Leukocyte- and platelet-rich fibrin (L-PRF) is a biomaterial commonly used in periodontology and implant dentistry to improve healing and tissue regeneration, particularly as filling material in alveolar sockets to regenerate bone for optimal dental implant placement. The objective of this work was to evaluate the use of L-PRF as a safe filling and hemostatic material after dental extractions (or avulsions) for the prevention of hemorrhagic complications in heart surgery patients without modification of the anticoagulant oral therapy. Fifty heart surgery patients under oral anticoagulant therapy who needed dental extractions were selected for the study. Patients were treated with L-PRF clots placed into 168 postextraction sockets without modification of anticoagulant therapy (mean international normalized ratio =  $3.16 \pm 0.39$ ). Only 2 patients reported hemorrhagic complications (4%), all of which resolved a few hours after the surgery by compression and hemostatic topical agents. Ten patients (20%) showed mild bleeding, which spontaneously resolved or was resolved by minimal compression less than 2 hours after surgery. No case of delayed bleeding was reported. The remaining 38 patients (76%) showed an adequate hemostasis after the dental extractions. In all cases, no alveolitis or painful events were reported, soft tissue healing was quick, and wound closure was always complete at the time of suture removal one week after surgery. The proposed protocol is a reliable therapeutic option to avoid significant bleeding after dental extractions without the suspension of the continuous oral anticoagulant therapy in heart surgery patients. Other applications of the hemostatic and healing properties of L-PRF should be investigated in oral implantology.