

Use of Titanium Prosthesis to Bridge a Vertebral Gap in the Spine —A Preliminary Experimental Study

I S Rikhrad,**FAMS, MBBS, FRCS*, C T Tan,***FAMS, MBBS, FRCS*, S K Tan,****FAMS, MBBS, FRCS*, S H Teoh,[†]*PhD*, G W Hastings,[‡]*PhD*

Abstract

Resection of a vertebral body for spine tumour or fracture results in a vertebral gap which has to be bridged by autogenous graft, allograft, bone cement or metal spacer. Recently, there have been several metal spacers in the market. We have designed a titanium vertebral spacer which is extensible by way of a threaded mechanism. Coating with hydroxyapatite enables bone ingrowth onto the surface of the titanium spacer. Biomechanical analysis, using the Instron biaxial electro-servo-hydraulic testing machine, showed that the segment bridging the spacer was rigid and stiffer than the adjacent vertebral body motion segment. Histological study showed that there was bone growth across the vertebral gap indicating fusion had taken place.

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