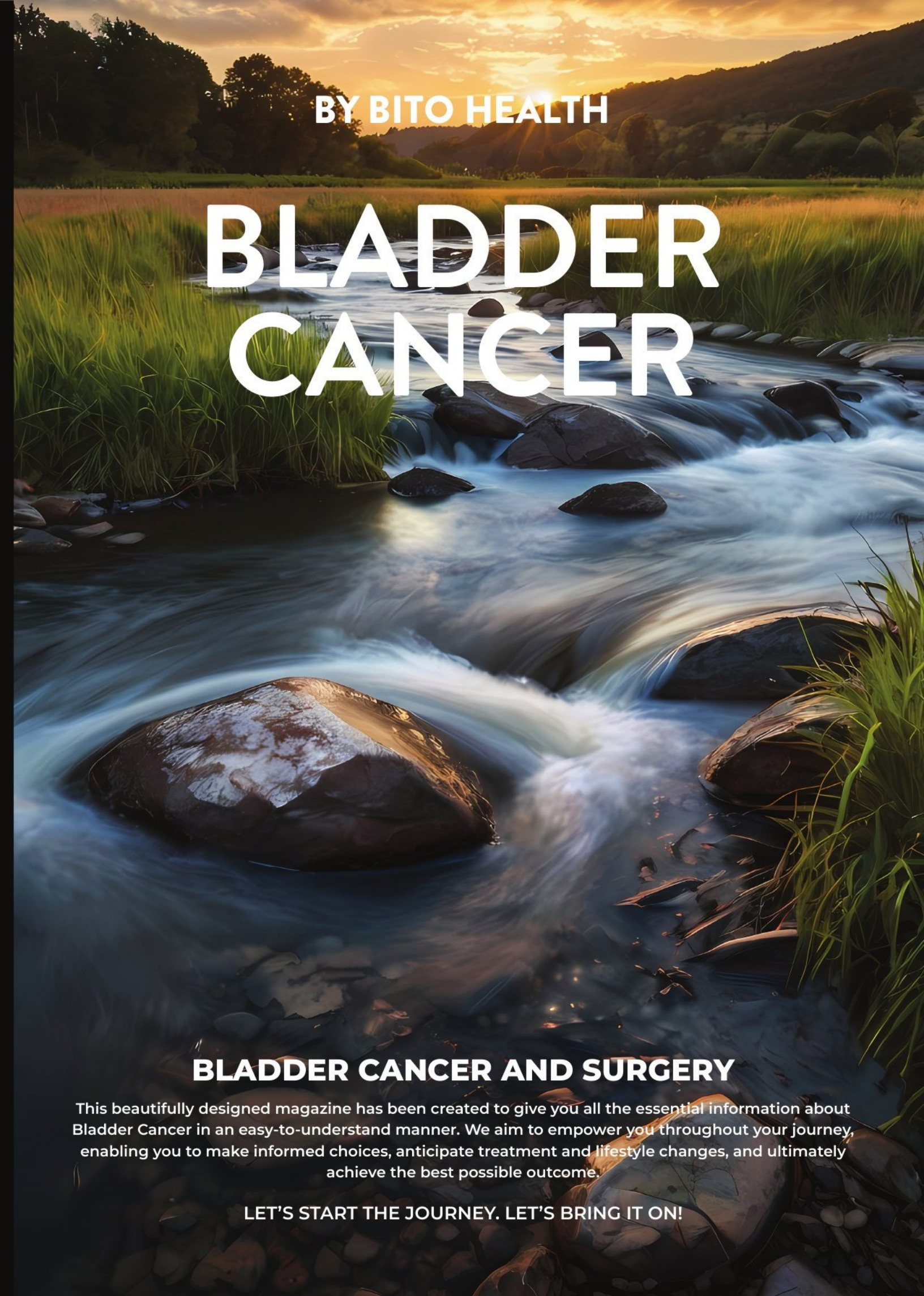


A scenic landscape featuring a river flowing over dark, wet rocks. The water is captured with a long exposure, creating a soft, white, misty effect as it cascades over the rocks. The river is flanked by tall, green grasses. In the background, there are rolling hills and a dense forest of trees. The sky is a mix of orange, yellow, and blue, suggesting a sunset or sunrise. The overall mood is peaceful and serene.

BY BITO HEALTH

BLADDER CANCER

BLADDER CANCER AND SURGERY

This beautifully designed magazine has been created to give you all the essential information about Bladder Cancer in an easy-to-understand manner. We aim to empower you throughout your journey, enabling you to make informed choices, anticipate treatment and lifestyle changes, and ultimately achieve the best possible outcome.

LET'S START THE JOURNEY. LET'S BRING IT ON!



CONTENTS

4 Understanding Bladder Cancer

- What Is Bladder Cancer?
- Where Is the Bladder and What Does It Do?
- How Does Bladder Cancer Develop?
- Types of Bladder Cancer Explained
- What Causes Bladder Cancer? (Risk Factors)

11 Symptoms & Early Detection

- What Are the Symptoms of Bladder Cancer?
- Early vs. Advanced Symptoms
- Can Bladder Cancer Be Detected Early?

21 Diagnosis & Staging

- How Is Bladder Cancer Diagnosed?
- Cystoscopy and Biopsy: What to Expect
- Imaging Tests (CT, MRI, PET)
- Understanding Your Pathology Report
- Bladder Cancer Staging (TNM System)

29 Treatment Options

- How Is Bladder Cancer Treated?
- What Is TURBT Surgery?
- Risk Groups in Early-Stage Bladder Cancer (NMIBC): Low, Intermediate, High Risk
- Intravesical BCG and Chemotherapy: How Bladder Cancer Is Treated Without Removing the Bladder
- When Is Bladder Removal Surgery Needed?

31 Surgery & Recovery

- Bladder-Preserving Surgery Options
- Radical Cystectomy: What Patients Should Know
- Urinary Diversion Options (Ileal Conduit, Neobladder, Indiana Pouch)
- Preparing for Bladder Cancer Surgery
- Hospital Stay and Recovery After Surgery

38 Life After Bladder Cancer Surgery

- Living With a Urinary Diversion
- Stoma and Pouch Care
- Sexual Health After Bladder Cancer Treatment
- Managing Common Post-Surgery Problems

42 Radiation & Systemic Therapy

- Radiation Therapy for Bladder Cancer
- Chemotherapy: What to Expect
- Immunotherapy and Targeted Therapy
- Side Effects and How to Manage Them

47 Advanced & Metastatic Bladder Cancer

- What Is Metastatic Bladder Cancer?
- Treatment Options for Advanced Disease
- The Role of Clinical Trials
- Palliative and Supportive Care

51 Follow-Up & Long-Term Care

- Why Follow-Up Is Critical After Treatment
- Surveillance After TURBT
- Surveillance After Radical Cystectomy

58 Prevention & Survivorship

- Reducing the Risk of Bladder Cancer Recurrence
- Lifestyle, Diet, and Cancer Prevention
- Foods With Cancer-Preventive Properties

61 Patient Resources

- Treatment Summary & Medical Notes

WHAT IS BLADDER CANCER?

Bladder cancer is the sixth most common cancer in the United States and the most prevalent malignancy of the urinary system. Each year, approximately 85,000 new cases are diagnosed. The disease is about three times more common in men than in women, and its overall incidence has been gradually declining, likely due to decreased rates of cigarette smoking.

Bladder cancer primarily affects older adults, with incidence peaking in individuals aged 65 and older. The median age at diagnosis is around 73 years. Among different racial groups, White individuals have the highest incidence of bladder cancer, while Black individuals are often diagnosed at later stages and tend to experience poorer outcomes.

Globally, China reports the highest annual number of bladder cancer cases, likely due to its large population and the increasing cancer burden.

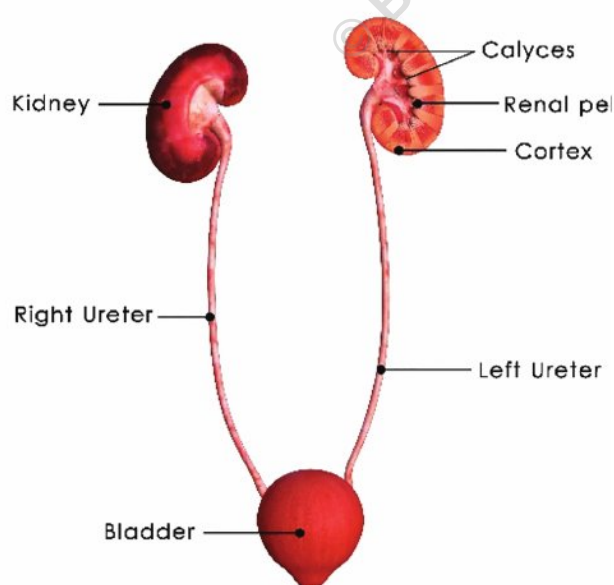


CLOUDS
COME
FLOATING INTO
MY LIFE ...
TO ADD
COLOR TO MY
SUNSET SKY.

Rabindranath Tagore

WHERE IS THE BLADDER LOCATED AND WHAT DOES IT DO?

The bladder is a hollow, muscular organ in the pelvic cavity, positioned behind the pubic bone. In men, it is located in front of the rectum, and in women, it lies in front of the uterus and vagina. Its main function is to store urine from the kidneys, which travels through the ureters. As the bladder fills, it sends signals to the brain, creating the urge to urinate. Urine is expelled through the urethra, controlled by sphincter muscles. The bladder wall has several layers: the inner urothelium (called transitional epithelium), the middle layer contains connective tissue (called lamina propria), and the outer detrusor muscle contracts to empty the bladder.



HOW DOES BLADDER CANCER DEVELOP?

Bladder cancer arises when cells in the various layers of the bladder undergo abnormal changes and become malignant. It is classified based on the type of cells where the cancer originates and its growth behavior.

TYPES OF BLADDER CANCER AND THEIR CELLULAR ORIGINS

1. TRANSITIONAL CELL CARCINOMA (UROTHELIAL CANCER):

This is the most common form of bladder cancer, accounting for over 90% of cases. It originates in the urothelial cells lining the bladder, ureters, and renal pelvis.

2. OTHERS

a. Squamous Cell Carcinoma: This type accounts for about 3–4% of bladder cancers and typically develops in response to chronic inflammation—such as long-term use of urinary catheters—or in individuals with schistosomiasis.

b. Adenocarcinoma: A rare form of bladder cancer that arises from glandular cells responsible for mucus production.

c. Small Cell Carcinoma: A rare and aggressive cancer that arises from neuroendocrine cells in the bladder.

d. Sarcoma: Extremely rare, sarcomas begin in the muscle or fat layers of the bladder, such as rhabdomyosarcoma.

CLASSIFICATION BY GROWTH PATTERN AND INVASIVENESS

1. GROWTH PATTERNS:

a. Papillary Carcinoma: Grows finger-like projections into the bladder cavity.

b. Flat Carcinoma: Lies flat against the bladder lining and tends to be more aggressive.

2. INVASIVENESS:

a. Non-Muscle Invasive Bladder Cancer: Confined to the inner lining of the bladder.

b. Muscle-Invasive Bladder Cancer: Penetrates deeper into the muscle layers and surrounding tissues.

WHAT CAUSES BLADDER CANCER?

(Risk Factors Explained)

The risk factors for developing bladder cancer include:

1. LIFESTYLE AND ENVIRONMENTAL FACTORS

a. Smoking Cigarettes: Remains the strongest modifiable risk factor. Smokers are up to 5 times more likely to develop bladder cancer. Recent studies show smoking influences the evolution of healthy bladder tissue, favoring expansion of mutated cells that may lead to cancer.

b. Occupational Exposure: Long-term contact with industrial chemicals (e.g., aromatic amines in dye, rubber, leather, and paint industries) significantly increases risk. Hairdressers, machinists, and truck drivers are among high-risk groups.

c. Herbal Supplements: Use of Aristolochic acid, found in some traditional remedies, is linked to bladder cancer.

d. Contaminated Water: Exposure to arsenic or chlorinated water has been associated with increased risk.

e. Chronic Infections: Long-term bladder infections or *Schistosoma haematobium* (in endemic regions) are known contributors.

2. BIOLOGICAL AND GENETIC FACTORS

a. Age: Risk increases significantly after age 55; median age at diagnosis is 73.

b. Gender: Men are about 4 times more likely than women to develop bladder cancer.

c. Race: White individuals have higher incidence rates, though Black individuals often present with more advanced disease.

d. Family History and Genetic Mutations:

e. Bladder cancer is not typically hereditary.

f. Individuals with a first-degree relative who have had bladder cancer are more likely to develop it themselves.

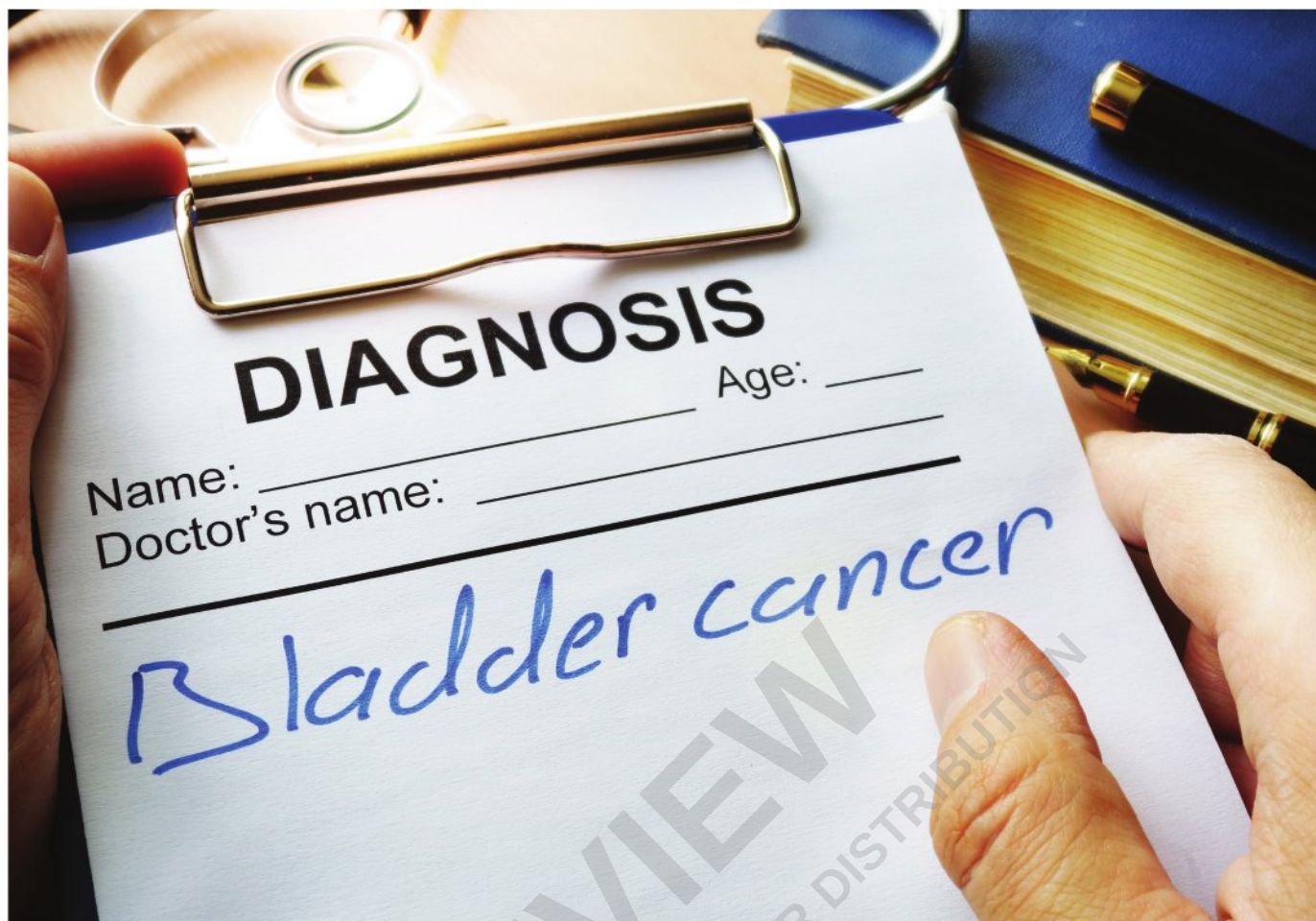
g. Mutations in RB1, TP53, FGFR3, PIK3CA, and others are associated with increased risk.

3. MEDICAL HISTORY AND CHRONIC CONDITIONS

a. Pelvic Radiation Therapy: Prior treatment for cancers like cervical or prostate cancer increases risk.

b. Chemotherapy: Use of cyclophosphamide or ifosfamide is linked to bladder cancer.

c. Chronic Bladder Irritation: Chronic indwelling urinary catheters or recurrent urinary tract infections.



CAN BLADDER CANCER BE DETECTED EARLY?

Bladder cancer screening is generally not recommended for individuals without symptoms and at average risk, but those with high-risk factors—such as a personal history of bladder cancer, heavy smoking, long-term exposure to industrial chemicals, or chronic bladder irritation—should speak with their healthcare provider about appropriate screening options, which may include urinalysis, urine cytology, tumor marker tests, or cystoscopy.

WHAT ARE THE SYMPTOMS OF BLADDER CANCER?

Bladder cancer can cause symptoms that may also be linked to non-cancerous conditions, such as urinary tract infections (UTIs), kidney stones, or an enlarged prostate in men. However, blood in the urine should never be ignored, even if it occurs only once.

EARLY SYMPTOMS OF BLADDER CANCER

The following symptoms are often the first indicators of bladder cancer and should prompt a medical evaluation:

BLOOD IN THE URINE (HEMATURIA):

1. This is the most common symptom, occurring in approximately 80% of cases. The urine may appear pink, orange, or dark red, or blood may only be detectable through a urine test. This symptom is often painless and may come and go. The incidence of bladder cancer is about 10 to 20% among individuals with gross hematuria.

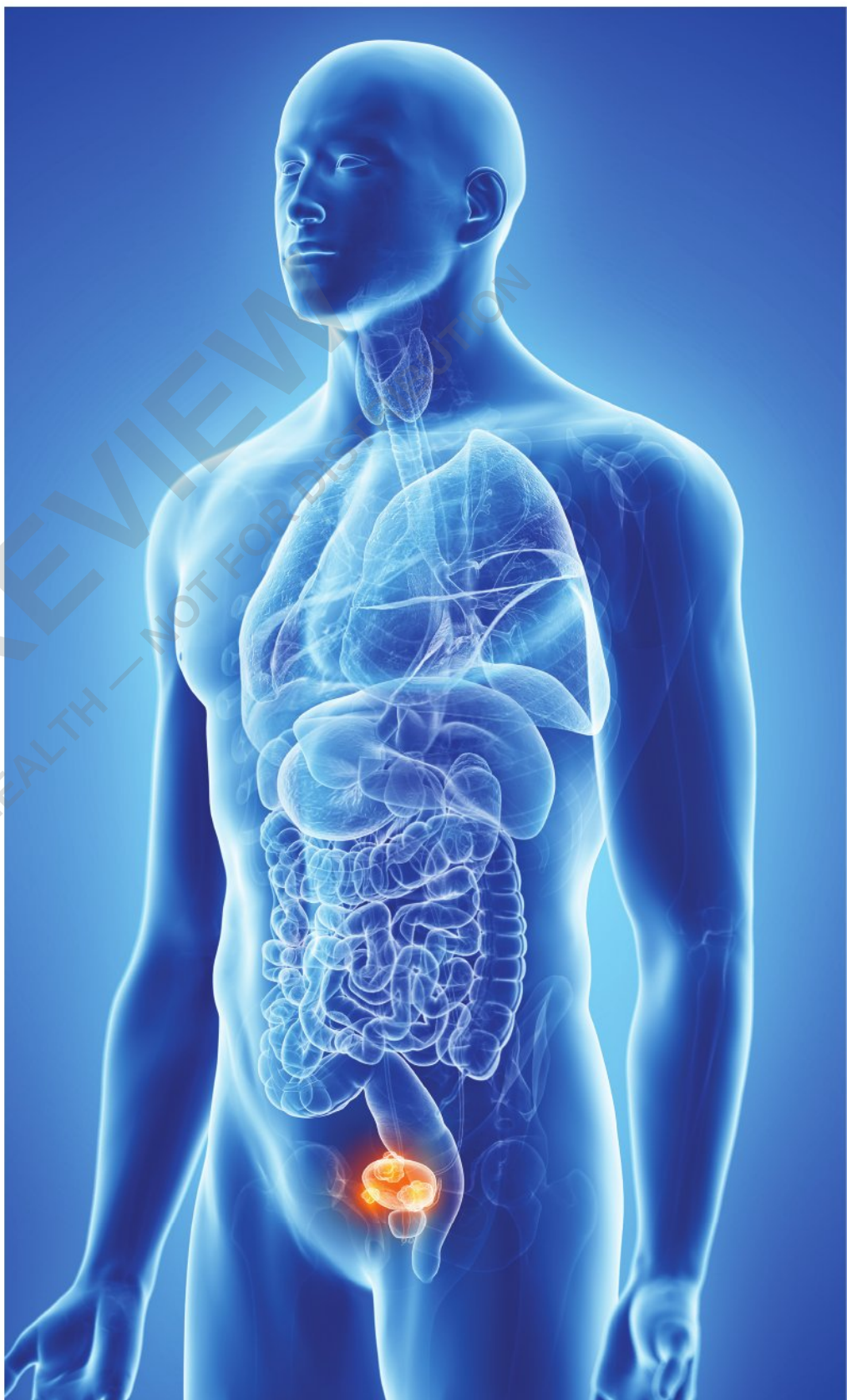
IRRITATIVE VOIDING SYMPTOMS

1. Frequent urination: This includes needing to urinate more often than usual, particularly at night (known as nocturia).

2. Painful or burning urination: This can resemble the symptoms of a urinary tract infection (UTI).

3. Urgency to urinate: A strong feeling of the need to urinate, even when the bladder is not full.

4. Weak urine stream or difficulty urinating: These symptoms may suggest urinary obstruction or carcinoma in situ.



HOW IS BLADDER CANCER DIAGNOSED?

Doctors may use a variety of tests and procedures to investigate and diagnose bladder cancer, depending on the individual case.

HISTORY AND PHYSICAL EXAMINATION

1. A detailed medical history and a physical exam are essential. Doctors will inquire about urinary symptoms, smoking history, occupational exposures, and any family history of cancer.

LABORATORY TESTS

1. **Urinalysis:** Screens for blood, infection, and abnormal cells. Hematuria is significant if >3 RBCs per high-power field.

2. Urine Cytology: Detects cancer cells; sensitivity is low.

3. Blood Tests: Complete Blood Count (CBC), Liver Function Tests (LFTs), Complete Metabolic Panel (CMP)

4. Urine Tumor Marker Tests: Tests like NMP22 or UroVysion FISH may be used selectively; not routinely performed.

IMAGING STUDIES

1. CT Urography: CT urography provides detailed images of the urinary tract, helping to detect tumors, obstructions, and disease spread. While

more accurate than ultrasound, it may miss tumors under 1 cm, especially in the bladder's trigone or dome. A thickened bladder wall could suggest muscle invasion, but a biopsy is needed for confirmation. CT scans are also useful for identifying locally advanced tumors affecting surrounding tissues.

2. Ultrasound: Less sensitive for bladder evaluation. It may help identify kidney masses but is limited in detecting bladder tumors.

3. Others: Intravenous pyelogram (IVP): An older technique that has largely been replaced by CT urography due to superior imaging quality and diagnostic accuracy.

DIAGNOSTIC PROCEDURES

1. Cystoscopy: Cystoscopy is the gold standard for the initial diagnosis and staging of bladder cancer. A thin flexible tube with a camera is inserted into the bladder to directly visualize tumors. It can be done in the office with minimal risks (Office Cystoscopy).

2. Biopsy: Tissue samples taken during a cystoscopy are examined under a microscope to confirm the type and grade of cancer.

WHAT IS TURBT SURGERY FOR BLADDER CANCER AND WHAT SHOULD PATIENTS EXPECT?

Transurethral Resection of Bladder Tumor (TURBT) is a minimally invasive procedure in which a surgeon removes bladder tumors through the urethra and collects tissue for diagnosis. It is performed under general or spinal anesthesia, depending on your health and your surgeon's recommendation. The procedure typically takes 30–60 minutes, and most patients go home the same day or after an overnight stay.

A temporary catheter may be placed, and mild burning or blood in the urine for a few days is common. TURBT is essential for determining the type and stage of bladder cancer and guiding treatment. Because bladder cancer can recur, regular follow-up is important.