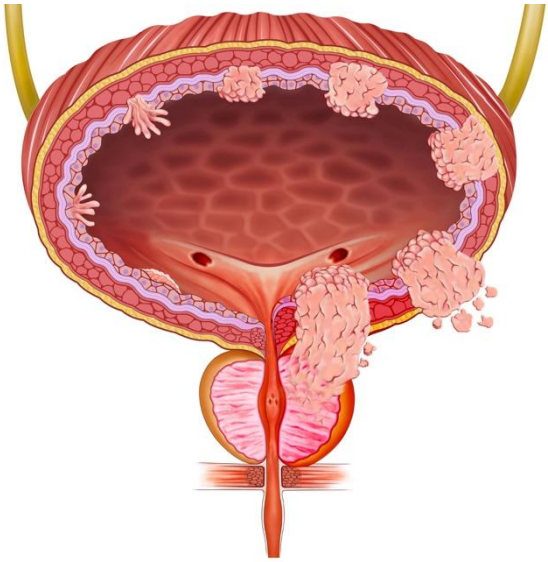
Procedure information

Intravesical Bacillus Calmette-Guerin (BCG)

What is intravesical BCG?

BCG (Bacillus Calmette-Guérin) is a form of immunotherapy used to treat non-muscle invasive bladder cancer (NMIBC). It contains a weakened strain of Mycobacterium bovis — the same organism used in the tuberculosis (TB) vaccine.

When instilled directly into the bladder (intravesical administration), BCG stimulates your immune system to recognise and destroy cancer cells lining the inside of the bladder.



This image shows the stages of bladder cancer – superficial on the left, invasive on the right. BCG is used for the treatment of superficial bladder cancer.

Why is intravesical BCG recommended?

BCG is recommended after a transurethral resection of bladder tumour (TURBT) for patients with high-risk non-muscle invasive bladder cancer, including:

- High-grade bladder cancer (any stage).
- Carcinoma in situ (CIS) - a flat, high-grade cancer confined to the inner lining of the bladder.
- T1 bladder cancer - cancer that has grown into the connective tissue beneath the bladder lining but has not invaded the bladder muscle.
- Multiple, large, or rapidly recurring tumours.

BCG significantly reduces the risk of tumour recurrence and reduces the risk of the cancer progressing to muscle-invasive disease, which would require more aggressive treatment such as removal of the bladder (cystectomy).

What does intravesical BCG treatment involve?

BCG is administered in hospital as a day procedure. No general anaesthetic is required.

A small catheter (a thin, flexible tube) is gently passed through your urethra (waterpipe) into your bladder to drain away any urine.

A solution containing BCG is then slowly instilled into your bladder through the catheter. The catheter is removed.

You are asked to hold the BCG in your bladder for 2 hours. After 2 hours, you empty your bladder by passing urine normally.

BCG is given as an ‘induction’ course once a week for 6 weeks. Sometimes a ‘maintenance’ course is also recommended. This involves 1 to 3 treatments every 3 to 6 months for 18 months to 3 years.

What is the recovery after each BCG instillation?

It is normal to experience some urinary symptoms after each BCG instillation. These may include:

- A burning or stinging sensation when passing urine.
- Needing to pass urine more frequently than normal.

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- Small amounts of blood in the urine.

These symptoms usually begin within a few hours of instillation and resolve within 2–3 days. They may feel slightly more intense after each subsequent instillation.

You may also experience flu-like symptoms (fatigue, low-grade fever, muscle aches) for 24–48 hours after instillation. This is a normal immune response to BCG.

You can usually continue your normal activities and return to work the day after each instillation.

What are the risks of intravesical BCG treatment?

The risks of BCG treatment include (but are not limited to):

Common side effects (>1/10):

- Urinary symptoms including burning, frequency, and urgency for 2-3 days after each instillation.
- Blood in the urine (haematuria) for a short period after instillation.
- Flu-like symptoms (fatigue, low-grade fever, muscle aches) for 24-48 hours after instillation.

Occasional risks (1/10 to 1/50):

- Urinary tract infection requiring antibiotics. BCG cannot be given until the infection has cleared.
- Inflammation of the prostate (prostatitis) in men - usually mild and managed with antibiotics.
- Prolonged or severe urinary symptoms requiring medication or a temporary pause in BCG treatment.
- Development of a contracted (reduced-capacity) bladder with prolonged treatment, causing persistent frequency and urgency.

Rare risks (1/50 to 1/250):

- Joint pain or inflammation (BCG-related reactive arthritis).
- Allergic reaction requiring treatment.

Very rare risks (<1/250):

- Disseminated (systemic) BCG infection affecting the lungs, liver, kidneys, or other organs - a serious complication that requires prompt treatment with anti-tuberculosis antibiotics.
- BCG sepsis - a life-threatening systemic infection requiring emergency treatment.

What are the alternative treatment options?

Alternative treatment options for the management of high-risk non-muscle invasive bladder cancer include:

- Intravesical chemotherapy (eg. mitomycin C) - less effective than BCG for high-risk disease but may be suitable for intermediate-risk disease or when BCG is not tolerated or not available.
- Radical cystectomy (surgical removal of the bladder) - the most definitive treatment for high-risk NMIBC, particularly if BCG treatment fails or for very high-risk disease.
- Bladder surveillance - close monitoring with cystoscopy may be considered for selected low-risk or intermediate-risk tumours.
- Novel intravesical agents - newer therapies may be available through clinical trials for patients whose bladder cancer does not respond to BCG.

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