

### **Short Communication**

## **WHAT IS THE HISTORY OF MAGGOT THERAPY?**

By

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### **Historical Review**

Maggot therapy is therapeutic use of live blow fly larvae ("maggots") to treat skin and soft tissue wounds. It is a type of biotherapy involving the introduction of live, disinfected maggots (fly larvae) into the non-healing skin and soft tissue wound of a human or animal for the purpose of cleaning out the necrotic tissue within a wound (debridement) and disinfection. Skin diseases in ancient times were called leprosy, and then named myiasis or miasis (Hore, 1854). *Imhotep*, the father of learning and medicine, used the myiasis to treat wounds and its skin for surgical sutures. *Herodotus* 520 B.C., the father of history, mentioned Egyptian human myiasis, *The Holy Bible* alludes several times to maggots infesting human flesh (King Herod of the Jews). Napoleon's army surgeons recognized soldiers with myiasis wound survived more than those without the maggots' infestation.

Baer (1918) during the Great War, served as a consulting physician with the American Expeditionary Force in France. He treated two soldiers who had endured their injuries on the battlefield for a week before being brought to a military hospital. He noted the lack of any systematic infection, fever, or purulence and that the wounds displayed the "most beautiful pink granulation tissue that one can imagine. Baer (1931) in USA successfully used maggots in osteomyelitis treated of four children in the 1930'. After many successes in the 1930' maggots therapy became limited to intractable wounds after introduction of Sulphonamides and mass-production of Flemings' Penicillin. The present use of maggots came in the 1980' when better methods of sterilization both eggs and maggot were developed and clinical efficiency of antibiotics used for wound treat-

ent dramatically decreased. Then, maggots' therapy became less treatment of last resort but of first choice in the leg ulcers, carbuncles, pressure ulcers and infected traumatic wounds especially in diabetic foot and in destroying malignant tissue as well. Easiness in application, safety, without side effects and often exceptional efficiency in wound debridement makes maggots therapy the first line therapeutic tool in both hospital and outpatient surgery. The clinical experience concluded that the maggot therapy might reduce costs of treatment considerably by shortening hospital stay and decrease usage of antibiotics. In World-War I two soldiers with myiasis infested broken femurs survive, on ground for a week without food and water (William, 1931). Sterile MDT was approved by FDA as a "medical device" and marketed in the USA according to FDA, approved for treating neuropathic (diabetic) foot ulcers, pressure ulcers, venous stasis ulcers, and traumatic and post-surgical wounds unresponsive to conventional therapies (1931). McKeever (1933) described in detail the production of nonsterile maggots and how to apply them in chronic osteomyelitis. While the beneficial effects of maggots in wounds and in osteomyelitis in particular have been documented over the years, they have never gained widespread use. In January, the U.S. Food and Drug Administration (FDA) granted permission to produce and market maggots for use in humans or animals as a prescription-only medical device for the following indications: For debriding non-healing necrotic skin and soft tissue wounds, including pressure ulcers, venous stasis ulcers, neuropathic foot ulcers, and non-healing traumatic or post-surgical wounds (FDA, 2004). Antibacterial advent, MDT was rare, but, re-used 1990s in USA, later alphabetically; Au-

stralia, Burma, Germany, Hawaii, Holland, Israel, Norway, Poland, Sweden, Switzerland, Ukraine, Thailand and United Kingdom.

MDT remains appropriate for cases where antibiotics are ineffective and surgery impracticable. Ancient method of larval therapy for treatment of acute and chronic infections has become a revival and a new dimension with introduction of the Biobag (Vitapad). The MDT for treatment of osteomyelitis and deep wounds simple and inexpensive, effective and readily be used worldwide, particularly when antibiotics were not available or effective and when surgery was impractical.

Maggots worked by three mechanisms: they debride wounds by dissolving necrotic tissue, clean wounds by killing bacteria and promote wound healing. Larvae have a broad antibacterial action against Gram-negative and Gram-positive bacteria, including MRSA. Maggot therapy is used to debride a number of complicated skin and soft tissue wounds as pressure ulcers, venous stasis ulcers, neurovascular ulcers, traumatic wounds and burns, but also as a treatment for osteomyelitis. Majority of patients well-tolerated MDT with only a few experiencing pain adequately controlled with oral analgesics.

Maggots are supplied by licensed laboratories in sterile bottles, which are very safe, efficient and easy method of healing for chronic wounds and prevents secondary bacterial infections. There is an overwhelming need for improved wound care in countries which are under-provided for medical veterinary facilities. In veterinary medicine, further clinical studies are needed in several fields, including establishing a number of maggots required for safe, efficient and identification of adverse effect during treatment.

Some facts: Manual larval removal, sometimes systemic antibiotics indicated in feverish patients or sometimes a mild anesthesia indicated; in Diabetic foot three larvae applications/day intervals; Outcomes reduced need for antibiotics & hospital stay. Not spread from person to person, only fly deposit eggs or from accidentally ingesting

flies, and Advanced skin cell carcinoma a risk factor?.

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