

## **Functional Medicine Therapy In Reduction Of Post-Surgical Complications After Lower Wisdom Teeth Removal - A Prospective Study**

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### **Abstract**

Post-operative pain is an area of oral surgery that concerns both patients and practitioners. Adequate management of pain and anxiety in oral surgery is an essential component of any oral surgery service. The link between pain and injury has been described as being variable. Pain can be protective as it leads to immediate withdrawal from harmful stimuli, for example withdrawal from hot or sharp objects. Pain can serve as a basis for learning to avoid these stimuli. Pain can also serve to prevent further damage to a person when they are already injured; this is observed in post-operative pain when people will avoid activities that increase their pain. In the case of surgical removal of third molars, this may include avoidance of hard or sharp foods due to the knowledge that they will cause increased pain and damage to the healing surgical site. Post-operative pain is a type of acute pain, which has the potential to become chronic (Bailey et al., 2022). Third molar surgery always needs primary intervention as it can lead to various complications and pathologies. Considering other ways for postoperative anesthesia it was inferred that submucosal group which showed simple injection technique and direct surgical site administration is more beneficial. It was noticed as a patient comfort method which can be the preferred as the drug of choice over intravenous route of dexamethasone injection (Sreesha et al. 2020). The progression of acute pain to chronic pain is an important area of research. Acute pain serves a biological function in preventing further tissue damage, whereas chronic pain continues beyond the natural healing process to become a syndrome and a disease in its own right. Post-operative complications such as pain, swelling, and trismus are commonly seen inflammatory response following surgical removal of impacted lower wisdom teeth despite all the precautions taken to prevent them. The functional medicine model of care provides an operating system that works to reverse illness, promote health and optimize function by addressing underlying causes, symptoms, and functional imbalances in interconnected biological networks (Bland et al. 2017).

Many studies have been performed aiming to relieve the postoperative discomfort following wisdom tooth impaction surgery (Kim et al. 2009). It is generally understood that the maximal inflammatory response is seen during the initial post-operative days following surgery reaching a peak level 2-3 days after surgery and gradual reduction in about 1-week time. This makes the first post-operative week crucial in terms of the patient's quality of life being affected by the inflammatory response to surgery. Thus, the 1st week after surgery has a strong effect on patients quality of life, and it is critical to eliminate associated factors affecting the initial phases of wound healing.

Functional Medicine is a personalized, systems-oriented model that empowers patients and practitioners to achieve the highest expression of health by working in collaboration to address the underlying causes of disease. It is an evolution in the practice of medicine that better addresses the healthcare needs of the 21st century. By shifting the traditional disease-centered focus of medical practice to a more patient-centered approach, Functional Medicine addresses the whole person, not just an isolated set of symptoms. Functional Medicine practitioners spend time with their patients, listening to their histories and looking at the interactions among genetic, environmental, and lifestyle

factors that can influence long-term health and complex, chronic disease. In this way, Functional Medicine supports the unique expression of health and vitality for each individual. The aim of this study was to evaluate the efficacy of Liposomal Curcumin and Liposomal Vitamin C (Functional Medicine) in reducing the post-surgical complications such as pain, swelling and trismus after lower wisdom teeth removal. This prospective clinical study included 80 patients with impacted

mandibular third molars of similar surgical difficulty classification. Patient were prescribed Liposomal Curcumin 125mg in tablet form twice a day after meals for 15 days and Liposomal Vitamin C 2tsp in liquid form half an hour before meals for 15 days post operatively. Post-operative complications of pain, trismus and swelling was evaluated on 1st, 2nd and 7th days.

Statistically significant differences were detected for all the parameters measured ( $p < 0.05$ ) on all the post-operative days evaluated. Using Functional Medicine Therapy was effective in reducing the post-surgical complications of pain, trismus and swelling after lower wisdom teeth removal.

Functional Medicine Approach appears to offer a beneficial effect in managing pain, trismus and swelling during the post-operative period following wisdom tooth removal.

**Keywords** - Functional Medicine , Post-operative , liposomal , curcumin , Vitamin C , chronic pain

## INTRODUCTION –

The surgical removal of impacted teeth is one of the most common procedures performed in oral surgery. Post-surgical complications such as pain, swelling and trismus are expected as response to surgical trauma ( Dahiya and Kamal et al 2013).

Numerous studies were done to find an effective pharmacological means to reduce these post-operative complications following third molar surgery including use of local or systemic corticosteroid, nonsteroidal anti-inflammatory drugs and antibiotic prophylaxis (Ren and Malmstrom, 2007; Kim et al., 2009).

Corticosteroids have shown relatively good effectiveness in reducing the oedema and trismus relating to the surgical extraction ( Piecuch et al 2012). But the potential side-effects of perioperative steroid administration like increased susceptibility to infection, delayed wound healing and sometimes adrenal suppression are problematic (Kim et al., 2009). Liposomal curcumin the most active form has been shown to exert antioxidant, antiaging, anti-inflammatory, immunomodulatory, wound healing, antitumoral, and antipsoriatic effects. Liposomal curcumin is the bioavailable version of curcumin in the market

Liposomal Technology to interact directly with your cells ,making it more bioavailable than regular curcumin supplements .

Liposome comes into contact with cell membrane of small intestinal cell through which cell wall fuses with liposome and they are directly introduced to small intestinal cells which provides 100 % bioavailable and absorption Liposomal Curcumin is very powerful Antioxidant and Anti inflammatory Property

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## METHODOLOGY AND EXPERIMENTAL-

This clinical study included 80 healthy patients visited the Department of Oral and Maxillofacial Surgery, School of Dental Sciences , Sharda University ,Greater Noida from October 2021 until November 2022 for surgical extraction of impacted asymptomatic lower third molars. Out of the total 80 patients, 46 were males and 34 were females with age ranging from 18 to 35 years. All the patients fulfilled the set inclusion and exclusion criteria as follows

### Inclusion criteria are:

1. Age is between 18 to 35 years
- 2 . Have Impacted lower third molars
- 3 . Do not have any systemic disease

### Exclusion criteria are:

1. Any history of allergy or adverse effects to antibiotics, analgesics, or local anaesthetics.
- 2 . Acute infection such as pericoronitis and/or complication or pain on the impaction area before extraction .
3. Pregnant woman and any use of contraceptives or corticosteroids which can affect the postsurgical complication of healing and amount of swelling on the face .
4. Tobacco use in any form .
5. Uncooperative patient .

Same patients were classified as group A ( Functional medicine Therapy group ), was included and group B (control Group )

#### **Antibiotic therapy group .**

##### **Surgical Technique:**

The surgical procedure was performed according to classical surgical impacted third molar extraction technique. Using 2% lidocaine with 1:100,000 epinephrine conventional inferior alveolar, lingual and long buccal nerve blocks were given. Two-sided mucoperiosteal flap was reflected and tooth extraction was performed following adequate bone removal and

tooth sectioning if required, using straight surgical hand piece with external cooling system .

Finally, the extracted socket was irrigated, debrided, and the flap was repositioned and interrupted sutures 3- BBS Silk was placed .

In group A, Liposomal Curcumin and Liposomal Vitamin C (Functional Medicine) . In group B, antibiotics (oral Augmentin mg twice daily for 5 days) and analgesic medication (Ibuprofen 500 mg) were prescribed .

#### **RESULTS –**

Follow up review was done on 1st, 2nd, and 7th postoperative days to evaluate the pain, maximal mouth opening and gross facial swelling at the surgical site.

There was a statistically significant difference in VAS score between the control group and Functional medicine therapy group during the 1st and 2nd postoperative day ( $P < 0.05$ ) denoting pain intensity was less in Functional Medicine group than in control group.

There was a statistically significant difference ( $P < 0.05$ ) in the interincisal measurements between the preoperative and the postoperative period especially during the 1st and 2nd postoperative day. This clearly indicated that the degree of mouth opening is significantly reduced during early postoperative period following surgery. When comparing the mouth opening between the control group and Functional Medicine therapy group, significant difference ( $P < 0.05$ ) was seen during the 1st and 2nd postoperative day. Significant amount of facial swelling was present during the early postoperative period as compared to the preoperative period in both groups. Degree of facial swelling was significantly less ( $p < 0.05$ ) in the Functional Medicine Therapy group than the control group for both 1st, 2nd and 7th postoperative days.

#### **CONCLUSION-**

Integrative medical therapies include a broad spectrum of practices and beliefs.

There is an increasing demand for Functional medicine therapies, and practitioners are beginning to realize the importance of understanding their use and benefits.

In the current opioid crisis era, many Functional Medicine therapies can be used as complements to mainstream medicine to address pain and reduce opioid abuse and addiction-related disease. Complementary health approaches can help to improve pain and reduce NSAIDs use, although additional studies are needed. With the public demand for integrative medical therapies increasing, additional RCTs are needed to evaluate the effectiveness of using Integrative medical therapies to support current pain management techniques and to decrease reliance on opioid use.

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