



Safe Removal of Dental Amalgams at the Chairside

The following is an outline of our ever-evolving protocol for the safe removal of dental amalgams. As new technology and information become available steps are taken to incorporate them into our protocol. We share this information in order to educate patients and guide dental professionals about the safety issues surrounding the extraction of dental amalgams that contain both mercury and other toxic metals.

Patient Safety issues and Protocols

I. Safety Issues

The mercury in the filling is in the elemental form. It easily penetrates the rubber dam and all mucous membranes (the oral cavity, GI tract and lungs).

Mercury is highly volatile when heated. The dental drill operating at 100,000rpms will generate much mercury vapor during the removal procedure.

It is estimated that 80% of the mercury vapor inhaled enters the body through the lungs and is distributed to various bodily tissues and organs.

Chronic exposure and the hyper-reaction of the body to mercury can precipitate and perpetuate diverse symptoms. It has been difficult to predict when one has reached the breakdown threshold.

Despite the fact that the very best precautions are taken to prevent mercury exposure during dental removal some exposure still occurs. Therefore, the patient needs to take detoxification agents to chelate any mercury and prevent inadvertent absorption.

All the dental amalgams need to be removed prior to any effective heavy metal detoxification. This includes any visible amalgams as well as those under crowns. It has been demonstrated that mercury is released through the tooth as well as from the surface of the filling.

II. Patient Protocols

Prior to dental amalgam removal includes:

1. Dental evaluation and imaging
2. Functional assessment to determine the health issues facing each patient
3. Dental material compatibility tests
4. Removal strategies: sequential, quadrant, or all at once
5. Determination of duration of preparation stage for amalgam removal

During dental amalgam removal:

1. The tooth being worked on is isolated with a rubber dam and a special device is used to suck out the pulverized amalgam and its harmful vapor.
2. The mouth is painted with a slurry mix of chlorella and the dam is also coated with chlorella. A cotton roll is coated with chlorella and placed as a reservoir around the teeth to catch escaping mercury vapor.
3. The patient is provided with clean air during the removal process to prevent inhalation of mercury vapor. A nose mask attached to oxygen or air is used.
4. A high-speed suction device with charcoal filters (Denti-Vac) is placed in front of the patient's mouth to divert the mercury vapor.
5. The filling is removed in as large chunks as possible to minimize vaporization of mercury during drilling.
6. A copious amount of water is used to cool the drill and contain amalgam dust. This reduces vapor formation.
7. A high-speed suction is placed near the filling being removed to minimize mercury exposure.
8. The saliva ejector is placed under the rubber dam next to the area where the filling is being removed.
9. The slow-speed hand suction is used whenever possible to remove small traces of amalgam left behind.

10. Slower speed drills are used to prevent excessive heat generation and vaporization of mercury. This also helps to preserve the pulp from grinding.
11. After the procedure the rubber dam is carefully removed and disposed of. The mouth is rinsed with copious amounts of water and all amalgam dust and particles are suctioned out. Additional cleansing may be performed to chelate more mercury residue.
12. The high-speed air suction is left on during the procedures to clean and filter the ambient air.
13. The air ionizer is turned on during the procedure to ionize and trap mercury vapor.
14. The drills and the air/water syringe are wiped clean to remove any mercury residue.
15. The patient can be covered in a disposable drape to minimize mercury contamination of their clothes. In addition, protective eyewear may be needed. These disposable barriers are removed and are disposed of with the hazardous medical wastes.
16. The disposable suction tips and saliva ejectors, contaminated with mercury, are replaced.
17. After amalgam removal an iv infusion of high doses of vitamin C, glutathione and other nutrients can be administered in a medical office to further eliminate residual mercury. (Optional)
18. The dental revision procedures can be traumatic to the teeth and jaw, TMJ and cranial structures. Physical therapy and cranial-sacral therapy may be helpful. (Optional)

III. Protection for Dentist and Assistant

Mercury is highly toxic and the high-speed drilling can release considerable amounts of mercury vapor. The dental team is breathing the mercury-laden air that escapes into the dental operatory. There is evidence to suggest that the dental team is at risk of absorbing this mercury. The following are tools and techniques to minimize the mercury exposure of the dental team:

1. The Denti-Vac suction is placed close to the oral cavity of the patient during the removal. After the procedure the suction is left on to filter the ambient air.
2. Both dentist and assistant wear gas masks during the removal process to prevent the breathing of mercury vapor.
3. The team also wears protective, disposable clothing during the removal process. If not worn, mercury may cling to the clothing and cross-contaminate the home and family members of the team.
4. The high-speed suction is used to constantly suck off mercury slur and vapor from the drilling.
5. To minimize skin absorption of mercury vapor that has penetrated through the latex gloves, chlorella powder is spread into the gloves before the removal process.
6. The gloves are removed after the procedure. The hand pieces, instruments, and air/water syringes are rinsed, and the suction tips replaced.
7. The protective gowns are removed and disposed of after the procedure.
8. An air ionizer is continuously running to remove escaped mercury vapor and other air-born heavy metals.
9. The dental operation room is continuously monitored for mercury concentrations with a Jerome mercury vapor analyzer.

IV. Protection for the Environment

Unfortunately many dentists continue to place tons of mercury in the mouths of uninformed patients every year. In addition, many tons of mercury is removed from the mouths of dental patients. The suctioned off mercury slur and vapor are allowed to go into the waste water system, resulting in serious environmental pollution. This civic irresponsibility and ignorance is endangering our waterways and fisheries. By some estimates dental offices are the leading polluters of urban sewer systems. However, dental offices are not the only source of mercury pollution. Mercury incineration is the other major source. This comes in the form of coal burning, waste incineration from batteries, thermometers, and amalgams from dental offices, and, of course, the cremation of bodies with amalgam fillings. Although the American Dental Association (ADA) has very strict rules about dental amalgam disposal in the office, it has professional rules barring dental amalgam removal for mercury toxicity, and there is a “gag order” on any discussion of amalgam toxicity by the dentist with the patient. The ADA does not believe that mercury leaks out of amalgams. It defends this position with limited scientific evidence. The end result is that mercury continues to pollute our environment. Although the ADA requires safe and strict procedures for dental amalgam disposal, the disposed amalgam material is still incinerated and released into the environment, ultimately adding to air, water and soil pollution. The only solution to such a quagmire is to ban all use of dental amalgams.

The following are the protocols we adopt to prevent mercury contamination of our environment:

1. A mercury (and other heavy metal) separator has been installed at the end of our suction lines. No mercury from our dental office is dumped into the sewer lines.
2. The large bulk of the disposables from amalgam removal: gowns, gloves, suction tips, saliva ejectors, etc. are put in the medical waste and not incinerated. This is considerably more expensive, but safer for the environment.

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