Abstract Submitted
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In vitro characterization of the technique of portal vein embolization by injection of a surgical glue ANNE-VIRGINIE SALSAC[1], MIHAI-CRISTINEL SANDULACHE, OCEANE LANCON, KHADIJA EL KADRI BENKARA[2], Universite de Technologie de Compiegne — Partial embolization of the portal trunk by glue injection is a minimally invasive technique used in the case of malignant liver tumors. It is conducted few weeks prior to partial liver ablation, when the volume of the remnant liver section is too small to allow hepatectomy. The limitation of glue embolotherapy is that its clinical practice is based on empirical knowledge. The present objective is to study glue injection in a confined blood flow and investigate how the injection dynamics is coupled with glue polymerization. We first characterize polymerization under static conditions for various glue concentrations and then consider the influence of injection. An experimental setup reproduces the co-flow of two immiscible fluids. The glue mixture is injected through a capillary tube into a saline solution with the same ionic concentration, pH and viscosity as blood, flowing steadily in a straight cylindrical tube. The injected phase is visualized with a high-speed imaging system and results are compared with those obtained for non-reacting fluids. These experiments have enabled us to characterize the characteristic times of polymerization of the glue mixtures under static and dynamic conditions and understand how they affect the flow topology of the glue once injected.

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