



# REPLY: SUIT YOURSELF: TAILORING TREATMENT TO MALPERFUSION IN ACUTE TYPE A AORTIC



## DISSECTION

### Reply to the Editor

We read with interest the letter by Mishra and colleagues<sup>1</sup> discussing our analysis of acute type A aortic dissection (ATAAD) complicated by malperfusion syndrome (MPS).<sup>2</sup> In that article, we report outcomes of immediate aortic repair for all-comers with ATAAD, regardless of MPS status. In a series of aphorisms, Mishra and colleagues<sup>1</sup> conversely suggest that the treatment strategy for patients with MPS should be tailored to the specific malperfused vascular bed. Presumably, they believe that some patients with MPS ought to undergo endovascular revascularization of their malperfused vascular bed before delayed aortic repair, although their treatment algorithm is not entirely clear from their letter.<sup>1</sup>

Citing data from the Michigan group, they claim that the “risk of dying from end organ failure even after the branch arterial obstruction [is] resolved with fenestration/stenting [is] ~7 times higher than the risk of aortic rupture [by delaying aortic repair].”<sup>3</sup> These data are unsurprising, and are not dispositive. According to its proponents, the endovascular-first approach to ATAAD with MPS arguably leads to improved outcomes compared with immediate aortic repair. Specifically, revascularization of a malperfused vascular bed may reverse metabolic derangements from end organ failure, thereby improving outcomes of the definitive aortic repair. Two ideas are worth noting here. First, whereas end organ damage are reversible, it is not necessarily so. Moreover, patients may die from end organ failure whether revascularization of the malperfused vascular bed is initially pursued by endovascular means or if true lumen perfusion is initially restored by central aortic repair. Second, although it is hypothetically reasonable to defer the risks of cardiopulmonary bypass and hypothermic circulatory arrest to allow for the potential reversal of end organ failure, the price paid is the risk of interval aortic rupture. Taken together, it is unsurprising that death from end organ failure (even after revascularizing a malperfused vascular bed) is higher than the risk of aortic rupture.

But this observation by Mishra and colleagues<sup>1</sup> is not entirely germane to the clinical question of interest, which has been thoughtfully raised by advocates of endovascular-first approaches to MPS. Proponents

of endovascular-first approaches to MPS claim that *despite* the risk of interval aortic rupture and *despite* the persistent risk of death from end organ failure even after branch arterial revascularization, immediate revascularization of the culprit malperfused vascular bed (followed by delayed aortic repair) nevertheless optimizes outcomes of aortic repair, compared with immediate aortic repair for patients with MPS. This is entirely plausible. But, to adjudicate this, high-quality comparative data are needed, preferably prospective data. In our opinion, immediate aortic repair is warranted, regardless of MPS status.<sup>2,4</sup> As we note in our study, in-hospital mortality was 21.5% for patients with MPS who underwent immediate aortic repair, which is lower than the 33% mortality that is reported by advocates of delayed aortic repair.<sup>2,3</sup> Yet, we admit that this is an observation that demands prospective comparison.

It is revealing to note that Mishra and colleagues<sup>1</sup> interpret the Michigan data in an unconventional fashion: “Sometimes [fenestration/stenting] may prevent the futile attempt of aortic surgery in a patient whose visceral organ is damaged beyond salvage.” Perhaps, this idea is worth exploring. The price of allowing a futile situation to declare itself is the small but nonnegligible risk of fatal aortic rupture in a nonfutile case. Unfortunately, futility of aortic repair for patients with ATAAD is difficult to ascertain. So, we continue to advocate immediate aortic repair in the absence of validated prognostic models or high-quality comparative data. While we agree that clothes tend to be ill fitting when they are not tailored to the individual, it is better not to discover that the emperor has no clothes at all.

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