Abstract:

After several decades use in dental implants, titanium is now also found in implant superstructures and in crown-and-bridge work. The two routes to producing titanium frameworks, lost-wax casting and milling, warrant comparison with their direct competitors, the casting of noble and base-metal alloys and the milling of zirconia. Similarities between titanium and zirconia distinguish these new materials from traditional porcelain-fused-to-metal alloys. But unlike zirconia, titanium has a metal's potential for considerable modification through alloying. Realising this potential while retaining acceptable biocompatibility is the challenge that will decide whether titanium is to become competitive as the strong component of future dental prosthetics.
In consecutive talks, we present some technical background needed to follow developments in the use of titanium in dental prosthetics, outline the issues that limit the metal's potential, and then review pilot and clinical studies of experimental alloys from NIOM and elsewhere.