Heparin induced thrombocytopenia (HIT) is a rare, potentially fatal, immune-mediated complication of heparin therapy, associated with thrombosis and thrombocytopenia. In this study, a successful dabigatran administration in a case with massive pulmonary thromboembolism (mPTE) and HIT is presented. 57 years-old female, who was receiving low molecular weight heparin (LMWH) (0.4 mL once a daily, S.C. for 11 days) due to total knee replacement, was referred to our clinic with the hypotension and syncope attacks. Her echocardiography and pulmonary CT angiography findings were consistent with mPTE. We detected a serious decrease in her platelet count highly suggestive for HIT (plt: 54×10³/µL). LMWH was discontinued and dabigatran was started (150 mg twice daily). After platelet count increased over 150×10³/µL, dabigatran was switched to warfarin. Since heparin is widely used in medicine, all physicians need to be aware of this life threatening complication of heparin. Replacing heparin with an alternative anticoagulant such as dabigatran may become a life-saving strategy especially in case of HIT complicated with mPTE.