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Title: Long-term effectiveness of transcatheter coil embolotherapy for pulmonary arteriovenous malformation evaluated by 4D dynamic contrast-enhanced 320-slice CT

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Body: Purpose: The aim of this study was to retrospectively evaluate the long-term results of transcatheter coil embolotherapy for pulmonary arteriovenous malformation (PAVM) using helical computed tomography (CT) and 4D dynamic contrast-enhanced CT. Materials and Methods: Twenty-four patients (52±15 yrs, 3 male) underwent follow-up helical chest CT and 4D dynamic contrast-enhanced 320-slice CT (Aquilion ONE, Toshiba Medical) 1-17 years after successful embolotherapy for 29 PAVMs. We estimated the rate of shrinkage of the longest diameter of the aneurysmal sac and the diameter of residual feeding artery with contrast-enhanced helical CT. We also evaluated the presence of coil recanalization of PAVM using 4D dynamic contrast-enhanced 320-slice CT. Results: Twenty-four (83%) of 29 PAVMs had > 30% reduction in the size of the aneurysmal sac or had a residual feeding artery that was < 3 mm based on helical CT. However 10 (42%) of these 24 PAVMs showed recanalization on 4D CT. All 5 PAVMs, which had < 30% reduction in sac size on helical CT, showed recanalization on 4D CT. On the other hand, seven (29%) of 29 PAVMs that had disappearance of the aneurysmal sac showed successful treatment on 4D CT. Finally fifteen (52%) of 29 PAVMs showed recanalization on 4D CT. Conclusion: Long-term 4D CT follow-up of successfully-treated PAVMs revealed successful embolotherapy of 48% of PAVMs, whereas helical CT revealed successful embolotherapy of 83% of PAVMs. Especially, the marked reduction of the sac size may not reflect long-term successful treatment.