Osseointegration of minimally invasive sacroiliac joint fixation implants – a human retrieval study

Engelke Marie Randers[1,2], Thomas Johan Kibsgård[1,2], Liebert P. Noguerira[3], Trygve Kjensjord[4], Stephan M. Röhrl[1,2], Lars Nordsletten[1,2], Britt Stuge[1,2]

[1]Division of Orthopaedic Surgery, Oslo University Hospital, Oslo, Norway

[2]Institute of Clinical Medicine, University of Oslo, Oslo, Norway

[3]Oral Research Laboratory, Institute of Clinical Dentistry, University of Oslo, Oslo, Norway

[4]Division of Radiology and Nuclear Medicine, Oslo University Hospital, Oslo, Norway.

Background

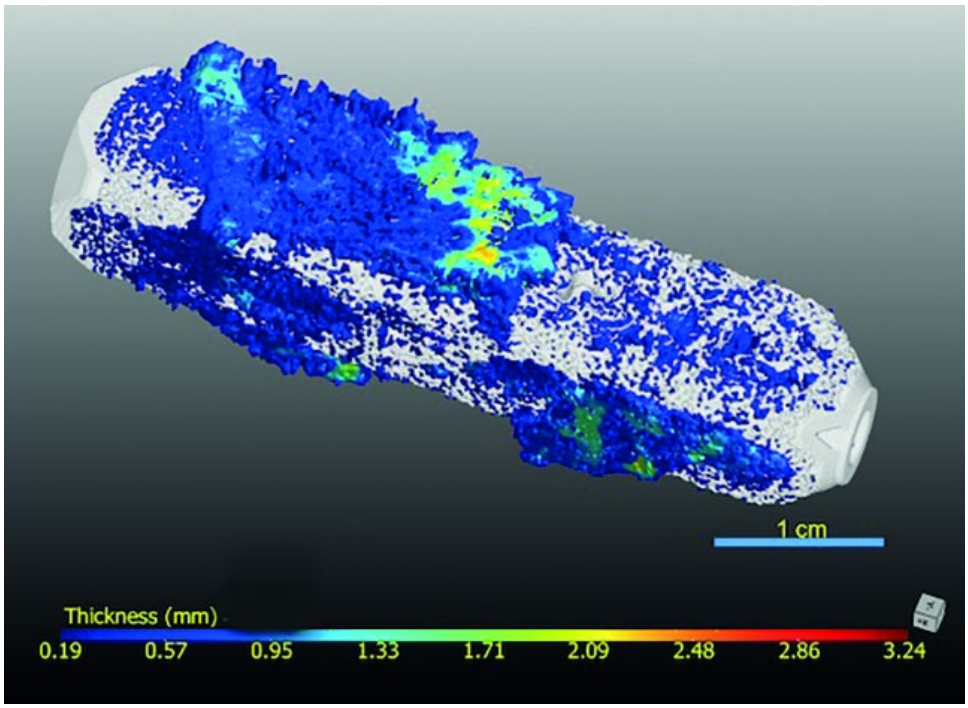
Minimally invasive sacroiliac joint fusion has become increasingly prevalent and is described to reduce pain and improve function. In some patients, pain can recur several months after primary surgery. Lack of early implant osseointegration might be a cause of pain and hence an indication for revision surgery. Triangular titanium implants are the most documented implant for minimally invasive sacroiliac joint fusion. There is, however, no knowledge of how triangular titanium implants osseointegrate in humans and whether fusion is induced over the sacroiliac joint.

Method

During planned revision surgery due to recurrent pain, six triangular titanium implants were retrieved from six different patients at median 9 months from primary surgery. All six implants were scanned using microcomputed tomography. The presence or absence of bone in-growth, on-growth and through-growth of the implants was evaluated as an indication of implant osseointegration.

Results

Three of six implants showed no or minor signs of osseointegration. Of the three remaining implants, one showed partial osseointegration and two implants showed high degree of osseointegration.



Conclusion

This study showed that triangular titanium implants can osseointegrate into host bone in humans. When osseointegration occurs, triangular titanium implants can give fusion across the sacroiliac joint.

Disclosures

The Authors have no disclosures