

# Polyethylene glycol coated collagen pad

To investigate a novel, self-adhering [polyethylene glycol](#)-coated collagen pad (PCC) as a dural substitute relative to Duragen XS (DGX; Integra LifeSciences Corporation, Plainsboro, New Jersey) and as a dural sealant relative to Tachosil (Takeda Austria GmbH, Linz, Austria), a fibrinogen and thrombin-coated collagen pad (FTC).

**METHODS:** A canine supratentorial durotomy surgical model was used to investigate the safety and efficacy of PCC. For safety, 4 animals were bilaterally treated with DGX or PCC and recovered for 1, 8, or 16 wk; total 24 animals. Each animal underwent physical and neurological examinations weekly and 16-wk animals underwent a magnetic resonance imaging (MRI) examination at each time point. For efficacy, 9 animals were unilaterally treated with FTC or PCC and underwent a burst pressure test intraoperatively or 14 d postoperatively; total 36 animals.

**RESULTS:** In the safety study, no abnormal clinical signs or changes were noted on physical and neurological examinations, or in clinical pathology, CSF analysis or histopathology of DGX or PCC-treated animals. No consistent signs of cerebral compression, CSF leak, hemorrhage, or hydrocephalus were noted on MRI. In the efficacy study, no significant difference was found between FTC and PCC at each time point or overall (13.9 vs 12.3 mm Hg,  $n = 18$  per group,  $P = .46$ ).

**CONCLUSION:** PCC is safe for use as a dural substitute and effective as a dural sealant. The novel, self-adhering combination of a polyethylene glycol-based sealant and a collagen pad may offer unique benefits to the advancement of duraplasty <sup>1)</sup>.

<sup>1)</sup>

Lewis KM, Sweet J, Wilson ST, Rousselle S, Gulle H, Baumgartner B. Safety and Efficacy of a Novel, Self-Adhering Dural Substitute in a Canine Supratentorial Durotomy Model. *Neurosurgery*. 2017 Jun 1. doi: 10.1093/neuros/nyx216. [Epub ahead of print] PubMed PMID: 28575349.

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