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Practical methods of protecting the patient, staff and environment when removing amalgam

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## **Amalgam History**

When doc. Mats Hanson raised the amalgam issue in Europe and the first group of amalgam poisoned patients organised themselves in Sweden, I was as sceptical as most people. Possibly due to the fact that I had suffered recent personal health complications that were not understood by the medical expertise, I listened instead of rejecting their views.

Even if my Colleges dr. Pinto in Brasil and dr. Huggins in Colorado had made substantial clinical discoveries on amalgampoisoned patients, their Claims of important clinical observations backed by significant somatic analysis were disregarded as unscientific by the dental and medical establishment. Other clinicians like dr. Ziff and his father have made important contribution by spreading Information of research on amalgam and other dental material toxicity.

In Sweden Jaro Pleva and Mats Hanson along with a group of interdiciplinary clinicians and scientists in the Gustaf Werner Group provided a scientific approach and some understanding to the many implications of amalgam corrosion and toxicity. Realising early that body liquids were not representative of any possible depots of metals in the body (if not mobilised by metal chelators), they developed new methods trying to monitor enzyme function, trace element changes in whole blood, plasma and individual cells and heavy metal content as well. Their understanding of free radical production and control of this process by antioxidants such as Vitamins and certain minerals gave us an important clinical tool to Supplement the amalgam removal.

Clinicians working with amalgampoisoned patients are well aware of the danger of increased sensitisation of mercury and the common exacerbation of symptoms related to metaltoxicity when undergoing amalgam removal. Several researchers have shown that the patient is exposed to substantial amounts of mercury vapour and amalgam particles that may be inhaled, absorbed in mucous membranes or swallowed during the process of amalgam removal.

Considering the fact that the operating clinicians were also exposed, Mats Hanson and I found it puzzling that no'dentist around the world had made any major effort to establish or construct protective measures for this vital procedure (see later). With the rapidly improved results obtained by careful amalgam removal accompanied by individual antioxidant and other supplementary therapy (and chelating agents in some cases), we were astonished to witness continuous recoveries from diseases that according to traditional medical opinion only partially could improve by palliative treatment like Cortisone therapy.

I chose to treat those patients whom the Norwegian and Swedish medical researchers considered or suspected to be the most amalgam intoxicated which they referred to me.

Furthermore I chose to treat those scientists, psychologists, psychiatrists, doctors and other people with intellectual resources and interest in this matter in our common effort "to spread the Word".

**The typical amalgam intoxicated patient:**

and chronic metal toxicity and symptomatology in [this book \(english is only the last chapter\)](#),

I refer to this complex of symptoms often accentuating with unexpected bouts of groups of seemingly unrelated symptoms. Typically the onset follows weeks after dental treatment, an acute infection or after the mother has breastfed one or more babies.

The insidious onset of increasing immunotoxic and neurastenic symptoms may largely be due to mercury, while as the neurologic and other Psychiatric symptoms also may be due to copper, silver and tin as dr. Dauderer describes and monitors in his patients. The inflammatory reactions of various kinds may also be due to several amalgam components and also the lack of selenium and zink commonly observed in the amalgampoisoned patient. In Scandinavia the average adult patient has a higher amount of amalgam fillings than anywhere in the world, and as most people now keep most of their teeth throughout life and commonly introduce other metals in the oral environment, the toxic exposure is increasing. Thus this is true because of increased electrochemical corrosion even if the use of amalgam is drastically reduced. The main problem being the constantly increasing depots in organs of long halflife. The tragic fact that even the next generation is mercury exposed as foetus by the mother's amalgam and dental treatment during pregnancy, people will suffer long after an amalgam ban. General pollution also plays a part. Acid rain contributing to a much too low bioavailable average selenium intake thus predisposing mercury toxicity. Loss of selenium in mother's milk renders the mother extremely susceptible to amalgam toxicity. This latter patient typically develops skin problems, neurastenic symptoms, muscle and Joint pains and receive the diagnosis fibromyalgia (fibrositis). The reumatologist dr. Bo Nilsson has seen that more than 90 % of his 60 patients with fibromyalgia diagnosis recovered within a 5 year period following amalgam removal. His findings correlates well with my own observations. Many of these female patients suffer long term hormonal changes, possibly due to the high deposits of mercury in the pituitary gland with a seemingly long half-life (ref A. Stock / dr. Nylander). Typically they have long term menstrual disturbances and a history of cell changes, infectious or inflammatory reactions or cysts in breasts and ovaries. Men seem to develop Prostatitis and these conditions seem to improve with careful amalgam removal and antioxidant therapy. Even if some of my patients have tried alternative medical (eg various forms of homeopathy) and traditional medical detoxification (eg DMPS and DMSA), most patients have only had careful amalgam removal accompanied with antioxidant and other supplementary therapy.

Kicks de Vahl, one of the founders of the Gustaf Werner Group ran about 100 indirect seleniumtests on my patients, evaluating the bioavailable seleniura by measuring the enzyme function of GSHpX (seleniumcontaining glutathioneperoxidase enzyme). The traditional selenium blood tests could not discriminate whether selenium already was tied to cadmium or mercury as selenides or available for essential enzymefunctions or to bind new mercury released from amalgam. Her test often showed a low GSHpX value when other tests were normal, and this corresponded extremely well with the clinical impression the patient presented with.

Björn Calmark of Scandlab in the same group ran tests measuring individual amounts of essential minerals and heavy metals in whole blood, plasma and even individual blood cells. He found that most of my patients had a significant lack of selenium, zink and magnesium but also other trace element disturbances. Both zink and selenium are important antioxidants and lack of magnesium may partially explain the cardiac arrythmias that many of our patients suffer from periodically.

Ulf Lind (same group) has with the PIXE-method (particle induced X-ray emission) shown that these patients unlike controls have mercury in certain red and white blood cells. Dr. Anders Lindvall has shown that many of these amalgamintoxicated patients also suffer from chronic mononucleosis, suggesting that mercury from amalgam potentiate the Ebstein Barr virus (and possibly others). Along with others he suggests that the mercurysuppressive effect on the T-lymphocytes is partially responsible also for the common finding that amalgam poisoned patients suffer from more or less well diagnosed Candida Albicans infections. We find that amalgam intoxicated patients often present with a diagnosis of EB-virus infection (ME or myalgic encephalitis or YAP-disease) or Candidiasis, and suffering continuous setbacks after attempted treatments for these conditions.

Many doctors claim that Cortisone and antibiotic treatment are the commonest causes of Candidiasis, but why have these patients been given such prolonged or repetitive treatment in the first place ? They must have been subjected to an immunotoxic / auto-immune agent for a long time (eg mercury).

Normally we find that these patients recover after careful amalgam removal and they do not have to stick as strongly to yeast free diets any longer (in the case of Candidiasis). Their many bewildering food allergies also tend to subside as well.

It is however interesting to note that the symptomatology of heavy metal toxicity is complicated by primary and / or secondary vitamin and mineral deficiency states and the added symptoms of chronic infectious viral, bacterial and fungal agents. Fortunately we have found that combining our efforts to treat the various causes of these symptoms, rather than just giving palliative drugs to alleviate or lessen them, have been increasingly successful.

Like Russian scientists monitoring mercuryintoxicated patients, dr Nilsson has tried to trace the disturbed Serotonin metabolism of the amalgampoisoned patient. He found

that Serotonin levels normalise as the symptoms of loss of short term memory, reduced ability to concentrate, irritability etc. is reduced after amalgam removal. Apart from antioxidant therapy some Swedish doctors claim improved results by administering either the building blocks (aminoacids) or the complete neurotransmitters they consider deficient intravenously; dr. B. Bruner.

Apart from the typical acute toxic episodes the amalgam poisoned patient suffers when exposed during amalgam removal, there is another obvious feature of these patients seen years after treatment. Presumably random groups of Symptoms well known to the patient reoccur in periods. The number and intensity and duration gradually subside, but the patient is commonly alarmed and distressed, especially in the beginning. Thus we warn our patients during treatment, so that they are prepared for this. Whether or not this is due to immunologic memory and new free radical production and long half-life of metals in the brain and possibly elsewhere is hard to know. Furthermore these patients tend to suffer setbacks if exposed to other new toxins of any kind, but especially mercury. Not surprisingly anything that mobilises mercury from fatty depots in the body tissues, like ultrasound treatment, massage or physical exercise tend to increase typical amalgam toxic symptoms even as long as one or two years after amalgam removal. The neurologist and neurotoxicologist Brit Ahlrot-Westerlund has measured an increase of mercury in the cerebrospinal fluid on these patients and found that an increase corresponds well to the patients experience and symptoms.

Thus we recommend our patients to avoid such treatments and strong physical exercise, and instead encourage saunasweating and other detoxifying treatments according to the findings of dr Dauderer and dr Zane R. Gard in San Diego. Not only do these doctors evaluate other potential toxic exposures the patient may have suffered (eg formaldehyde) but they also make various efforts to measure and monitor the treatment progress. The latter is unfortunately almost unheard of by the many clinicians practising alternative medical detoxifying treatments. I hope they will in the future. Apart from electroacupuncture (eg Vegatest), there is little evidence that patients actually excrete more metals when treated with lymphatic drainage, zone therapy, acupuncture, various forms of homeopathic detoxification or other alternative medical treatment. I have however, had many patients claiming a major change of symptoms and colour and texture change of faeces and urine after such treatments and with a further improvement of their medical condition afterwards.

Even if I have become aware of enormous benefits of such treatments, I feel I have to warn my patients too. We have had several tragic setbacks which cannot alone be explained by the expected temporary worsening of the homeopathic effect.

Unfortunately I think we all underestimate the complexity and individuality of the amalgamtoxic reactions, and that those patients who are not so young anymore or have suffered more devastating Psychiatric disturbances should be treated extremely

carefully.

We have had many patients who have suffered unexpected setbacks when they take selenium even in minute dosages whatever organic or inorganic form and others who react to certain other minerals or Vitamins. Thus we recommend these sensitive patients to "listen carefully" to their own symptoms as they often have acquired a lot of medical knowledge and certainly know how they react. Fortunately we see that they most often slowly (by careful amalgam removal and slow low dosage administration) acquire an increased tolerance for the so-called essential trace elements and Vitamins. Biopats combine the traditional and alternative medical methods to investigate and treat their patients and seem most competent to help such patients individually.

**Having personally treated more than 500 amalgamintoxicated patents and consulted several thousand along with other clinicians and researchers, the clinickal experience meay be divided into:**

**Positive and negative short and longterm observations**

**(brief case histories and generalisations)**

Young patients, especially children seem to recover extremely well and surprisingly fast after amalgam removal. Various forms of epilepsy disappear (only one patient suffered a setback when playing in front of a Computer). Astma normally disappear or become less intense as well as other allergic reactions. One study on 124 female dental assistants with mercury toxic symptoms shows that most of those that were mothers had given birth to children that developed allergies. Many of the children of the amalgamintoxicated mothers I have treated have suffered more or less violent cramps or seizures when receiving vaccines (mercury conservative) and suffered hairloss, numbness and muscle and joint pains, abnormal restlessness, tiredness, headaches or migrenes, inability to concentrate and perform intellectual work etc. The mothers report that these children may change personality soon after amalgam removal, even if this only consists of one or two small amalgam fillings. Sleep patterns change and they are less irritant, more concentrated and relaxed and show a far greater interest and improve intellectual tasks remarkably. Certainly those children who do not even know that amalgam is being removed from their teeth should have no placebo-effect.

Very often the mothers have a history of menstrual disturbances, periodical infirtility, early or late abotions (as described in Sikorsky's Polish study on female dental personal). My experience correlates well with dr Huggins and dr Sandra Denton on such patients.

As many amalgamintoxicated patients suffer from severe bouts of anxiety and deep depressions and even psychotic and hallucinating periods, I want to warn inexperienced dentists and relatives that suicidal attempts and violent behaviour may follow dental treatment or eg homeopathic detoxification. Over the years we have had so many desperate calls from relatives and patients who have suffered from unfortunate

treatment, and I have made most of the underestimating mistakes myself. Even with all the protective measures we now use, we occasionally experience patients ending up in emergencywards with life threatening convulsions, spasms, tremendous abdominal pain or breathing problems normally partially misdiagnosed as hyperventilation. I would like to illustrate the difficulty with this case history:

A 32 year old woman had suffered intestinal bleeding and radical health deterioration when removing a couple of amalgam fillings. Before this she had noticed that her health problems were related to the insertion of a gold crown fitted next to amalgam and the breakage of a mercury thermometer in her bedroom trying to monitor her fever reaction and Sinusitis. The dentist that helped her were familiar with amalgam intoxication, but had no protective equipment at that time. Unfortunately I thought that my protective equipment was sufficient to help her. This consisted at the time of a 3 M mercury vapour filter mask applied over her nose and a highflow industry-suction applied just over her mouth during amalgam removal. I definitely underestimated her intoxication and did not use rubberdam (kofferdam) on when removing a big filling. Soon after she broke down crying for more than an hour, seemingly unable to stop and she could hardly remember this afterwards (increased tendency to cry is a wellknown mercurytoxic Symptom). Even if some of her symptoms presumably related to amalgamtoxicity improved, she suffered serious setbacks even-if all the rest of her amalgam was carefully removed with no leakage under the rubberdam covering her. She made serious efforts to compensate her toxic anorexia taking sulfhydrylcontaining aminoacids etc., but still suffered fits of burning sensations in her head and down her back with bouts of vigorous tremor and fits. On a couple of occasions she thought she was dying and crawled out from her flat on the street where she was found and hospitalised. Later she was moved to a Psychiatric ward where her perscriptionfree antioxidants were taken away from her. Via two friends and by letter she begged me for help as the staff did not believe anything she told them about mercury poisoning. I immediately wrote a letter to the hospital staff protesting their removal of her antioxidants and stated that she was intoxicated by mercury and that I had treated her. I recommended them to contact a neurotoxicologist in Sweden to make further somatic tests like measuring the mercury content of her cerebrospinal fluid. The hospital staff did neither reply nor attempt to make this contact but instead filed a complaint on me to the Norwegian health dep. She did not want to cooperate with the staff and was transferred to another hospital, where the psychiatrist contacted me. I recommended her to cooperate with him as I could not rule out that her supposedly psychotic fits were due to other mental disease and also because there were no family nor friends that would look after her. She then committed suicide, but before that begged me to tell her story so that other patients would not be treated like her. Worried about my professional licence, I asked 4 competent Swedish doctors to evaluate her case, helped by all the hospital documents and her 11 detailed letters to

to me in detail describing the onset and development of her symptomatology related to important events. All the psychologists, psychiatrists, doctors and dental school and NIOM researchers that were supposedly consulted or having treated her in Norway concluded that her condition had nothing to do with mercury toxicity, while all the 4 Swedish medical experts concluded that her was a typical severe case of inorganic mercury poisoning.

One doctor speculated that her progressive illness more than a year after amalgam removal was due to the fact that she still stayed in the room where she had allegedly broken two (!) mercury thermometers. He also claimed that by cremating her soon after her suicide they effectively removed all possible evidence. (In her last letter to me she forwarded a copy of a letter to her lawyer, where she in the case of her death, wanted to be autopsied and investigated for possible mercury intoxication).

This was more than 2 years ago and I have heard nothing of the case since, even if she also filed a legal complaint about her hospital treatment.

Apart from her personal tragedy the case illustrates the necessity to stress the importance of careful amalgam removal, but more than anything it describes the typical lack of knowledge of metaltoxicology among the medical and dental professions. Professors or what, there are hardly anyone competent in these matters in our countries, and I urge responsible bodies to enhance research and tuition, as it is our firm conviction that amalgamintoxicated patients crowd open and closed hospital wards where they suffer further tragic mistreatment.

Even if many of those patients that have been referred to me after unfortunate removal of some amalgam fillings, do seem to recover (at least partially), we have some patients whose anorectic condition seem irreversible due to manifested permanent intestinal damage. Some patients develop Cancer or serious autoimmune disease during or after careless amalgam removal, and many report serious neurological setbacks (eg MS patients) or organrelated complications like renal failure or pancreatitis. On many of these patients I have only removed one or two fillings if that was what they had left.

When I realised that amalgam was an unnecessary burdon to all carriers, I started removing it on relatives and friends. The results were startling and is confirmed by other dentists who have done the same. Even supposedly healthy individuals may develop serious heart arrythmia or reumatic, hormonal or psychic problems if not protected during amalgam removal. When amalgam is removed carefully people often report that their vision, bloodpressure, muscle and Joint pains, sleep, feelings of stress and anxiety, gastric and intestinal problems improve. Various minor heart problems disappear and many feel they do not freeze as readily as before, haemorrhoids disappear and women almost always report a more regular and pleasant menstrual cycle. Furthermore people do not get colds and influencas as often or as intence or long lasting and Sinusitis, urinaryinfections and allergies often disappear (eg pollen

allergies). The latter Observation is fundamentally important, as the official Propaganda from dental universities and organisations have claimed that plastic composites are more allergic than amalgam.

PS health improvement observed on "healthy" individuals is often further improved if they take antioxidants regularly DS

When I decided to quit using amalgam I gave a written handout to all my patients telling them about alternatives, antioxidant treatment and their need to go elsewhere if they wanted amalgams placed. Apart from the fact that my dental Colleges filed a complaint against me to the Norwegian health department, the decision and Information was well accepted. It is interesting to note that many of my patients who over the years have had their broken amalgams replaced now report significant health improvements when they only have a few fillings left.

Dental personal and especially dentists are often embarrassed when they for years have ridiculed patients and our views and eventually remove their own amalgam fillings and gradually discover how their mental and physical health improves radically. Even if it is tragic, it is certainly amusing when prof. of psychology J. Butler of Texas finds that 9 out of 10 dentists who have practiced dentistry for more than 5 years, suffer from various neuropsychological disturbances not seen on dental students.

Some short term negative reactions are not due to acute toxic exposure after amalgam removal. Some patients suffer sensibility reactions to cements, liners, composites, metals etc. in other dental materials replacing amalgam. Most commonly however, the reactions the dentist and the patient describe and suspect is from a new material, is typical when insufficient protection is used during removal. However it is often very hard to tell whether it is a combination of these reactions or reaction(s) to new materials or a mobilising reaction of toxic metal depots as a result of surgery or the introduction of new metal restoratives. Metals will induce new electrochemical and electromagnetic conditions which together with environmental manmade and natural magnetic fields further mobilise the toxic metal depots originally from amalgam.

Research has shown that teeth and jawbone often contain enormous amounts of toxic metals mostly from amalgam fillings, but fatty tissues in the brain and pituitary are target organs for mercury with a long half-life. It is not surprising therefore, that many patients spontaneously react with a dramatic worsening of the typical mercury-toxic symptoms when new metals are introduced. It does not matter if it is the purest gold or titanium that is being used. The only acceptable materials are plastics or porcelain / glass. Many of our own patients, other's patients and clinicians have made these experiences. Thus I have to warn patients and clinicians about using metal dental restoratives. This is also due to the fact that we now experience an explosive increase in the number of electrically sensitive and hypersensitive patients in Scandinavia and these patients do definitely not tolerate any metal in or on their bodies.

Unlike the typical amalgamintoxicated patient, these el-hypersensitive patients do not seem to be able to recover (see later chapter).

The seriously ill amalgamintoxicated patient often suffer from a complexity of more than 100 symptoms. Many come and go and there are many individual differences. Even if the toxic metals obviously cause both irreversible and reversible damage, we are fascinated by nature's ability to restore function when given reasonable opportunity. Generally young people improve faster than older and seem to have less irreversible damages. We do however, experience astonishing and rapid improvements on various autoimmune conditions (eg reumatic diseases) even on old people. Thus we have 70 year-olds who within a few years completely seem to get rid of their inflammatory reumatic condition only leaving the permanently damaged scartissue in the joints. No inflammatory swelling, pain or discomfort other than what the scartissue causes when the Joint is operative.

We have experienced a young adult who within 6 months from leaving the reumatologist on crouches with enormous swollen knees recover completely after amalgam removal (with no other antiinflammatory treatment than antioxidants).

All patients I have had with reumatic disease with psoriasis have either been vastly improved or have totally gotten rid of the disease.

An absolute majority of reumatic patients show remarkable improvements, but one has not noticed any change in the inflammatory process (even when foot-filled are removed and no metals are introduced). The latter has not tried chelators.

SLE (lupus erythematosus) is an autoimmune disease of connective tissue. Only two patients were treated here, but both have noticed dramatic changes like enormous skin rashes and wounds on legs / feet Clearing up even during amalgam removal.

MS (multiple sclerosis): neurologists know that this disease always has a psychic component (which is certainly not contradictive to mercury being the main cause) and with enormous individual Variation. Some patients may suffer one bout of the disease and never again or symptoms may come and go with years inbetween. For these reasons any treatment for MS will be met with obvious suspicion whatever the Claims and large groups of patients with corresponding controlgroups and standardised treatment is necessary for scientific evaluation.

Those MS patients that are included in our study (see own chapter) all have a typical amalgamtoxic symptomatology. Our experience is that only MS patients with this typical symptomatology make drastic improvements after amalgam removal and I therefore suspect even other different causes of MS. Dr Huggins stresses the importance of sequential removal of high and low electronegative fillings before high and then low electro-positive fillings and the importance of avoiding amalgam removal when immune cycles are low every 3 weeks after treatment. Personally I am uncertain about these Statements. I admit that the vast differences in electrical activity between different restorations certainly influence the symptomatology and may therefore be considered in the

treatment planning.

One MS patient I treated made a strong impression on us. A middle-aged small woman was brought to me by special transport tied lying on one side in order that she should not drown from her own saliva, since her reflexes had seized to function. She was thin, absolutely stiff and almost completely lame and could barely whisper. Her husband told us that she developed an awful headache and soon devastating MS symptoms soon after 4 gold crowns were fitted on her front teeth about 20 years ago. All her amalgam fillings were black from corrosive tinproducts. Soon after removal of the 4 crowns, a dramatic change set in. She could suddenly move her arms where she got her feeling back and the following week the cough reflex started operating again and her urine and faeces changed colour dramatically whilst her body smell suddenly became awful. With functioning reflexes we were able to remove her fillings and a rootfilled 12 year upper molar tooth (ie far from direct contact with the gold crowns) which was grey / black throughout. Her condition is constantly improving with limbs softening up and she can now grip firmly with her hands (she had lost all feeling in them many years ago). She has not received any other treatment (even if I would have liked to see her treated with chelators).

I have had no personal experience with diabetics, but know of some patients who claim the disease is gone after amalgam removal (not juvenile diabetes).

None of my ALS (amyotrophic lateral sclerosis) patients have made any remarkable recovery as was reported by the Swedish dentist Olle Rehde on a young female adult. As this disease always progress evenly until death, neurologists are puzzled even by the fact that some of our patients claim that they notice periodical improvements. Morbus Crohn and ulcerative Colitis: I have not had many such patients with autoimmune disease of the small and large intestines, but the results are extremely positive with one exception (ulcerative Colitis).

Sjögren's disease is an autoimmune disorder involving the salivary glands. The only patient I have had claims her symptoms of this disease have gone and I know Swedish Colleges who have the same experience.

As mercury is an extremely potent autoimmune agent, it seems absurd not to remove amalgam on patients suffering from various kinds of autoimmune diseases before giving them continuous Cortisone treatment with common drastic side-effects. Similarly to replace joints and ligaments with skilful and expensive surgery before removal of amalgam.

Many patients have reported that oral symptoms of foul breath, ulcers and bleeding gums and even periodontal disease disappear after amalgam removal.

Some patients report that diagnosed angina or abnormal heartvalve function disappear after amalgam removal.

Many patients with hormonal gland disturbances experience gradual improvements after amalgam removal.

**Ab. case history:**

A young male airtraffic controller began to suffer from many symptoms, among them extremely high blood pressure and loss of short term memory (!)

Medical experts noted an enlarged suprarenal gland thus suspecting cancer whereupon it was removed surgically. It showed no signs of cancer, only glandular enlargement which may have accompanied the increased hormonal production they had found. After a temporary improvement he got critically ill with no possible treatment. After amalgam removal all symptoms subsided and everything functions normally 6 years afterwards.

Apparantly all the patients I have had with non-malignant tumors of the pituitary gland seem to experience a small but significant regression of the size of the tumour after amalgam removal.

Some amalgamintoxicated patients suffer from enlarged thyroid glands with increased or lowered hormonal production.

Some have swollen and tender lymphnodes which usually subside after amalgam removal (and some after removal of root-filled teeth).

We have not removed amalgam from many cancerpatients, but it did not seem to make any differance on the progress of breastcancer in two patients who died from the disease.

One 8 year old boy had a remarkably rapid disappearance of all signs of malignant leukemia after amalgam removal however.

Dr Huggins claims that dr Pinto's father removed amalgam from many patients with leukemia or Hodkin's disease in Rio in the early 20s with good results.

With the welldocumented effect mercury has on T-cells even HIV-carriers and AIDS-patients have been thought of as potential victims of amalgam. The only AIDS patient I have had died soon after amalgam removal.

Astma and other allergies often disappear completely or subside after amalgam removal, but typically allergic reactions tend to increase during amalgam removal which again Warrants a word of warning.

Those patients who experience pink skinrashes (confer Acrodynia / Pink disease) when being out in the sun even after a very short time, seem to tolerate this as soon as the amalgam fillings have gone.

Various skinrashes, some of which itch and look like psoriasis, come and go before they eventually disappear some time after amalgam removal.

Commonly people who develop spots and pimples in adult age suffer from amalgam poisoning and relapsing bouts of these accompany small itchy ulcers in the neck plus other well known symptoms long after amalgam removal.

The Swedish kidneypathologist Sverker Eneström has shown that small dosages of mercury may cause circulating immunecomplexes that may destroy own tissue where caught in kidneys, brain or heart vessels.

At Calgary Univ. Vimy & Lorscheider and coworkers have recently shown that placing amalgam in sheep and monkeys reduces kidneyfuntion by about 60 % and cause a major change in the intestinal flora increasing mercury uptake.

One patient developed immune complexes against own kidneys just after she gave birth to her baby leading to complete renal failure. Even if the doctors laughed when she said she would remove her amalgam fillings, they stopped doing so when the immune complexes disappeared immediately after removal. She later had a successful kidney transplant.

### **Research project**

Unfortunately retrospective research is of little value as the patient impossibly can be 100 % objective. The traditional double blind studies are physically impossible as I told an interested prof. of immunology who insisted that it must be done double blind: Please call me when you have found a method where I can remove the amalgam fillings without neither me nor the patient noticing it. (I have not heard from him since).

Rather than spending time trying to publish incomplete case histories I have concentrated on a research project designed by prof. Ulrik Malt (psychiatrist in Charge of the psychosomatic department of our major hospital and a respected scientist). From the experience of our previously treated patients we introduced a large number of symptoms commonly observed in amalgam poisoning to an existing questionnaire used in international research. Adult Norwegian patients seeking me with a possible amalgamtoxic condition are asked to write in detail the debut and development of all psychic and somatic symptoms they have been or are suffering from.

Those that I consider probable are forwarded to a med. doctor and a psychologist who are familiar with amalgamtoxic symptomatology. Those patients who we all independantly believe to be suffering from amalgam poisoning are offered to participate in our researchproject where they complete 5 different questionnaires anonymously. These are forwarded to dr. Malt where the results are plotted into a Computer and eventually 100 amalgamintoxicated patients will be compared with 600 others in 6 different control groups, one of which contains 100 psychosomatic patients in the hospital ward.

The concept of alexythimia was introduced to modern psychiatry, rooted in the Observation that psychosomatic patients are not able adequately to perceive and to express their own feelings, thereby developing somatic symptoms from the body.

With the knowledge of psychosomatic medicine and amalgamtoxic symptomatology we mean to be able to distinguish between these patients. Obviously there will always be overlapping toxic burdoning, but we choose those patients for our research project who have severe amalgamtoxic symptoms and who are not professionally exposed.

If this descriptive analysis shows marked differences from the other controlgroups, this will be evaluated and published. We expect to finish this during the forthcoming winter. Despite the fact that no somatic tests are included in this study, these patients are regarded as being scientifically investigated before any treatment is done. Thus I have carefully removed and replaced amalgam with metalfree

restoratives on most of these patients and new studies may follow up these patients as time goes by.

Not surprisingly these patients seem to undergo the same improvement as we have become accustomed to.

### **Electrosensitivity or el-allergy and el-hypersensitivity**

Within the last few years another presumably undefined group of symptoms have been reported more and more often, most commonly from people spending a lot of time working in front of computers.

Many severely amalgamintoxicated patients develop light-hypersensitivity needing to wear sunglasses in normal light. They often suffer blurred vision and sometimes have restricted field of vision and even total loss of vision (usually periodically). These patients have noticed that their Symptoms worsen in supermarkets, under lighttubes or if watching TV.

Recently however, patients who are not suffering from amalgamtoxicity, have started developing uncomfortable symptoms when sitting in front of Computers. The rate of symptomdevelopment varies remarkably with different computers (even if the same make). A computer screen is surrounded by several types of fields: electrostatic field, magnetic alternating field, electric alternating field and even radiofrequent electromagnetic fields.

Early symptoms may be sore and dry eyes, a characteristic increasing burning and pricking sensation from the skin of the face and bare neck facing the computer. Initially no visual changes occur and the symptoms are readily reversible, when leaving the computer. Using filters or low radiation LCD screens may suffice at this stage. If not taking protective measures, further and far more debilitating symptoms may develop burning pain, pricking skin, vertigo, headache, nausea, pains, diarrhea and a feeling of pressure in temporal and maxillary regions. At this stage many have developed visual skin changes from reversible reddening areas of the skin to more drastic changes described by skin specialists to consist of a rapidly increased aging process affecting all 3 layers of the skin. Some people develop an extreme el-hypersensitivity during the process, and suffer immediate worsening of the symptoms whenever introduced to electric fields they may be totally unaware of. Their light sensibility may force them to stay indoor with blinded windows purely using candlelight, and unable to stay in any environment containing electric fields.

Even coming close to a lit lightbulb may be enough for the lips and eyes to swell up with all the other symptoms mentioned flaring up again.

Unfortunately the amalgamintoxicated patients who have developed el-hypersensitivity react with awful worsening of symptoms when trying DMPS or DMSA chelating agents.

Despite the fact that it is very easy to make double blind tests showing that an el-sensitised patient reacts to electrical stimulus from pulsating electromagnetic or electric fields, wellknown Swedish "medical experts" like prof. D. Ingvar have

publically denounced this as another imagined phenomenon declaring that it is impossible to react to these weak fields.

Recently however, several computer-researchers, engineers and economists of the male sex have developed these problems, supporting the many female computerworkers who were told that they were experiencing menopausal symptoms.

Most commonly affected are those who spend much time with supercomputers and large cad-cam computers. Many of these patients soon became aware of their amalgam fillings contributing to their problems, and many developed extreme light and el-hypersensitivity when beginning to remove their fillings without sufficient protection. Some lost their sight and were tormented being caught in the electric environment of modern living, at the same time experiencing the pitiful harassment of many "medical experts".

Even after removing the rest of the amalgam under extreme precautions, restoring the teeth with the most metalfree composite or glass fillings, some of these patients are confined to live in semi-darkness avoiding all electric cables and appliances living in cottages in the countryside apart from family and friends or committing suicide.

Researchers have already shown that amalgam fillings dissolve several times faster when introduced into a pulsating electromagnetic or electric field and that there are major differences between the Computers. Even if the major computercompanies in the world now have become aware of these dangerous side-effects and research is enhanced to produce appliances that are less destructive, the number of patients suffering is most likely to increase rapidly for a long time to come.

In due course the operator should take action if feeling discomfort working in an electric environment and install protective filters or replace dangerous equipment. All personal appliances containing metal like jewelry, wristwatch, glasses, implants, dental restorations and implants and contraceptives will undergo increased electrochemical corrosion thus increasing the uptake and possible allergic and toxic reactions (the external appliances corrode when the contacting skin is moist). From a dental restorative point of view these patients have further complicated our efforts to serve their dental needs without deteriorating their serious healthproblems even further. Having had the most severe cases of el-hypersensitivity (apart from those that cannot travel at all) referred to me, I conclude that the removal of all metal restorations are important (even rootfilled teeth which often contain enormous amount of ionized metals).

No new dental appliances containing metals may be used as restoratives, titan and gold included. Glassionomers, liners and composites with high aluminium content seem to be less well tolerated than composites and glass restoratives with low aluminium content.

**Abbrev. case history:**

A middle-aged woman who had made reasonable improvement from various ailments after replacing amalgam fillings with composites several years ago rapidly became severely el-hypersensitised when starting to work with a computer. Suspecting 9 root-filled teeth, some of which contained gold or brass posts retaining gold crowns, contributing

to the developing illness these were removed surgically and replaced by temporary plastic bridges. This immediately alleviated headache, neck and backpains and the feeling of el-hypersensitivity decreased and swollen lymphnodes decreased in size. Unfortunately and despite my warnings, I was persuaded to install porselain / gold bridges (purely containing gold and platinum) as replacements to avoid full dentures. The el-hypersensitivity increased drastically with physical and mental retardation leading to surgical removal of all teeth and replacement with full dentures which the patient dislikes but tolerates and the el-hypersensitivity has been reduced. The patient is however probably permanently disabled but able to live reasonably well in a country chalet avoiding highvoltage, departmentstores and unnecessary electric appliances or using them as little as possible. In one room absolutely all electric cables and equipment has been removed.

Generally postfitted gold or titanium crowns in root-filled teeth next- to amalgam fillings drastically augment el-sensitivity and these should be eliminated first when present. Unfortunately patients who have suffered severe el-hypersensitivity for a fairly long period, do not seem to improve as readily from this as from their amalgamtoxic symptoms, even when carefully removing their amalgam fillings.

### **Reactivity testing**

There is an obvious need to develop and improve tests of various reactivities to dental materials, allowing the patient and the doctor / dentist to choose materials which will be tolerated as well as possible. There will be many impossible clinical situations however, where no practical Solution exists for restorative measures thus enforcing compromises.

Trial and error has been our tradition and unfortunately will remain to be, even if improved testing is performed before treatment. Previously "skin-patch" testing was common trying to establish if a patient suffered from one or more immediate or delayed type of allergic reactions. Unfortunately this testing disregarded many immunologic reactions and even increased the patient's reactivity.

Nowadays various forms of bloodtesting revolutionise testing, eg serum compatibility testing: Immunoglobulin precipitation testing for immunoglobulin IgE (allergies), IgA, IgM and IgG (toxic reactions).

Dr Clifford (immunologist) and dr Huggins run two such laboratories in the US where bloodsamples may be forwarded for testing. Both provide lists of dental materials supposedly containing substances that the individual patient has reacted to and not. Even the degree of reactivity is provided in the report and most internationally used dental materials of various makes are delicately listed in various product categories distinguishing between products the patient is likely to tolerate and not.

Clifford Consulting & Research (tel (719) 599-8883 (after hours em. 590-9662)  
P.O. Box 17597 Colorado Springs, CO 80935 USA

Huggins Diagnostic Center Laboratory (tel (719) 473-4703)

Copat Labs, 1705 8 th Street Suite D, Colorado Springs, CO 80906, USA

There are, apart from the practical part of drawing blood and dependency of a well-functioning international mailing System and costs, some uncertainties and limits (some of which are stated in the reports). The product information of any dental material fed into the Computer may be wrong and the individual contents of a dental material may not dissolve at all or it may not necessarily dissolve into each basic substance when it does dissolve. Instead various toxic or non-toxic byproducts may be formed and cause reactivity in the patient. Eg: aluminiumoxide is a stable product while as aluminiumsilicate is not.

Within the Swedish amalgamtoxic patient organisation, individual members who are professionally familiar with materialcontent testing, ,have investigated the individual content of the dental materials we commonly use. Unfortunately the content of eg Al in composites found does not comply with other published contents of the same products. Furthermore electroaqpuncture testing (eg Vega) or muscletesting (kinesiology) supplying serum compatibility tests have not yielded corresponding results on an individual patient.

The reactivity between toxic metal depots and new metal dental restoratives (described earlier), can not be evaluated in precipitation testing. Neither can el-sensitivity or el-hypersensitivity reactions.

Thus for the time being, I am very uncertain of the value of the various material testing methods that are available at the moment.

The local biocompatibility of eg titanium implants in bony tissues seem convincingly positive, but this may not help the patient's crossreactivity described above or with el-hypersensitivity reactions aggravated by any metal.

Despite the many known and probably unknown limitations of biocompatibilitytesting, I am still in favour of using them, but certainly admitting that is has become increasingly complicated to evaluate the results.

### **Choice of dental materials and handling techniques**

The cost, clinical appearance and lasting ability of the dental restoration is of obvious interest to the patient. Dental material testing has almost exclusively been dealing with physical properties and only slightly with biocompatibility. The latter has almost solely been confined to local tissue reactivity such as to dentin and the dental pulp. New materials that are being introduced nowadays are subjected to far more thorough biocompatible testing, but it is still common to experience that producers claim product content as companysecrets even if the dentist has full responsibility towards the patient. New legislation in EEC countries is under

way.

The dentist may have 10 thumbs and work "happily" with amalgam. It should be made clear however that the demands to the dentist's craftsmanship is very much higher using existing alternative materials if good results are to be expected.

Whether direct composite fillings or indirect techniques using composite, glass or gold is used, the skill and conscience of the dentist (and technician) is critical. Personally I have to use strong magnifying glasses (binoculars) to be able to achieve regular sufficient accuracy when removing amalgam, preparing and restoring fillings and crowns.

**There may be many ways to achieve good results but this has worked for me:**

**Composites:**

Even if glassionomers have several good properties, I hesitate to use them as liners especially on the el-sensitive patients, as aluminium goes into Solution. An increased Al-content in blood has also been observed on patients with composites with a high Al-content. Heliomolar, Occlucin and P 50 have been my favorite composites so far. Life as liner in deep cavities and Gluma or Tenure as dentin bonding agents. So far all the dentin bonding agents have obtained a sufficient strength much too late, as the incredibly strong contractile forces of the polymerising composite tend to pull away from the lining or dentin long before (enamel prisms are torn off). Syntac has improved this property, but Controlling the contraction of the setting composite is still the most critical part of placing direct composite fillings.

Whether a two-component System, a dualsetting setting or light polymerising composite is used the first part of the filling placed deepest in the cavity must be small. Preferably a light polymerising system is used, but the lightsource(s) must be placed lingually and buccally (from the sides) first thus hindering contraction away from the bottom of the cavity (in class IIs). Microleakage and secondary caries is prevented. The lightpolymerising unit should only be used occlusally to complete the setting process as far as possible. Thus anatomically shaped mylar strips are needed and two lamps should be standard equipment. Normally I let a thin flange of composite cover the sidewalls simultaneously. It is essential to add and polymerise the remaining part of the filling considering contractile forces and the limitations of the lamps used. Absolute dry conditions must be maintained throughout the procedure (local anaesthetic helps). For obvious reasons proper wedging and placing the molar / premolar bands is essential (I prefer Vivadent / Hawe bands and wedges).

Whether direct or indirect techniques are used, proper bonding procedures are critical on all cavity surfaces. When finishing these direct or indirect fillings a timeconsuming grinding / polishing is absolutely necessary to ensure optimal occlusion and articulation.

Using Zeiss 3,6 enlarging lenses and the Komet burs used in the Laminate Veneer System, it has become a pleasure to work with glass and composites.

It is much easier to work with gold inlays than with composite or glass fillings or crowns, but because of biocompatibility including consideration of toxic metal depots in roots, jaws and the brain and pituitary, I still recommend to work as metalfree as possible. If indirect methods requiring labproduction are employed, eugenolfree temporary cements must be used (eg Freegenol) if dualcements are used to fit the permanent inlay / crown. Temporary metal crowns of steel or aluminium should be banned, especially when fitted in direct contact to remaining amalgam fillings.

For core build-up I use Tenure / Corepaste (Denmat). If we "have" to use a root-filled tooth that has contained amalgam or metal posts, we use Corepaste or Dicor as post material (Corepaste being introduced with a lentulo). When cementing crowns and inlays we use Gluma or Tenure for retention with a dualcement (Dicor or Vivadents dualcements). If the patient reacts to these we use polycarboxylate cement (ceramco).

When making crowns Dicor Plus System is used (Dicor core and porselain outside) unless the patient wants non-coloured Dicor throughout. Sufficient thickness (15mm) occlusally and proper occlusal cuspal preparation is important for sufficient strength.

No porselain or glass system on the market has been strong enough for bridgework.

Ivoclar Empress may possibly be but I prefer Belvedere bridges (see later).

Cad-Cam techniques using televisioncamera and Computer to measure and prepare porselain inlays may be effective, but demands the same accuracy in preparation and placement as with impression-techniques. Cavity preparation demands the same rounded angles as for other glass / porcelain inlays / crowns.

As root-filled teeth act as good electric conductors (esp when containing metal posts), they often contain huge amounts of metalproducts and clinical experience confirms that many patients benefit substantially when they are removed.

We recommend that some cortical bone is removed surgically at the same time (1 mm) and we have experienced that using local anesthetic with no bloodvessel contracting content and placing postoperative local antibiotic (Auromycin) in the wound prevents the tendency of developing "dry Socket" which these patients are so prone to.

These treatment principles has increased our need for dental bridgework, which we have solved by using Belvedere fibres reinforced bridges constructed by light-polymerised Espe Visogem or stronger Ivoclar Isosit which is heat-polymerised. Crown preparation is the same as for Dicor. The technique of using Polyethylene fibrebundles placed round the crowns and crossing each other at right angles throughout the bridgework is only one of several ingenious methods developed by prof. Belvedere (carbon or kevlar fibres do not work as well).

Fortunately Tenure / Corepaste and these Belvedere bridges / crowns seem to be well tolerated by el-sensitive patients and these fibrebundles may also be used in direct technique reinforcing composite fillings that are subjected to great stresses and strains (no metal posts or pins should be used).

We normally combine the use of direct composite restorations in smaller restorations and make Dicor Plus crowns where little toothstructure is left.

If insufficient retention of one tooth demands a strong metal post and rootfilling we avoid this by making a small bridge between the weak tooth and a neighbour (the bridge may be made as Belvedere or in Dicor).

Unfortunately many patients have amalgam under old crowns / bridges and these must obviously be removed and replaced carefully removing the amalgam with rubberdam as usual. Even metal tatoos ought to be removed surgically but beware of the mobilising effect on severe amalgamintoxicated patients.

Amalgamintoxicated patients who are hospitalised and so weak that they impossibly can undergo normal dental treatment, may improve sufficiently to do so by breaking off or removing postfitted metal crowns / bridges that may be present (esp. when in direct contact to amalgam). Even administering antioxidants and chelators may be indicated.

#### **Practical methods of protecting the patient, staff and environment when removing amalgam:**

It is wise to cover the hypersensitive patient's skin. It is essential to cover the mucous membranes thus demanding a new rubberdam (kofferdam) fitted on every tooth where amalgam is removed (ie a new rubberdam for each filling). Cutting the amalgam with new burs and breaking off bits of amalgam and supplying enormous amounts of water spray reduce the time and extent of possible exposure. If it is absolutely impossible to use rubberdam for access, the patient should be advised to drink 2 cl alcohol about \ an hour before treatment and swallow coaltabets to reduce mercury uptake in the brain and the intestines. A high volume vacuum suction is essential and normally Standard equipment today.

#### **Extra equipment which ought to be mandatory:**

A nose mask held by the patient's left hand if the dentist is righthanded. This allows the patient to breath fresh air during amalgam removal. Tubes and valvehouse of any Standard general anaesthetic equipment is sufficient as the patient does not need oxygen, only fresh air.

A high volume (NB high flow and close proximity to mouth opening) industrial suction removing the toxic mercury vapour (invisible with no odour and taste).

An effective aircleaner with special coalfilter taking care of any mercury vapour in the surgery and other connecting rooms (we use Euromate 1200 Dental).

Many dentists throughout the world have now developed new and different suction devices and soon commercial ones will be available which also avoid polluting the environment. Similar selenium filtersystems will be fitted on crematorium chimneys soon where large amounts of mercury is recirculated back to the environment at the moment.

Even if it demands an operating collecting and storing device, Dürr Dental has developed an efficient amalgam particles collector reducing the substantial pollution leaving dental units by about 95 % (Dürr AZ 100).

Whenever possible the rubberdam should be used when removing amalgam thus allowing highspeed turbine equipment to be used. Special care should be taken when cutting the amalgam proximally avoiding exposing the dental pulp and avoiding leakage under the dam (small burs may be needed to finish cutting deep proximally). Many of the devices mentioned are essential for protecting the staff as well, but in addition coalmasks (eg 3 M's) may be worn during amalgam removal. No sensible dental personal should have any amalgam in their own teeth and a regular individually suited antioxidant program should be followed daily.

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