

## Retrospective Analysis of 142 Cases of Incision Infection Complicated with Sternal Osteomyelitis after Cardiac Surgery Treated by Activated PRP Gel Filling

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**Abstract :** Objective: To retrospectively analyze the clinical characteristics of incision infection with sternal osteomyelitis sinus tract after cardiac surgery and the operation method and therapeutic effect of filling and repairing with activated PRP gel. Methods: From March 2011 to October 2022, 142 cases of incision infection after cardiac surgery with sternal osteomyelitis sinus were retrospectively analyzed, and the causes of poor wound healing after surgery, wound characteristics, perioperative wound management were summarized. Treatment during operation, collection and storage process of autologous PRP before debridement surgery, PRP filling repair and activation method after debridement surgery, effect of anticoagulant drugs on surgery, postoperative complications and average wound healing time, etc.. Results: Among the cases in this group, 53.3% underwent coronary artery bypass grafting, 36.8% underwent artificial heart valve replacement, 8.2% underwent aortic artificial vessel replacement, and 1.7% underwent allogeneic heart transplantation. The main causes of poor incision healing were suture reaction, fat liquefaction, osteoporosis, diabetes, and metal allergy in sequence. The wound is characterized by an infected sinus tract. Before the operation, 100-150ml of PRP with 4 times the physiological concentration was collected separately with a blood component separation device. After sinus debridement, PRP was perfused to fill the bony defect in the middle of the sternum, activated with thrombin freeze-dried powder and calcium gluconate injection to form a gel, and the outer skin and subcutaneous tissue were sutured freely. 62.9% of patients discontinued warfarin during the perioperative period, and 37.1% of patients maintained warfarin treatment. There was no significant difference in the incidence of postoperative wound hematoma. The average postoperative wound healing time was  $12.9\pm 4.7$  days, and there was no obvious postoperative complication. Conclusions: Application of activated PRP gel to fill incision infection with sternal osteomyelitis sinus after cardiac surgery has a less surgical injury and satisfactory and stable curative effect. It can completely replace the previously used pectoralis major muscle flap transplantation operation scheme.

**Keywords :** platelet-rich plasma, negative-pressure wound therapy, sternal osteomyelitis, cardiac surgery

**Conference Title :** ICCCS 2023 : International Conference on Cardiology and Cardiac Surgery

**Conference Location :** Dublin, Ireland

**Conference Dates :** August 24-25, 2023