

# EFFICACY OF HEMOCOAGULASE AS A TOPICAL HEMOSTATIC AGENT AFTER EXTRACTIONS: A REVIEW

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***Abstract:*** *Extractions are the most common surgical procedures carried out and postextraction bleeding is most commonly seen complication. The aim of this review was to determine the effectiveness of topical hemocoagulase as a hemostatic agent and its role in reducing postextraction bleeding and its comparison to routine saline pressure pack after tooth extraction. Various differences was present between the hemostatic agent and saline pressure pack in relation to pain, swelling, wound healing, bleeding time, and other complications. Topical hemocoagulase is effective in reducing bleeding, pain, and swelling after extraction when compared to saline pressure packs. It also act as a promoter of wound healing.*

***Keywords:*** *hemostasis, hemocoagulase, bleeding, wound healing, extraction, oral surgery, local hemostatic agent, hemostatic agent, complications, postoperative bleeding control*

## 1. INTRODUCTION

Postextraction bleeding is defined as “evidence of bleeding beyond the pressure pack”<sup>1</sup>. Bleeding during surgical procedures can cause discomfort to the patient. It also reduces the access and illumination of the operative field, leading to time consumption. Local hemostatic agents are classified into passive and active hemostatic agents. Hemocoagulase, a isolate of poisonous Bothrops jararaca, is an enzyme complex. It accelerates the production of fibrin monomers and fibrin clot formation<sup>3</sup>. The application of hemocoagulase after extraction reduces postoperative bleeding time, pain and swelling after the extraction<sup>4</sup> Hemocoagulase is contraindicated in thrombosis patients. It can be topically applied or administered through intramuscular or intravenous routes. The aim of this review was to compare the efficacy of hemocoagulase with saline pressure pack after tooth extraction.

## 2. DISCUSSION

Tooth extraction is a common procedure in oral surgery. Functional and structural alteration is expected after extraction since it was mostly composed of loose connective tissue that contains blood and lymph vessels which are expressed as pain, prolongation of bleeding stoppage time, and swelling<sup>5,6</sup>.

Hemocoagulase has enzymatic actions similar to thromboplastin and thrombin, and thereby promotes rapid blood coagulation and wound healing<sup>10</sup>. Many studies have evaluated the healing mechanism of the extraction socket wound and the physiological changes that occur at the cellular level immediately after extraction<sup>9,10</sup>.

Many studies have evaluated the role of hemocoagulase in reducing the postoperative bleeding stoppage time post extraction. Other parameters such as postoperative pain, swelling, wound healing, and infection rates were also evaluated.

Aslam et al. conducted a study on 20 subjects to evaluate the efficacy of local application of hemocoagulase solution as compared to a placebo in wound healing following dental extraction<sup>11</sup>. To record bleeding stoppage the time from placement of solution till the complete clot formation, stopwatch was used. The differences between the hemocoagulase site and control site were evident. Evaluation of pain was done at the sixth hour, and pain in the hemocoagulase group was less compared to the other group. The authors concluded that the topical hemocoagulase can be used as a hemostatic agent.

Joshi et al. compared bleeding stoppage time between the test (hemocoagulase) and the control groups after symmetrical bilateral orthodontic extractions<sup>13</sup>. A significant difference was present between the test and control groups. The authors concluded that hemocoagulase can be used for managing postextraction bleeding in cardiac patients on aspirin without stopping aspirin before extraction. Its topical use provides faster hemostasis in patients undergoing dental extraction without any adverse effect.

In a study by Solanki et al, the researchers compared bleeding stoppage time, pain, swelling between the test (hemocoagulase) and control (saline pressure pack) groups after undergoing extractions<sup>14</sup>. The authors concluded that application of hemocoagulase to extraction socket will achieve faster hemostasis, reduce pain, swelling, infection and help in wound healing by rapid formation of healthy tissue.

From these studies, postoperative application of hemocoagulase has been shown to reduce postoperative pain, swelling after dental extractions. Rapid hemostasis with the use of hemocoagulase was observed in all these studies

## 3. CONCLUSION

Based on clinical proof, topical hemocoagulase is an effective hemostatic agent after tooth extractions which also reduces pain, swelling and improves wound healing. More clinical trials are needed to explore the benefits of topical hemocoagulase solution in oral and maxillofacial surgery.

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