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# NO-NEEDLE JET INJECTOR DENTAL PRESENTATION

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## Introduction: “Why the MadaJet XLJet Injector?”

Certainly one can put a needle into a patient's tissues with minimal pain. However, it is not so much the pain from the needle that bothers patients, IT IS THE NEEDLE ITSELF that patients fear. "Needle Phobia" is a real phenomenon that dentists contend with on a daily basis. Reducing this fear can make procedures easier and faster for both physician and patient.

Frequently patients put off dental visits because of the fear of the "needle". They often anticipate and associate PAIN with any dental procedure. Much of the "Needle Phobia" can be eliminated by use of the Dental MadaJet XL prior to needle insertion, thus greatly reducing patient discomfort and pain.

**CAUTION:** Please use the Dental MadaJet XL **only in the buccal cavity** (see illustrations on page 8 of this presentation enclosed). **Never inject the fingers or hands to test the MadaJet XL. Injecting directly over bony structures of the digits may produce periostitis or trauma to the digital bones.**

The MadaJet XL is a fine hand-made precision instrument. It is important that you familiarize yourself with all aspects of its operation so that you and your patients will derive complete satisfaction from its use.

**PLEASE READ CAREFULLY ALL OF THE ENCLOSED LITERATURE WITH EACH INSTRUMENT.** In some

case, further technical information, if required, can be obtained by calling our office. Medical or Dental technical information can also be obtained by writing or contacting Customer Care at [custserve@ameditech.com](mailto:custserve@ameditech.com).

Please carefully review the illustrations for "WHERE" and "HOW" the Dental MadaJet XL is best used (See page 8) . Doing so will often make the difference between a satisfied or dissatisfied dentist and patient. **Never use less than 2% anesthetic with or without epinephrine.**

## **Basic Functions of the Dental MadaJet XL Jet Injector**

Before using the MadaJet XL on a patient, please go through all of the basic functions of the instrument, including:

**Filling the pyrex fill chamber** - Either from your regular dental syringe, or from a multiple dose 30cc sterile vial of 2% xylocaine, lidocaine or a similar strength local anesthetic of your choice.

**Priming the head assembly** -To remove air and introduce the anesthetic into the head assembly.

**Cocking and firing the instrument.**

*These simple steps only take a few seconds, but they are necessary in order to 'hear and feel' the MadaJet XL while in use.*

**Maintenance -Cleaning and Disinfecting** - See Care of the MadaJet XL on page 9 of this brochure.

## **Description of the Dental MadaJet XL Jet Injector**

The MadaJet XL is a jet injection device which injects local anesthetics into a patient relatively painlessly. It isn't whether the MadaJet XL hurts more or less than a needle - THE FACT IS, THERE IS NO NEEDLE. Patients Hate Needles!

Observe the case and its contents, plus the Stand and MadaCide-FD Solution. The MadaJet XL is composed of three basic parts with two essential accessories:

The Head Assembly with its glass Fill Chamber; holding up to 4 cc's.

The Body with its cocking lever and discharge button.

The Extended Tip and Sheath which can be changed between each patient and allows for pinpoint accuracy at the injection sites, both of which are sterilizable and reusable.

In addition to these three basic parts, also included are:

The Dental Stand in which the MadaJet XL is placed between use on each patient.

MadaCide- FD is a Hospital Level Disinfectant/Cleaner and is effective against Herpes, H.I.V.; Coxsackie Virus, plus Mycro bacterium tuberculi and many other pathogenic organisms. MadaCide-FD is used to disinfect and clean the MadaJet XL. Place approximately 30 cc's of the MadaCide- FD Solution in the stand. Change solution daily.

## **Review of General Dental MadaJet XL Functions**

### **Anesthetics are easily added into the Fill Chamber of the Head Assembly**

Using a sterile 3cc syringe with needle, aspirate the anesthetic agent from a carpule or multi dose vial and inject into the glass fill chamber.

The glass fill chamber will hold up to 4.0 cc (ml) which provides approximately 34-38 injections. (About 1/2 cc should be the minimum amount in the chamber).

Per the MadaJet XL Product Manual, prime the Head Assembly several times to remove air from the system.

Screw the head assembly onto the jet injector body, securing "finger tight."

### **Cocking and Firing the MadaJet XL**

Hold MadaJet XL nose down.

Pull cocking lever down until it clicks (90 degrees).

Press the discharge (firing) button. A preset amount of 1/10 cc volume is discharged.

Note the very fine stream of anesthetic which easily penetrates the tissue, similar to a 25 gauge needle in diameter.

If after filling and priming, or if incorrectly cocked, you hear a "pop" when fired, this means there is air in the Extended Tip. To remove this air, cock and fire several times **with the head pointed down**, until a quiet, fine stream of medication is evident.

To enhance patient acceptance and allay needle fears, demonstrate the device in front of the patient by firing into the air, or by firing at their hand **which must be at least two feet away**. Say to the patient "I am going to spray your gum... see, there is no needle!" By doing this, anxiety and apprehension is greatly reduced as the patient hears the quiet sound and sees there is no needle.

## **Techniques and Use after Loading and Cocking**

### **General Information:**

Place MadaJet XL with sheath GENTLY against specific area to be injected so that the sheath is firmly contacting the mucosa. (The Extended Tip is recessed 1/81! into the sheath).

Do Not stretch the mucosa, this is not necessary. Hold the MadaJet XL so that the sheath with Extenda Tip is perpendicular to the tissue to be injected and directed towards underlying bony structures.

The depth of jet penetration is 2 to 2 1/2 mm below the epithelium and forms a wheal at its base of 6 mm diameter.

Always' inject towards underlying bony structures where nerve innervations are normally found. Never use less than 2% strength of anesthetic with 1: 100 ,000 epinephrine.

### **Injection Sites:**

Maxillae (labial aspect) Maxillary Areas -see Dental Application Technique Folder) - Inject into the inter-radicular area at the periapical level towards underlying bony structure, not into the fold. You may wish to inject anteriorly and posteriorly to the tooth involved, as well as lingually.

Maxillae (lingual aspect) -Same approximate area as above, on the lingual surface.

Palatal (Incisor Foramen) -inject on each side of the papillae. Additional MadaJet XL (3-4) injections must be made 1/4" apart in a line, where the syringe and needle insertion will be directed. Posterior Palatal -(1-2) injections in the area of the foramen, again make 2-3 additional MadaJet XL injections as described above.

Anterior Teeth -follow Palatal injection procedure, then inject the anteriors with the MadaJet XL at the interapical area of the Labial aspect close to the junction of the mucal buccal fold.

**IMPORTANT:** When injecting into the palate with a needle, first make an injection with the MadaJet XL at the site where you are going to start your needle insertion. Then, follow with at least 3 more jet injections in line in the direction where the needle will be directed.

### **Injection Sites -Mandibular Blocks:**

Note: The MadaJet XL does not produce enough volume per injection to provide a mandibular block. However, to greatly facilitate this procedure please do the following: Where you would normally start your needle insertion, inject that site with the QuietTouch.™ Make another injection posteriorly near the site of the foramen. This will produce two (2) important effects:

The pain from the insertion by needle and syringe will be greatly diminished.

The second injection by the MadaJet XL will noticeably decrease the pain caused by the volume of anesthetic injected in the tissue with a needle and syringe.

*For Long Buccol Blocks, Mental Foramen injections on the buccol surface of the mandible, Naso-Palatine Foramen Blocks, Posterior Superior Blocks for upper molars, etc., please see Dental Applications and Technical Folder enclosed with each MadaJet XL.*

Note: All of the techniques described herein are but some of the uses in Dentistry for the MadaJet XL. The value of this instrument will grow with experience through its use by the dentist. Those dentists who have taken the time to develop these techniques will often state "I just don't see how any dentist can practice without it."

### **Physiological Advantages Unique to the MadaJet XL**

The MadaJet XL Dental is not a Topical injection device. Each injection delivers into the tissue a volume of anesthetic of one tenth of an ml (cc) at a depth of 2.0 to 2.5 mm below the epithelium. At the base of each infiltration a wheal approximately 6 mm is formed so that each injection into the tissue forms an inverted cone as shown in the accompanying diagram.

Even though the volume per injection is only 0.1 cc, the degree of anesthesia is disproportionately greater than would be experienced with the same volume administered by a needle and syringe. The reason for this is that when the injection is made with the MadaJet XL, the anesthetic infiltrates the tissue in tiny droplet form and is immediately taken up by the myelin sheath of the nerve.

Another unusual physiological effect unique to the MadaJet XL is that the onset of anesthesia in the tissues injected is approximately one millisecond. This means that you do not have to wait as the anesthesia takes effect before you start your procedure.

**Blood titers of anesthetic and epinephrine:** Frequently one may hesitate to inject anesthetic agent (2% Lidocaine or other types in combination with epinephrine). The advantage here is that only 0.1 cc is injected per injection and obviously this means only 0.1 cc of 1:100,000 epinephrine is injected. Although effective in localizing your anesthetic agent, this tiny amount is generally not enough to produce a systemic blood level of the drug. This is especially helpful in those patients with cardiac involvements.

### **Other Helpful Uses of the MadaJet XL**

With pediatric patients, approximately 90% can be adequately anesthetized with the MadaJet XL alone. The use of the needle and syringe can often be eliminated. This fact will become apparent as you learn the various techniques with the MadaJet XL.

#### ***Pedodontic Suggestions:***

1. It is a good idea to demonstrate the cocking and firing of the MadaJet XL in front of the child so they can see and hear the sound.
2. The suggested words to be used are "See, I am going to spray your gum, there is no needle."
3. Injecting at the fold at the approximate inter -radicular area at the periapical level (between the roots) of each tooth from both the labial as well as the lingual and palatal sides is recommended. Injecting at these sites anteriorly and posteriorly to the tooth in question is a normal procedure.

In adults, approximately 40% will respond without having to use a needle and syringe, however, surgical anesthesia most frequently requires deep needle insertion and more volume than delivered by the MadaJet X.

There are, however, many procedures which can easily be done with the MadaJet XL for patients without the use of a needle and syringe.

- a. Curettage and Scaling.
- b. Mental and Naso-Palatine blocks.
- c. Seating Crowns.
- d. Jackets, bands and clamps.
- e. Copper tube impressions.
- f. Gingivectomies.
- g. Direct pulp injections (Remove sheath in this procedure and inject directly into the canal).
- h. Biopsies.
- i. Removal of residual spicules.
- j. Pointing abscesses for I and D procedures.

## **Cleaning and Sterilization Techniques**

There are several methods for disinfecting and sterilizing the MadaJet XL.

1. The sheath which covers the Extended Tip, may be removed after each patient use. These sheaths may be autoclaved or cold sterilized. A sterile sheath may be used on each patient to eliminate cross contamination.
2. The metal Extended Tip, although it does not touch the patient, may also be removed with the enclosed wrench, and sterilized as above.
3. Additional sheaths # 2304, and Extended Tips #2302, may be ordered as accessory components.
4. Your MadaJet XL was supplied with Ready To Use MadaCide-FD solution, which is licensed by E.P.A.as a Hospital Level Disinfectant/Cleaner. A 10-15 minute soak of the sheath and Extended Tips will provide bacteriocidal action for most pathogens observed in a dental practice. Technical information on MadaCide-FD is available upon request.
5. We suggest that enough MadaCide-FD solution be placed in the holder of the Stand to cover the MadaJet XL head assembly. This will provide high level disinfection between patients.
6. The entire MadaJet XL may be autoclaved in a steam sterilizer. Do not use dry sterilization or chemclave.

When autoclaving, flush out medication by priming and firing with MadaCide-FD solution several times. Remove head assembly and wrap components, including pyrex glass fill chamber and autoclave.

Allow to cool before reassembling.

7. If you desire to clean the MadaJet XL by ultrasonic, **only put the head assembly in the ultrasonic cleaner.**

8. Note: After continued use, if patients begin to complain of pain, our experience suggests that this is most likely due to improper cleaning or a partially blocked Extended Tip. This will inhibit the fine jet stream for easy tissue penetration.

The Extended Tip should be removed using the enclosed wrench. Gently probe and twist the enclosed stylet into the small aperture of the tip. The tip should also be soaked in the MadaCide-FD solution to remove any anesthetic salts which tend to clog the orifice.

Reassemble Tip and sheath.

## **Helpful Suggestions When Using The MadaJet XL**

1. Do not push the MadaJet XL forcibly against any tissue.
2. Place the teflon sheath gently but firmly at the site to be injected.
3. Position the sheath and Extended Tip perpendicular to the site of injection.

4. Always inject towards underlying bony structure.
5. In the maxillae or mandibular area, with the exception of the palate, inject between the root or interapical areas.
6. Never use less than 2% Lidocaine.
7. Do not stretch the mucosa during the injection.
8. See extra fill chambers and extra Extended Tips in the MadaJet XL case plus wrench, etc.
9. Extra heads and Extended Tips are readily available.
10. For optimum performance, it is recommended that once a year you send in your MadaJet XL for a complete overhaul at a reasonable charge.

### **Care of the MadaJet XL with MadaCide Disinfectant/Cleaner**

Please follow these simple directions.

- 1) Unscrew head assembly and pour spray approximately 3cc of ready-to-use Madacide into the glass fill chamber.
- 2) PRIME MadaJet XL by holding head assembly nose down and pushing MadaJet XL body in and out of the head assembly (2-3 times). This will force MadaCide out of the Extended Tip. Screw head assembly onto body.
- 3) Pour or spray enough MadaCide into the plastic holder to cover Extended Tip. Place MadaJet XL into the holder for a minimum of 10 minutes until ready to use (overnight or for extended periods).

### **Before Using Your MadaJet XL Podiatry Unit**

- 1) Unscrew head assembly and empty MadaCide out of the fill chamber.
- 2) FLUSH out MadaCide by putting 2-3cc of anesthetic solution or sterile water into fill chamber.
- 3) PRIME MadaJet XL as above then empty the "flush" solution.
- 4) Put 1-3cc of anesthetic solution (2%) or medicament to be used into the fill chamber.
- 5) Prime 2-3 times. Screw head onto body, cock, and fire (see page 2 of manual).
- 6) Place MadaJet XL into holder.

NOTE: Between patients you may elect to change the Teflon® sheaths which fit over the Extended Tips.

Additional quantities are available in packages of 30. These sheaths are reusable and may be autoclaved.

### **At the End of Each Day**

- 1) Unscrew head assembly, empty out contents of fill chamber; follow directions 1-4 in first paragraph.

To steam autoclave or gas sterilization procedures the entire MadaJet XL follow normal sterilization procedures. Be sure to flush out all anesthetic solutions before proceeding. DO NOT USE DRY HEAT OR CHEMICAL STERILIZERS.

Do not leave anesthetics in MadaJet XL overnight as this may cause brown staining or clogging of the Extended Tip. Change the MadaCide solution in the MadaJet XL holder at least twice a week, or as needed.

Trouble Shooting For:

- Loss of penetration (reduced levels of anesthesia).
- Unusual pain at the site of injection.
- Fuzzy jet stream 1-2" from the Extended Tip.

Do the Following:

- Probe small opening in end of the Extended Tip with stylet supplied in case (4-6 mm).
- Cock and fire MadaJet XL 2-3 times to ensure a proper fine jet stream. If you have an ultrasonic cleaner, place only the head assembly with Extended Tip in the unit. Use MadaJet XL solution in the ultrasonic cleaner for 10 minutes to provide disinfecting and cleaning action.

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