

# Reverse Chimney or Periscope: Some Issues have to be Addressed “Re: Endovascular Aneurysm Repair Using a Reverse Chimney Technique in a Patient with Marfan Syndrome and Contained Ruptured Chronic Type B Dissection”

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Ketelsen and colleagues [1] present a patient with Marfan syndrome and contained ruptured chronic type B dissection. We acknowledge the procedure and excellent result but would like the authors to address the following points.

Our group was the first to describe the technique described in the authors' case report in which they describe it as the “reverse chimney” technique. We decided not to use the term “reverse chimney,” because the term chimney might result in special disadvantages when the “chimney” originates from below the aortic stent-graft. Therefore, we introduced the term “periscope grafts” to describe this special endograft design. In the first report, we presented two patients with ruptured thoracoabdominal aneurysms that were treated successfully using two periscopes in each patient [2]. Later, we published an additional case treated with two chimney grafts and two periscope grafts [3]. In both articles, we described some drawbacks of the

technique that have been completely overlooked in Ketelsen's paper. We think that these points are of great importance and should be considered when performing and reporting periscope or “reverse chimney” techniques.

Periscope or reverse chimney grafts might narrow the aortic lumen at the level of the distal aortic stent graft landing zone and, therefore, can produce a pressure gradient and flow limitation in the distal aorta and the periscope graft or grafts. This is quite different from standard chimney grafts that, even when producing aortic narrowing in the proximal landing zone, still allow unrestricted chimney flow into the branch arteries, because the chimneys originate above the proximal end of the aortic stent-graft. Because the visceral artery perfusion through the periscope or reverse chimney graft is in a retrograde fashion, any blood flow or pressure restriction in the distal aorta might lead to end organ ischemia. To rule out such flow restrictions, selective pressure measurement in the distal aortic and branch lumens must be made with periscope grafts. If blood flow or pressure restriction is detected, it must be corrected by implanting stents or by extra-anatomic revascularization (e.g., axillofemoral bypass).

Finally, we recommend using our original terminology for “periscope grafts” rather than “reverse” chimneys. This will standardize the terminology for a single procedure and avoid confusion.

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

## References

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