Dental Implant for Low Bone Volume Sites [UoM 2014-019]

Problem
Traditional cylindrical implants (Figure 1) may be a viable solution for patients with adequate bone volume in their jaws. However, complications arise in areas of resorbed bone where there is insufficient bone volume to anchor these implants. Since anchorage and stability is important for implant performance in withstanding daily applied loads (e.g. chewing), cylindrical implants end up having a high failure rate. This problem is compounded as each time an implant is replaced, there is less and less bone volume to anchor it to. Moreover, an oral surgeon is required for implanting these implants due to complications associated with a reduction in bone height – there is a risk of the implant impinging underlying nerves, which leads to loss of feeling in the bottom of the face, and so nerve repositioning and bone grafting may be necessary.

Solution
Researchers from the Melbourne Dental School at the University of Melbourne (UoM) have developed a unique dental implant specifically designed for enhanced performance in low bone volume sites (Figure 2). A prototype has been developed and validated mechanically ex vivo and in an animal model in vivo.

Competitive Advantages
- Enhanced anchorage and stability
- Mechanically outperforms traditional implants
- In vivo proof of concept in canine animal model
- Reduced risk of implantation complications compared to traditional implants such that an oral surgeon is not required to conduct the procedure

Intellectual Property
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