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## ***Electrocautery: Will Coagulation Mode Damage Implants?***

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Primary total hip arthroplasty is among the most successful and popular orthopaedic operations. Consequently, the number of hip revisions are increasing worldwide. In THA revision surgery, high-frequency electrocautery devices are used for both haemostasis and soft-tissue dissection. If a surgeon uses an electrocautery device within a few millimeters of metal implants, flashovers occur. We described earlier that this visible arc can lead to thermal microstructural changes in the material and may reduce the fatigue strength of a titanium hip endoprosthesis stem at the site of the implant neck (1).

This implant failure mechanism has not been common knowledge among orthopaedic surgeons, with only a few papers addressing this problem (1-3). Now, in this *JBJS* study, Sonntag et al. have confirmed the previously published clinical observations and material analyses. Additionally, Sonntag et al. have verified the described failure mechanism biomechanically. We congratulate these authors for adding additional information about this topic by conducting an in vitro study and using methods that are available mainly in specialized implant testing laboratories. To reduce the risk of secondary implant fracture at the site of the femoral neck after revision surgery of a hip endoprosthesis, electrocautery devices should be used with caution near the femoral component if the stem is not to be explanted.

However, it is still unknown whether electrocautery devices used in coagulation mode rather than cut mode can also damage titanium alloys in a way that reduces fatigue strength. In our experience, the marks left on the metal implant after contact with an electrocautery device in the coagulation mode are visibly different, and only minimal or superficial damage can be found compared to the defects left after using an electrocautery device in the cut mode.

I hypothesize that using electrocautery in coagulation mode does not lead to secondary fatigue fracture of hip endoprosthesis stems. Hopefully, this question will soon be answered by employing a biomechanical study design similar to the one used by Sonntag et al.

## References

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Conflict of Interest: None Declared