Local gold regime (professionals)

Treatment of aseptic inflammation with gold implants

When a gold implant is placed in the body. macrophages will attack the metallic gold surface. The macrophages build a membrane between themselves and the implant, and control the chemical events in the membrane.

The chemical environment in membrane (called a “dissolution membrane”) liberates gold ions off the gold surface, and the ions, generally thought to be gold-cyanide anions ($Au(CN)_2^-$), accumulate in the membrane.

The bigger the surface, the more gold ions are released. From the dissolution membrane the bio-released gold ions defuse out into the surrounding tissue where they are taken up by local cells.

The attacking macrophages being closest to the dissolution membrane are the first to take up gold ions. The uptake of gold ions appears to down-regulate their cytokine signalling, thus slowing or even stopping the inflammatory signal cascade and inflammatory reaction.

Intriguingly, the macrophages themselves endure the exposure for only a limited period of time, whereupon they move away and are replaced by new macrophages.
A second target of the gold ions which is undoubtedly involved in the anti-inflammatory effect are the Mast cells, which concentrate the gold ions in their secretory granules. The gold ions presumably down regulate the release of the pro-inflammatory signal, histamine from the Mast cells.

The concentration of gold ions produced from a given metallic gold surface regulated by the intensity of the local inflammation. While only small numbers of gold ions are released into normal, healthy, non-inflamed tissue, inflamed tissue will cause a substantial release. Therefore, there is a kind of negative feedback in which more inflammation releases more gold ions, inflammation is reduced, and the reduced inflammation leads to reduced gold ion formation.

In conclusion: Clinically effective levels of bio-released gold ions are created around metallic gold implants by macrophages. The concentration of released gold ions is low but clinically effective. Because the gold ions do not spread in the organism, but instead stay local, the technique is safe.
The trials to date indicate that only one local application is needed to obtain lifelong clinical effect i.e. suppression of inflammation within the sphere of bio-released gold ions around the gold implant.