

# Warning on coagulopathy COVID-19 related in microsurgical procedures

Dear Editor,

Patients with hypercoagulable predisposition represent one of the most challenging preoperative conditions for microvascular surgeon. In fact, although free flap procedures currently provide overall success rates in about 97% of cases, hypercoagulable states decrease this rate to less than 85% (Pannucci et al., 2015). On the basis of the current literature, it is evident that patients affected by coronavirus disease 2019 (Covid-19) present a pro-thrombotic disorder (Han et al., 2020). The principal reported altered hematic parameters relative to patient's coagulation state were high D-dimer level, low platelets count, prolonged prothrombin time and prolonged activated partial-thromboplastin time (aPTT; Han et al., 2020). Recent evidences suggested that the prolonged aPTT in patients with Covid-19 is often related to the presence of lupus anticoagulant (LAC) that can be in turn associated with a thrombotic tendency within the antiphospholipid syndrome (Bowles et al., 2020). All these alterations mirror the hypercoagulable state of severe COVID-19 patients, which promote the onset of microthrombosis.

Subsequently, we have significant concerns that standard screening and the standard thromboprophylaxis before free flap procedures may not be sufficient in this particular historical moment. According to our research, there are no data relating to the coagulation status in asymptomatic patients or in patients with previous history COVID-19. It is not foreseeable how long we will still have to face this health emergency. The American College of Surgeons published the guidelines for triage of non-emergent surgical procedures during the COVID-19 pandemic, based on the Elective Surgery Acuity Scale (ESAS) that consider low risk cancers as tier 2a (deferrable whenever feasible) and other cancers as tier 3a (not deferrable; American College of Surgeons, n.d.). Then, surgical procedures for oncological pathologies will continue to be performed regardless of the evolution of the pandemic. In some cases such as large soft tissue sarcoma or head and neck cancers, free flap reconstruction is often mandatory representing an interrupting part of the modern oncologic treatment. Recently, a French group described a case of free flap failure on the seventh postoperative day in a patient who tested positive for covid-19 after surgery (Benmoussa et al., 2020). In our opinion, this case is emblematic and should make us reflect. Although the present emergency is still progress worldwide and limited time availability, only the publication of scientific evidences and the sharing of our experiences can limit the risk of leading to delays in understand the best care and therapeutic strategies for COVID-19 patients. In our opinion, if this emergency will extend we must learn to cooperate with the possibility of operating patients affected by mild or misdiagnosed forms of COVID-19 and establishing customized protocols. In addition to the pharyngeal swab, should we screen more

thoroughly coagulation state of patients preoperatively? Should we play out different thromboprophylaxis strategies? In our opinion, it will be interesting to start with an assessment of the global coagulation status of all patients with history of COVID-19 scheduled for free flap surgery and then to evaluate the possibility to apply customized thromboprophylaxis protocols, if necessary.

This short communication would like to be a food for thought for microsurgeons about a possible resettlement of preoperative screening and perioperative thromboprophylaxis protocols in patients eligible for free flap during COVID-19 pandemic.

## CONFLICT OF INTEREST

The authors declare no conflicts of interest.

## AUTHOR CONTRIBUTION

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in the work to take public responsibility for the content. Furthermore, each author certifies that this material or similar material has not been and will not be submitted to or published in any other publication before.

## DATA AVAILABILITY STATEMENT

The authors confirm that the data supporting the findings of this study are available within the article.

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