Comments to “Usefulness of Hydrogel-Coated Coils in Embolization of Pulmonary Arteriovenous Malformations”

Rengarajan Rajagopal¹ · Sanjiv Sharma¹

Received: 7 June 2018 / Accepted: 14 June 2018 / Published online: 26 June 2018

© Springer Science+Business Media, LLC, part of Springer Nature and the Cardiovascular and Interventional Radiological Society of Europe (CIRSE) 2018

Dear Editor,

We read with interest the article titled “Usefulness of Hydrogel-Coated Coils in Embolization of Pulmonary Arteriovenous Malformations” [1]. The authors describe the effectiveness of using hydrogel-coated coils for the embolization of venous sac and distal arterial feeders in pulmonary AVMs. In all procedures, a coil scaffold was made in the venous sac, followed by the embolization of the distal arterial feeder with hydrogel-coated coils. The authors contend that hydrogel-coated coils may have been responsible for the lower recurrence rates. We have the following observations.

The scaffold made in the venous sac, even though by itself might not be sufficient to cause complete occlusion of the sac, may accelerate its thrombotic occlusion in the presence of an occluded arterial feeder (due to stasis). It has also been shown by prior studies that reperfusion rates are lower with venous sac embolization as compared to stand-alone feeding artery embolization [2].

The proposed explanation for the occurrence of systemic feeders to pulmonary AVMs postembolization is due to the relative postprocedural local ischemia which could trigger the development of systemic supply [3]. The venous sac could also act as low-pressure sump promoting the opening of small congenital systemic collaterals which may subsequently undergo hypertrophy resulting in the reperfusion of the pulmonary AVM. The absence of recruitment of

systemic feeders in this study could be well attributed to the packing of the venous sac.

Though the technique of venous sac embolization is not a preferred method for endovascular therapy of pulmonary AVMs among operators, because of prolonged procedure times, more number of coils required for packing the venous sac as well as the risks of sac rupture and dislodging the thrombus formed in the sac; the new technique of forming a scaffold in the venous sac followed by embolization of the distal arterial feeder may hold promise in reducing the incidence of reperfusion in embolized pulmonary AVMs.

Overall, in view of more than one variable influencing the recanalization rates in this study, the author’s contention that the hydrogel-coated coils were responsible for lower recanalization rates remains unproven.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Shimohira M, Kawai T, Hashizume T, Muto M, Kitase M, Shibamoto Y. Usefulness of hydrogel-coated coils in embolization of pulmonary arteriovenous malformations. *Cardiovasc Interv Radiol*. 2018;17:1–8.
2. Hayashi S, Baba Y, Senokuchi T, Nakajo M. Efficacy of venous sac embolization for pulmonary arteriovenous malformations: comparison with feeding artery embolization. *J Vasc Interv Radiol*. 2012;23:1566–77.
3. Brillet PY, Dumont P, Bouaziz N, Duhamel A, Laurent F, Remy J, et al. Pulmonary arteriovenous malformation treated with embolotherapy: systemic collateral supply at multidetector CT angiography after 2–20-year follow-up. *Radiology*. 2007;242:267–76.

✉ Rengarajan Rajagopal
heraghava@gmail.com

¹ Department of Cardiovascular Radiology and Endovascular Interventions, All India Institute of Medical Sciences, Room No 10 A, New Delhi 110029, India