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Direct Puncture of the Superficial Temporal Artery for EVOH Embolization of a Type 3 Arteriovenous Fistula with a Dual Lumen Balloon

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Abstract

Intracranial dural arteriovenous fistulas (dAVFs) may be difficult to treat by endovascular means, especially when the arterial feeders to the fistula are tortuous. Indeed, the usual main feeder to intracranial dAVFs is the middle meningeal artery, which may present very tight loops, often difficult to cross with a microcatheter. Direct puncture of a subcutaneous artery feeding the fistula indirectly via transosseous branches may be a valuable strategic option to overcome this limitation. We report herein the successful embolization of a Cognard type 3 parietal dAVF by direct puncture of the superficial temporal artery under roadmap guidance. The dAVF was subsequently embolized with ethylene vinyl alcohol via a dual lumen balloon, under balloon inflation. We underline in this technical video the potential difficulties and risks of STA direct puncture; and we also stress the risk of delayed scalp necrosis using this technique.

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Frédéric Clarençon: data collection, manuscript writing and video preparation

Eimad Shotar: data collection, critical review of the manuscript

Arnaud Pouvelle: data collection, critical review of the manuscript

Samuel Mouyal: data collection, critical review of the manuscript

Stéphanie Lenck: critical review of the manuscript

Kévin Premat: critical review of the manuscript

Philippe Cornu: critical review of the manuscript

Nader-Antoine Sourour: critical review of the manuscript