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A Call for Standardization in Interventional Radiology Practice: How to Deal with Spontaneous Retroperitoneal Haemorrhage?

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To the Editor:

We read with great interest the manuscript, *Spontaneous retroperitoneal haemorrhage: efficacy of conservative management and embolization*, by Lukies and colleagues [1]. The authors share their experience in the management of spontaneous retroperitoneal haemorrhages (SRHs) and, notably, propose a one to one propensity score matching comparing the technical/clinical efficacy of angiographic treatment and conservative management. Of note, they should be congratulated for highlighting the importance of a prompt cessation/reversal of anticoagulation, even for haemodinamically unstable patients, a message with significant clinical implications. However, the assumption that embolization should be reserved for those SRH patients with on going bleeding despite proper reversal of anticoagulation is, in our opinion, a little too straightforward and it could be open for misinterpretation. With regard to this last point, our experience does not fully corroborate the authors' conclusions.

Between March 1st, 2020 and January 31st, 2023, 36 consecutive patients (22 COVID-19 +) were referred to our interventional radiology (IR) department (San Raffaele Hospital, Milan, Italy) for spontaneous retroperitoneal haemorrhage. They all underwent contrast enhanced CT scan, demonstrating the presence of active bleeding, and were then admitted to the angiographic suite. Of these, 31 (92.6%) were receiving prophylactic antithrombotic treatment, with a median INR of 1.38 (range: 1.07–2.28). Diagnostic angiography clearly showed the vessels each time accountable for the bleeding episode, frequently in combination: lumbar/ileolumbar (29/36, 80.5%), inferior epigastric (4/36, 11.1%), deep circumflex iliac (3/36, 8.3%), lateral circumflex femoral (5/36, 13.8%). Technical success was achieved in all patients (36/36,100%) with superselective embolization with small sized polyvinyl alcohol particles (smaller than 355 μm) [2]; three patients experienced rebleeding (3/36, 8.3%) and therefore underwent a second round of trans arterial embolization, with 30 days all cause mortality of 2.7% (1/36).

Based upon these data and their seeming inconsistency with those summarized by Lukies and colleagues, two considerations should be made.

First, as recently pointed out in the setting of COVID-19 related spontaneous major haemorrhages (mostly being SRHs), failure to recognize the pathophysiology underlying each bleeding episode could undermine the effectiveness of any IR intervention [3, 4]. As an instance, In the specific setting of COVID-19 related spontaneous major haemorrhages the main goal of transarterial embolization should be an effective slowdown of the blood flow specifically in the vascular territories primarily affected by viral injury with very small sized, permanent embolic material to prevent distal revascularization [5].

And here comes the second point. Lukies and colleagues brought together in the angiographic treatment group of their analysis patients treated with different embolic materials; they do not provide information about the exact mixture of ethiodol and glue nor about the texture of gelfoam. This lack of standardization heavily impairs, in our opinion, the interpretability of the presented findings. There is indeed an urgent need to highlight the concept that

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different materials should be used to achieve different types of embolization, both in terms of the level of embolization (proximal vs. distal) and nature of embolic material (provisional vs. permanent), based upon different underlying pathophysiologies.

In conclusion, we propose a step up approach for the management of SRHs based upon two pillars: (*i*) prompt cessation/reversal of anticoagulation (even if no active bleeding is found at CT) together with (*ii*) angiographic embolization with small sized permanent material, which remains a landmark when dealing with haemodinamically unstable patients with radiological evidence of active bleeding.

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Declarations

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

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional ethics committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Patients signed an informed consent for the collection of all data related to their hospitalization and eventual use for publication. The study was approved by the Institutional Ethics Committee (protocol number: *34/int/2020*).

Consent for Publication Consent for publication was obtained for every individual person's data included in the study.

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