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A clinical study on effectiveness of arnica in a dental surgery

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Abstract

This article present detail clinical study of Arnica in cases of dental surgery where extraction of tooth advised by dentist. This study investigates the effectiveness of Homoeopathic medicine *Arnica montana* in reducing post-operative pain, swelling, and bruising after dental surgery mainly in the cases of dental extraction. This article represents results of a clinical trial in which the patient, who are going for dental surgeries, are administered with the Homoeopathic medicine *Arnica montana* 1M to prevent post-operative pain, swelling and bruising. Results show that *Arnica montana* significantly reduced pain intensity and swelling.

Keywords: Arnica, Tooth extraction, dental surgeries

Introduction

Dental surgery is a common procedure used to treat a range of oral health issues, from impacted teeth and gum disease to tooth extractions and reconstructive surgery. While dental surgery can be an effective solution for many patients, it can also be a source of anxiety and discomfort. Advances in technology, techniques, and pain management strategies have improved the safety and efficacy of dental surgery, making it a viable option for patients seeking to restore their oral health and improve their quality of life. The cause of dental surgery depends upon various clinical diagnosis like irreversible pulpitis (15-25%); periodontitis(60%); wisdom tooth (20-25%); tooth infection; periapical abscess(10-20%); dental carries (64%) etc. Treatment options of such condition are limited upon the involvement of tooth structure and its prognosis. Any type of Dental surgery can be a source of significant anxiety and fear for many patients. Post-operative pain, swelling, and bruising are common complications that can impact patient recovery and quality of life.

Homoeopathy offers a complementary approach to dentistry, focusing on holistic oral health and well-being. By managing anxiety, pain, and inflammation, homoeopathic remedies can enhance patient comfort and promote natural healing, supporting conventional dental treatments.

Arnica montana, a flowering plant native to Europe and Asia, has been used for centuries in traditional medicine to treat various ailments, including pain, inflammation, and trauma. Its homeopathic preparations have gained popularity worldwide for their potential benefits in reducing post-operative symptoms.

The alpine plant *Arnica montana* is recommended by homeopathic practitioners for treating injuries as it controls pain of bruising, reduce swelling and promote healing in tissues. Homeopathic medicine arnica when used in potentised form is popular with patients undergoing surgery, which can reduce postoperative complications like pain, haemorrhage and late healing.

Action

Arnica has been successfully used in reducing the pain experience after Tooth removal. The Homoeopathic proving data shows Arnica acts on tissues like muscles, joints, skin and on the blood vessels, thus reducing pain, swelling and extravasations of blood. The oral administration of Arnica in homeopathy has proved to be effective in reducing post-operative pain, discomfort and swelling. Also, a combination with local application of Arnica mother tincture shows improved efficiency.

It is expected that the use of analgesic medicines can be replaced with the administration of Arnica which shows anti-inflammatory action owing to the presence of Helenalin and Sesquiterpenes. The chemical analysis of arnica shown that the most active component of it is Helenalin. It modifies and balances the nuclear Factor kappa B (NF-kB) /inhibitor of kappa B (IkappaB) Complex in the lymphocytes and epithelial cells. Arnica obstructs the transcriptional factor nuclear Factor kappa-B. Thus, enhancing anti-inflammatory action within surgical site. NF-kB mobilization is responsible for production of pain and inflammation. The pain during inflammation can be identify by the release of pro-inflammatory Cytokines namely Tumor Necrosis Factor-Alpha (TNF-a) and Interleukin-1beta (IL-1b). Helenalin inhibits the T cell-specific surface glycoprotein's thus preventing the activation of T cells. It also stops action of enzymes Leukotriene C4 Synthase and 5-Lipoxygenase which are responsible for the production of Leukotriene. Sesquiterpene is known to inhibit pro-inflammatory cytokines Namely Tumor Necrosis Factor-Alpha and Interleukin1beta. Additionally, Arnica also decreases the levels of inducible nitric oxide synthase, cyclooxygenase-2 protein, And nitric oxide production.

Constituents of arnica are

- Phenolic acid

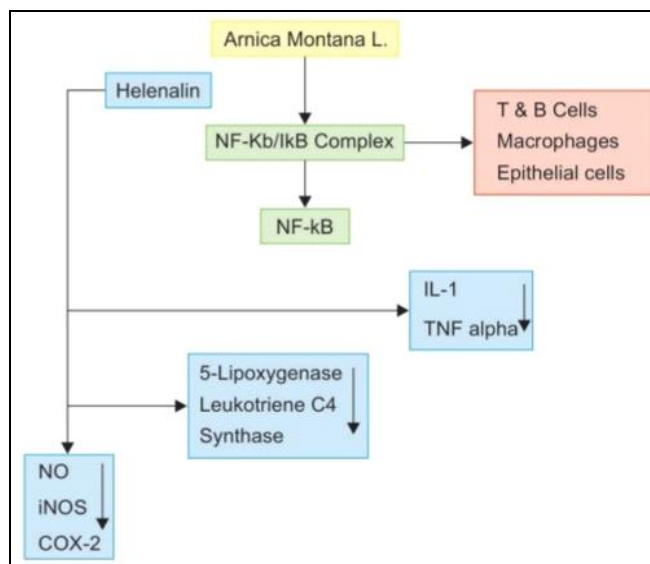
- Flavonoids
- Sesquiterpene lactones
- Caffeic acid

Principal compound responsible for anti -inflammatory activity of arnica are short helenalin and digydrohelenalin

Phenolic acid: Chlorogenic acid 3,5 dicaffeoylquinic acid and 1 methoxyoxaloyl 3 5 dicaffeoylquinic acid.

Flavonoids: Quercetin-3 beta D glycoside, quercetin - 3 beta glucuronide and kaempferol - 3 - beta D glycoside. Arnica 1 M having high content of caffeic acid derivatives, which have hepatoprotective (5-CQA, cynarin), producing or enhancing anti-inflammatory and antioxidant activity gives indication of use of Arnica 1M as an anti-inflammatory drug. Arnica has properties like reducing inflammation, reducing extravasation of blood, strengthen muscle tissue, reducing secondary infection, enhance local immune response, uterotonic, anti-rheumatic and analgesic. It is reported to relieve symptoms of diseases related to restricted blood flow to nerve endings and limbs of patient and reflex sympathetic dystrophy syndrome, which include fibromyalgia neuropathy.

This article examines the effectiveness of Arnica in dental surgery, exploring its potential to alleviate pain, swelling, and bruising.



Materials and Method

- **Study Setting**
- **Project site:** My Care Dental Clinic, FF-14, Nilax Citadel, Vadodara.
- **Study design:** Analytical and Prospective Clinical Study.
- **Study Duration:** 1 year
- **Selection of Sample**
- **Sampling method:** Purposive Sampling
- **Sample size:** 30 Patients
- **Inclusion criteria:** The patient who requires dental extraction
- **Exclusion criteria:** The patient with major chronic disease are excluded from the study

- **Selection of Medicine:-** *Arnica montana*
- **Selection of potency:-** 1M
- **Frequency and Repetition:** *Arnica montana* 1M; one dose -1 day before surgery, one dose- on the day of surgery and one dose - after surgery.
- **Selection of tool:** Numerical Rating Scale, Assessment form

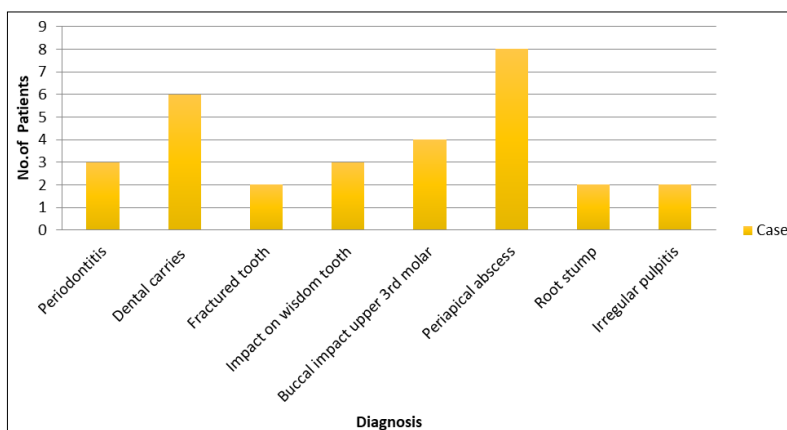
Result

Table 1: Age incidence

Sr. No.	Age	Cases	Percentage (%)
1	21-30	06	20.00
2	31-40	06	20.00
3	41-50	08	26.67
4	51-60	10	33.33

Table 2: Gender Incidence

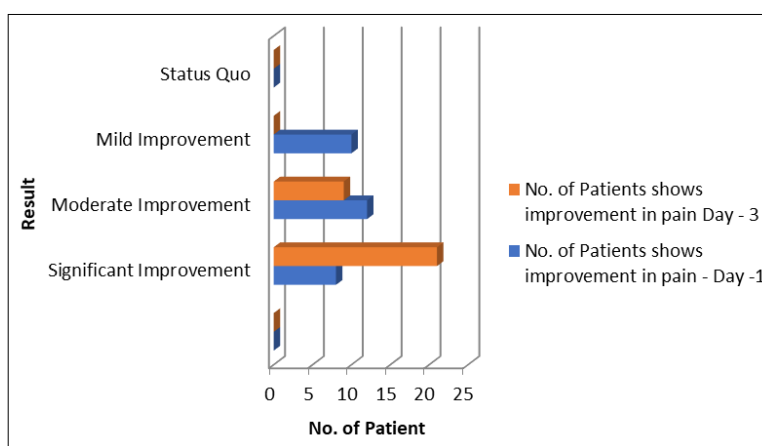
Gender	Number	Percentage (%)
Male	06	20%
Female	24	80%

Diagnostic incidence**Fig 1:** Diagnostic incidence**Table 3:** Diagnostic incidence

Diagnosis	Case	Percentage (%)
Periodontitis	3	10%
Dental carries	6	20%
Fractured tooth	2	6.66%
Impact on wisdom tooth	3	10%
Buccal impact upper 3 rd molar	4	13.33%
Periapical abscess	8	26.66%
Root stump	2	6.66%
Irregular pulpitis	2	6.66%

Pain: Out of 30 Patients 8(26.67%) patient shows significant improvement, 12 (40.00%) patient shows moderate improvement and 10 (33.33 %) patient shows improvement on Day 1.

Day: 3rd Out of 30 Patients 21(70%) patient shows significant improvement, 09 (30%) patient shows moderate improvement. Arnica showed potential in alleviating pain after dental surgery.

**Fig 2:** Improvement in Pain**Table 4:** Improvement in Pain

Sr. No.	Results	No. of Patients shows improvement in pain (Day:- 1)	Percentage (%)	No. of Patients shows improvement in pain (Day:- 3)	Percentage (%)
1	Significant Improvement	8	26.67%	21	70%
2	Moderate Improvement	12	40.00%	09	30%
3	Mild Improvement	10	33.33%	0	0
4	Status Quo	0	0	0	0
	Total	30	100	30	100

Haemorrhage: Day -1 Out of 30 Patients 22(73.33%) patient shows significant improvement, 08 (26.67%) patient shows moderate improvement.

Day - 3: Out of 30 Patients 28 (93.33%) patient shows

significant improvement, 02 (6.67%) patient shows moderate improvement. It shows that Arnica helps in prevention and control of haemorrhage and minimize post operative swelling.

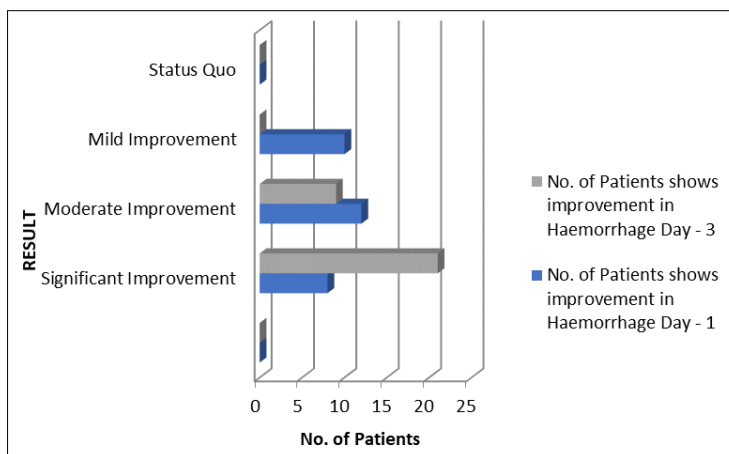


Fig 3: Improvement in Haemorrhage

Table 5: Improvement in Haemorrhage

Sr. No.	Results	No. of Patients shows improvement in Haemorrhage Day - 1	Percentage (%)	No. of Patients shows improvement in Haemorrhage Day -3	Percentage (%)
1	Significant Improvement	8	26.67%	21	70%
2	Moderate Improvement	12	40.00%	09	30%
3	Mild Improvement	10	33.33%	0	0
4	Status Quo	0	0	0	0
	Total	30	100	30	100

Healing: Day - 1 Out of 30 Patients 20 (66.67%) patient shows significant improvement, 10(33.33%) patient shows moderate improvement.

Day - 3: Out of 30 Patients 28 (93.33%) patient shows significant improvement, 02 (6.67%) patient shows moderate improvement.

It shows that Arnica promotes healing process.

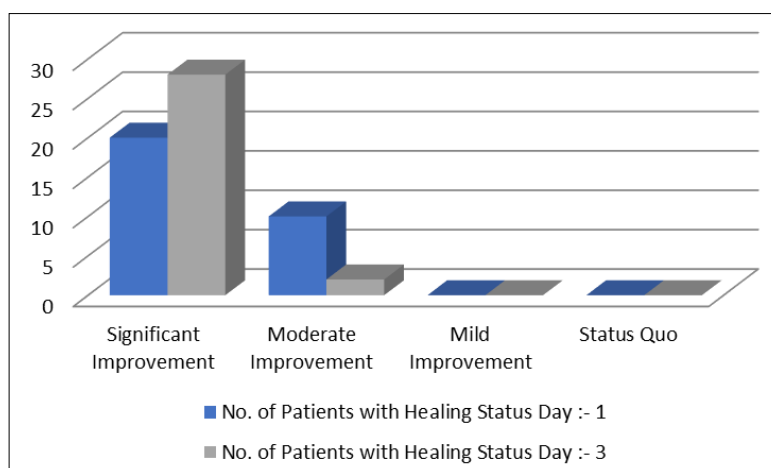


Fig 4: Healing Status

Table 6: Healing Status

Sr. No.	Results	No. of Patients with Healing Status Day:- 1	Percentage (%)	No. of Patients with Healing Status Day:- 3	Percentage (%)
1	Significant Improvement	20	66.67%	28	93.33%
2	Moderate Improvement	10	33.33%	02	06.67%
3	Mild Improvement	0	0	0	0
4	Status Quo	0	0	0	0
	Total	30	100	30	100

Discussion

This clinical study shows that the Homoeopathic medicine *Arnica montana* 1M shows positive effects on patients who are going for dental surgeries. The Result of this study is clearly suggesting that homoeopathic medicine Arnica showed potential in alleviating pain, minimize post-

operative swelling and bruising after dental surgery.

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Conflict of Interest

Not available

Financial Support

Not available

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