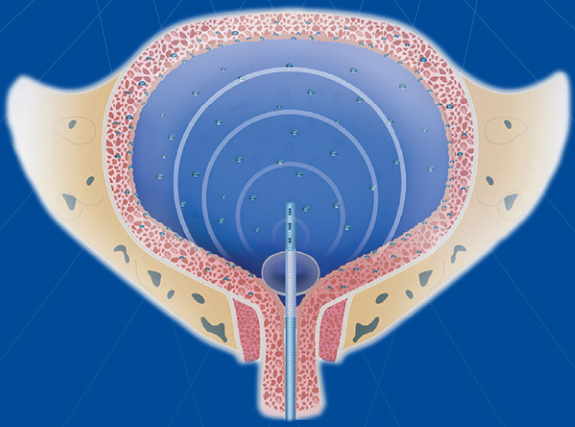
EMDA®

Electromotive Drug Administration

A Patient's Guide to EMDA Mitomycin-C Treatment



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01 Understanding Bladder Cancer NMIBC

This booklet has been prepared to help you, your family and friends understand more about Non Muscle Invasive Bladder Cancer - NMIBC and the treatment recommended by your Urology Consultant.

Bladder cancer is the 7th most common cancer and around 10,000 people are diagnosed with bladder cancer each year in the UK. Usually bladder cancer takes a long time to develop, so it is most common in older people. Most people with bladder cancer are over 60 years old and it is rare in people under 40. It is also more common in men than women, the reason being, more men than women have smoked or been exposed to chemicals at work in recent decades.

Your bladder is made up of layers.
There are four main layers of tissue in bladder:

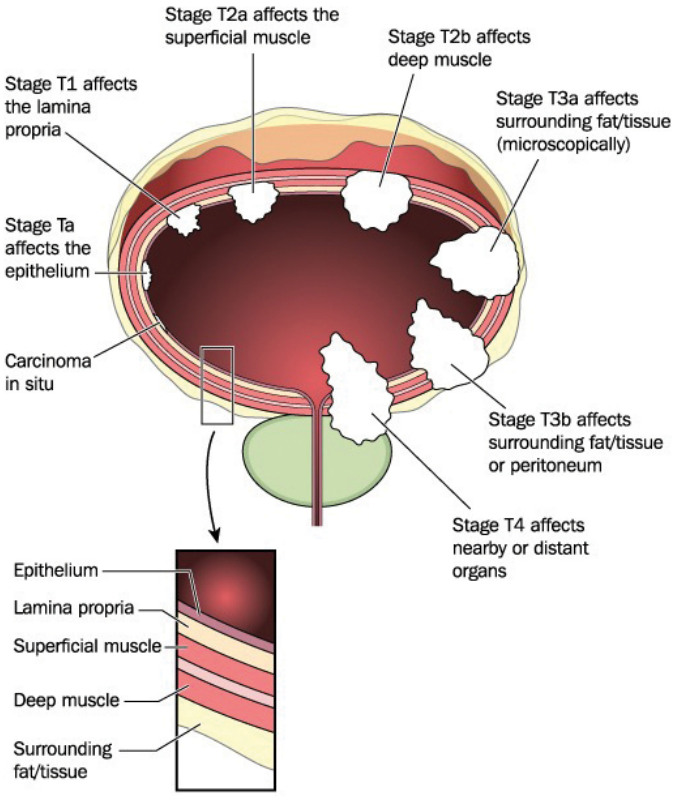
Urothelium – The innermost layer. It is lined with cells that stop urine being absorbed into the body. These cells are called urothelial cells.

Lamina propria – A layer of tissue and blood vessels surrounding the urothelium.

Muscularis propria – The thickest layer. It consists of muscle that contracts to empty the bladder.

Perivesical tissue – The outermost layer. It is made up mostly of fatty tissue that separates the bladder from nearby organs.

02 Staging of Bladder Cancer



When you have a cystoscopy (procedure to look into your bladder), Non-Muscle Invasive Bladder Tumours are usually visible, sitting on the innermost lining of the bladder – Urothelium.

You have already had a procedure called TURBT (Transurethral resection of bladder tumour) to remove the tumour(s) from your bladder. Although non-muscle invasive bladder tumours can mostly be dealt with surgery alone, an additional form of treatment may be recommended.

03 Bladder Cancer Treatment

After the TURBT procedure, your doctor has suggested that you have a further treatment to help stop cancer cells from recurring. This further treatment, called Intravesical Chemotherapy, is the most commonly used chemotherapy for treating NMIBC. The treatment, using a drug called Mitomycin-C, is administered directly into the bladder (Intravesical).

Mitomycin-C is a purple solution that can destroy cancer cells. It attacks cancerous cells when put into the bladder but does little damage to your normal, healthy bladder lining. It is a chemotherapy drug, installed directly into your bladder instead of being injected into your veins. This way you will not get the side effects often associated with chemotherapy, such as hair loss, nausea and vomiting.

04 What is EMDA Treatment?

EMDA or Electromotive Drug Administration is a non-invasive method of enhancing local drug penetration (Mitomycin-C) across the urothelium of the bladder. EMDA uses a small electric current to accelerate and actively transport ionized or non-ionized molecules, inside the drug, into the tissue. The two main principals in this treatment are:

> **Iontophoresis** – Transport of ionised molecules into the tissue by applying a current across a solution containing the ions
>
> **Electro-osmosis** – The transport of non-ionised solutes associated with the bulk transport of water

Improvement in the accumulation of Mitomycin-C in bladder tissue at greater depths has been proven in clinical trials using EMDA.

05 Why do I need EMDA Mitomycin treatment?

You have, or have had, Non-Muscle Invasive Bladder Cancer – NMIBC, which is the most common type of Bladder Cancer. Your doctor has suggested that you have intravesical chemotherapy using EMDA – Electromotive Drug Administration. Mitomycin-C is designed to stop the cancer cells from recurring, and EMDA Mitomycin-C treatment will enhance the drug delivery so it is more effective.

06 How is EMDA Mitomycin-C treatment given?

Mitomycin-C is administered directly into your bladder through a fine tube (catheter) to treat the entire lining of your bladder. The catheter is then connected to the EMDA generator, which uses a small electric current to help enhance the absorption of the Mitomycin-C. (as described in **'What happens during your treatment?'** below).

07 What happens before each treatment?

Before each EMDA treatment, you will be asked to pass urine to empty your bladder. You should try not to drink very much for three or four hours before you come to the hospital for your treatment, particularly if you tend to pass urine frequently. Restricting the amount, you drink will mean that you produce less urine. This will ensure the Mitomycin-C from is not diluted while it is in your bladder and will maximise the drug's effectiveness. You will also be more likely to hold the drug in your bladder for the full treatment time.

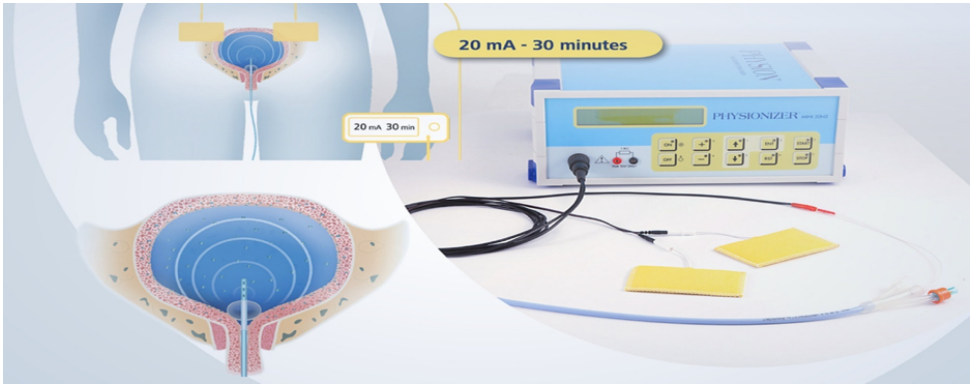
When you come in for your appointment, you will have to give a urine sample before your treatment. This is because you cannot be given Mitomycin-C if you have a urinary tract infection (UTI) or there is blood visible in your urine. You will need to have the UTI treated or wait until the bleeding has stopped before your EMDA/Mitomycin treatment can be re-started.

08 What happens during your treatment?

During your treatment with EMDA you will be asked to lie down on a couch in a treatment room. A catheter containing an electrode will be inserted into your urethra (tube linked to the bladder that allows urine to exit the body) with a local anaesthetic gel, to reduce discomfort. Any remaining urine in your bladder will be drained away and two electrode sponge pads will be placed on the skin of your lower abdomen using a conductive gel.

When the catheter and electrodes are in place, 40mL of Mitomycin-C solution will be passed through the catheter into your bladder along with 100mL of sterile water. The catheter and electrodes will then be connected to EMDA generator which will deliver a controlled small electric current, creating a closed circuit between the catheter electrode and electrode pads. The mild electric current can cause a tingling or stinging sensation where the electrodes pads are placed on the skin. The catheter and the electrode pads are left in place for the duration the drug is in your bladder. To keep the drug in contact with the bladder, you will be asked not to pass any urine.

After the 30 minutes treatment is finished, the bladder will be drained and the catheter and electrodes will be removed.



09 What do I need to watch out for after the treatment?

It is important to avoid getting the Mitomycin-C in contact with your skin as it may cause a slight rash. If the solution does get on your skin, wash it off immediately with warm, soapy water to prevent any irritation.

10 Side effects explained

Most patients do not experience any major problems with EMDA treatment but it may irritate your bladder, which is usually related to the chemotherapy drug Mitomycin-C that has been used.

There is a small risk of redness occurring where the electrode pads are placed on to the skin. Your Clinical Nurse Specialist will try to avoid any air being caught between the electrodes and the skin to keep this risk to a minimum.

You may also notice that your urine is smelly or cloudy, which may indicate a urine infection. This can occur after having a catheter inserted, and you should contact your GP if you are concerned.

Common side effects related to chemotherapy drug:

After each treatment you may notice that you:

- Have discomfort passing urine
- Need to pass urine frequently
- Have blood in your urine

These side effects will either get better within a few days or may need minor treatment to clear them up. To help prevent these problems, it is recommended that you drink plenty of fluids for a couple of days after each treatment to flush any remaining drug from your bladder.

Very rarely you may notice a rash on the soles of your feet and/or palms of your hands or the trunk of your body. If this happens, contact your Clinical Nurse Specialist for advice or seek medical attention. This may suggest an allergic reaction and may mean that the treatment will need to be stopped.

To prevent irritation for yourself and your partner, it is best not to have sexual intercourse for at least 24 hours after each treatment with Mitomycin-C. Men should use a condom throughout the course of their Mitomycin-C treatment and for one week after the treatment ends.

11 Asking for your consent

We want to involve you in all the decision about your care and treatment. If you decide to go ahead, you will be asked to verbally give your consent that you agree to have the treatment and understand what it involves. You should have received the leaflet, **Helping you decide: our consent policy,** which gives you more information. If you have not, please ask your nurse for a copy.

12 Treatment outcome

A check cystoscopy is performed under general anaesthetic six to eight weeks after completing the course of EMDA Mitomycin-C treatment, to find out how successful your treatment has been.

It is important to remember that your tumour(s) may return. If this happens, you can be given a further course of treatment to your bladder to prevent the progression of your tumour(s). Your doctor will discuss this with you in more detail if relevant.

13 Important contacts

Hospital

Name

Address

Telephone

Urology Nurse Specialist

Name

Clinic/Ward

Telephone

Consultant Urologist

Name

Telephone (Secretary)

GP

Name

Address

Telephone

14 Appointments

Date:	Time:	Date:	Time:
Date:	Time:	Date:	Time:
Date:	Time:	Date:	Time:
Date:	Time:	Date:	Time:
Date:	Time:	Date:	Time:
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15 My questions

16 My Notes

This booklet has been produced in conjunction with the Clinical Team at the Urology Centre of Guy's Hospital, London. https://www.guysandstthomas.nhs.uk

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