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FABRICATION AND CHARACTERIZATION OF GELATIN SPONGE AS NASAL PACK

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ABSTRACT

Introduction: Damage to the nasal mucosa can be the result of interventions in the ear, nose, and throat (ENT) clinics such as functional endoscopic sinus surgery (FESS). Consequently, nasal packing such as silastic sheet and hyaluronic-based dressing are commonly used after nasal surgery to promote nasal mucosa healing. It accelerates the mucosal healing process by moistening and humidifying the wound. Recent progress in tissue engineering has highlighted gelatin as a potential biomaterial to accelerate wound healing. Gelatin also has the properties that favor cell attachment and is less immunogenic. In our study, we fabricated a gelatin sponge to be used for nasal packing. **Materials and methods:** Gelatin at 5%, 7%, and 10% (w/v) concentration were crosslinked with varying concentration of genipin, namely 0.5%, 0.25%, and 0.2% (w/v) concentration. Degradation rate with collagenase type I, water uptake, and water vapor transmission rate of the crosslinked gelatin were evaluated. **Results:** The wettability test showed that the gelatin sponge is suitable to be loaded with nasal fibroblast secretome. In terms of biodegradability, the gelatin sponge took more than 24 hours to degrade completely. **Discussion:** The fabricated gelatin sponge has suitable biodegradability, and water uptake for the purpose of loading with nasal fibroblast secretome for nasal mucosa wound healing application. The evaluation of water vapor transmission rate is currently ongoing. **Conclusion:** The gelatin sponge fabricated in this study has potential as a nasal pack and more analysis will be done to confirm this finding.

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