

Autologous platelet gel and fibrin sealant enhance the efficacy of total knee arthroplasty: improved range of motion, decreased length of stay and a reduced incidence of arthrofibrosis

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Received: 17 August 2006 / Accepted: 22 January 2007 / Published online: 24 February 2007
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Abstract In this study we describe the potential role of autologous platelet gel and fibrin sealant in unilateral total knee arthroplasty to improve the postoperative range of motion and to reduce the incidence of arthrofibrosis. Total knee arthroplasty is often associated with a considerable amount of post-operative blood loss. Persistent limited motion directly after surgery may ultimately result in arthrofibrosis. To counteract these effects we investigated whether the use of autologous derived platelet gel and fibrin sealant would reduce postoperative blood loss, decrease the impaired range of motion and the incidence of arthrofibrosis. All patients were consecutively operated and assigned to the study or control groups. Study

group patients ($n = 85$) were treated with the application of autologous platelet gel and fibrin sealant at the end of surgery. Eighty patients were operated without the use of platelet gel and fibrin sealant, and served as the control group. The postoperative hemoglobin decrease, range of motion and length of hospitalization were recorded. During a 5-month postoperative period patients were followed to observe the incidence of arthrofibrosis. In patients in the treatment group the hemoglobin concentration in blood decreased significantly less when compared to the control group. They also showed a superior postoperative range of motion when compared to those of the control group ($P < 0.001$). The incidence of arthrofibrosis and subsequent forced manipulation was significantly less ($P < 0.001$) in patients managed with platelet gel and fibrin sealant. We conclude that peri-operatively applied platelet gel and fibrin sealant may improve the range of motion after total knee arthroplasty, decreases the length of stay and may reduce the incidence of arthrofibrosis.

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Keywords Total knee arthroplasty · Platelet gel ·
Fibrin sealant · Range of motion · Arthrofibrosis