A New Liquid Embolic Material, a 2–Hydroxyethyl Methacrylate–co–Methyl Methacrylate : a Safty Study in a Swine Endovascular Embolization Model

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Abstract : To study the safety, efficacy, and histopathology of a 2–hydroxyethyl methacrylate–co–methyl methacrylate (HEMA–co–MMA) embolic mixture in an animal model, microembolization of the rete mirabile was done in 13 swine. The consequences of super–selective injection of the two principal embolic mixture components (HEMA–co–MMA and 10% ethyl alcohol)were evaluated. Necropsy and histologic preparations were analyzed for pathology. The safety and efficacy of the material were confirmed. HEMA–co–MMA did not adhere to the catheter or cause vasospasm. Histopathologic examination of animals treated with HEMA–co–MMA revealed a mild inflammatory reaction around blood vessels and endothelial denuding in the acute and subacute stages. HEMA–co–MMA crystallized in the vessels within 2 weeks of injection. Crystals persisted without an inflammatory reaction for 3 to 6 months and had poor organization. Vessel walls became thin with disrupted internal elastic lamina and developed fibrosis after 3 to 6 months. HEMA–co–MMA is safe and effective, and does not cause any problems such as angitis, cytotoxic effect and recanalization.

Key words : Angiography, Endovascular embolization model, HEMA–co–MMA, Histopathology, Liquid embolic material