE AS MUCH AS POSSIBLE THE RISK FOR PATIENTS TO CONTRACT A NOSOCOMIAL INFECTION!!

After discharge from the hospital, it is important to gradually resume physical activities. You can go walking and go up and down the stairs. It is a good idea, however, to avoid strenuous movements, such as lifting heavy objects or performing intense exercise during the first 4 weeks following the surgery.

We also recommend avoiding riding sports (bicycle, motorcycle, horse riding) during the first 8-10 weeks. **4 weeks** after surgery, you will be able to resume all of your normal activities, avoiding only riding sports.

If the bladder catheter is removed the day of discharge, it is imperative that the patient remains in Milan for at least the next 24 hours. In case of any complications, you have the possibility of reaching the hospital.

INFORMATION ABOUT HOTELS LOCATED NEAR THE HOSPITAL WHERE THE PATIENT (AFTER BEING DISCHARGED) AND HIS FAMILY CAN STAY WILL BE PROVIDED BY OUR OFFICES. THE CLOSEST ONES ARE:

- 1. Hotel Rafael Via Olgettina, 60 - 20132 Milan Tel. +39 02 21765.1 - Fax. +39 02 21765888 - inside the San Raffaele campus - rafaelhotel.it**
- 2. NH Hotel in Milan 2 Via Fratelli Cervi - Milan 2, Segrate (MI) Tel. 022175 - mail: nhmilano2@nh-hotels.com**

POST-OPERATIVE COMPLICATIONS

TURBT surgery is generally not characterized by a high postoperative complication rate. Patients undergoing this surgery are discharged from the hospital quickly and are usually able to return to their daily activities after a short period of time.

It is not uncommon to see red urine after surgery. This is often associated with the need to urinate frequently and it usually returns to normality within 2 weeks following surgery. Abundant hydration will help to make the urine clear.

In males affected by prostatic diseases (benign prostate hyperplasia), it might happen that the removal of the bladder catheter is not followed by a natural recovery of micturition. This framework of urinary retention is a consequence of the underlying prostate pathology and must be treated by positioning an additional bladder catheter, which can be removed later.

Although infectious complications are rare (3.1%), they can occur in various ways (burning during or after urination, cloudy and foul-smelling urine, fever, etc.) effectively treated with antibiotic therapies. The evolution of local infection up to uro-sepsis is a much rarer event (1%) and in this case the patient will be treated with intravenous antibiotic therapies with a prolonged hospital stay.

MORTALITY RISK

The mortality rate for endoscopic resection of bladder cancer is about 0.8%. However, this risk is based on the patient's clinical characteristics. In highly specialized centres such as ours, this risk is close to zero. According to our data deriving from a series of TURBT surgeries performed at our centre in 2019, the mortality rate was 0%.

ADVICE UPON DISCHARGE

Final pathology examination

The pathology examination defines the exact nature of your intravesical disease and provides precise information regarding its extension in the bladder. Based on this extension, the bladder tumour is defined as:

- Non-Muscle-invasive or Muscle-invasive

This classification depends on the depth of the tumour, i.e. the involvement of the innermost (connective tissue) or outermost (muscle tissue if not even serous layer) layers of the bladder.

Less aggressive superficial bladder neoplasms do not require any additional therapy, but only surveillance by periodic endoscopic evaluation (usually at 3 months and, subsequently, every 3-6 months according to the severity of the disease).

During the cystoscopy check, you will be advised to carry out a cytological examination of the urine and, if appropriate, imaging of the upper excretory system (for example: ultrasound of the urinary system, urography, CT scan of the abdomen).

FOLLOW-UP

Based on the pathology report and the extent of the disease, your urologist will schedule the subsequent follow-up and further specialist assessments.

In some cases of histologically confirmed non-invasive bladder cancer, a cycle of periodic intravesical instillations with chemotherapy or immunotherapy may be indicated. This has a minimum duration of 6 weeks and can last up to 3 years. Administration of intravesical medications is a hospital procedure and can be done in our clinics.

After a first endoscopic surgery, in some cases, you may be eligible to receive a second endoscopic surgery of the bladder ("TUR of Bladder 2nd look") for a more complete eradication of the disease. Again, if indicated, your urologist will decide the timing of this second procedure.

As for future check-ups, we recommend that you carefully follow all the indications that you will find in the discharge letter.

It is a great pleasure for me to have the chance to treat you. I hope you will always consider our entire medical staff as both doctors and friends.

While remaining at your complete disposal for any further clarification, I take this opportunity to offer you my best regards.

Prof. Francesco Montorsi

**Professor and Chairman
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Program director
Vita Salute San Raffaele University - Milan**