

Supplementary Material 1. Preparation of the polydioxanone (PDO) stent and evaluation of its biodegradation *in vitro*

Methods: To evaluate the biodegradation of this PDO stent and the variation in its mechanical properties according to this biodegradation, the stent was incubated in phosphate buffered saline (pH 7.4) at 37°C for 20 weeks. After 4, 8, 10, 12, and 16 weeks, the stent was gently washed with distilled water and its morphology was observed using a digital camera. Subsequently, the radial force of the PDO stent before and after degradation was measured using a Universal Testing Machine (TO-101G, Test One Co., Ltd., Korea). Using a load cell, stents were compressed until a 50% reduction in diameter was observed with a strain rate of 20 mm/min. Five PDO stents were employed and the average radial force at each time-point was calculated.

Results: Biodegradation of the PDO stent was evaluated *in vitro* under physiological conditions for 20 weeks (Fig. 1). Tiny cracks were observed on strands of the stent at 8 weeks, and numerous and definite cracks were evident at 12 weeks. After 16 weeks, the degraded stent was unable to maintain its original shape because it was crispy and easily broke into pieces. In addition, the radial force of the degraded PDO stent at 4 and 8 weeks was slightly increased compared to at 0 weeks due to increased crystallinity [1]. However, as the crystalline region of the PDO was subsequently hydrolyzed, the degraded PDO stent showed a 2.6-fold decrease in radial force at 12 weeks compared to at 4 weeks.

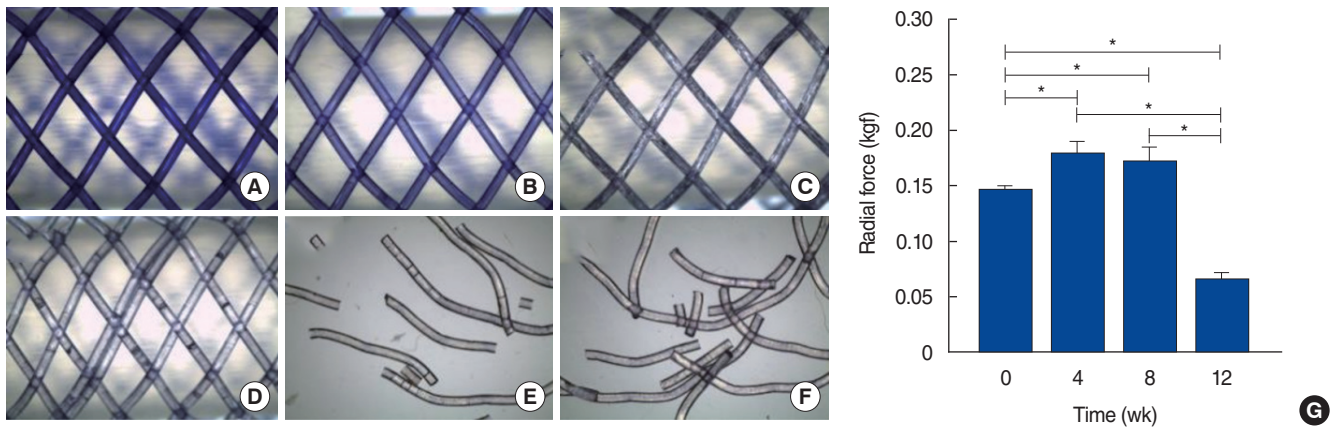


Fig. 1. Microscopic images of *in vitro* degradation of the polydioxanone (PDO) stent at (A) 0, (B) 4, (C) 8, (D) 12, (E) 16, and (F) 20 weeks following stent placement (magnification, $\times 28$). (G) Mechanical strength of PDO stent after degradation *in vitro* ($*P < 0.001$).

REFERENCE

1. Wang CE, Zhang PH. In vitro degradation behaviours of PDO monofilament and its intravascular stents with braided structure. *Autex Res J.* 2016 Jun;16(2):80-9.