Dental implantology: Evolution or the road to ruin?

Why and where?

Where this technological change has taken implantology and what the real reasons are that this was and is happening need to be examined. Increasingly, the shadow of peri-implantitis looms like a spectre over the provision of implants. Unlike caries or periodontal disease, there is very little consensus or research that can provide a predictable cure for what now is a new breed of disease. Peri-implantitis is relentless once established within fine threads of the implant, and the bone resorption and soft-tissue problems that follow can result in spectacular problems.

Patient selection issues

We need to consider the types of patients whom we are now accepting for implant provision. At King’s College Hospital, the criteria for state-sponsored implant provision largely involve patients with high-level features that make the implant surface a veritable inflammation super highway for the pathogenic organisms. Predictably enough, the micro-organisms found on the rough surface are usually the common pathogenic ones, but also some species are found that have previously never been discovered in the oral cavity.

Biological versus mechanical problems

If we are being frank, the pathogenic bacteria-induced diseases are not the only long-term problem that we are now seeing. The reported frequency of mechanical complications has risen over the years, but the reported problems probably are only the tip of the ice-berg. They are highly evolved structures that have developed progressively over millions of years in attempts to protect themselves from caries and periodontal diseases. Over the years, many advances have been made that can treat these various diseases predictably. Various strategies have been developed to prevent or slow down these problems given adequate patient compliance and appropriate personal and professional maintenance. Despite these significant improvements, there are still instances when patients are advised to one or other tooth to be extracted. It is the obvious sadness, heartache or despair that patients are caused by this bad news that has driven, caring clinicians to find ways to replace teeth with various devices, including dentures, bridges and implant-retained prostheses.

P-I Brånemark, now sadly deceased, famously quipped: “No one should have to die with their teeth in a glass of water beside their bed”. His original inspiration coupled with determination, intuition, passion and an ability to surround himself with a great team of individuals with differing skills made osseointegration much more predictable. Brånemark’s landmark study changed prosthetic dentistry dramatically, but a careful look at the design of these protocols and the implants themselves reveal that they were basically different to the patient selection protocols and the types of implants being placed today.

Furthermore, the restorations supported on them were made of the established materials then and obeyed traditional mechanical laws. In terms of biological cleanliness, the metal, polished “high-wear” design allowed for optimal interproximal cleaning, while the implant surface itself was also relatively smoother in comparison with the rougher surfaces we often see today. Market saturation, cost, profit and market share in many technology-driven markets often pursue innovation of some sort of change to help gain greater market share or profit. The over-commercialisation of dentistry generally creates a constant turnover of supposedly new and better products, where the notion of “if it ain’t broke don’t try to fix it” is lost on many directors of marketing or increasingly profit-driven CEDOs.

Part of the key issue probably lies in the surface exposed to the susceptible patient’s oral environment, as most microbiologists will argue. The bacterial content and make-up of the biofilm is a reflection of the surface on which it resides. Implant surfaces have become progressively rougher in order to hasten the early osseointegration processes and to try to provide patients with their restoration quicker in an ever more competitive financial environment.

However, speed is not always helpful. Experience shows that some things are better achieved gradually. Once exposed to the environment of a susceptible patient, the macro-topography of the threads provides an ideal ecological niche for bacterial proliferation. Further podontia and those who have suffered trauma. Usually both cohorts are likely to present with well-maintained, minimally restored dentition or with scope for oral health improvement prior to consideration for any restoration, let alone an implant. Unfortunately, we are unable to provide this treatment for smokers.

This is in stark contrast to the patients who may be provided with implants in general and specialist practice, such as patients who are likely to have lost teeth as a result of plaque-associated diseases. Indeed, it could be considered a paradox by many interested observers that some clinicians are providing patients with implant-retained restorations when they have shown that they are highly prone to plaque-associated disease via tooth loss and have not demonstrated any real capacity for changing that. Patients who smoke, those with a history of periodontitis and those with poor oral hygiene are well known to be at a very significantly higher risk of peri-implantitis.

Planned obsolescence

A state-of-the-art implant today is likely to be obsolete tomorrow. Electively removing teeth is irreversible and replacing teeth with implant-retained devices means that patients are trapped in the era of implantology in which they were placed and restored, that means issues of machining, surface blasting, roughness, platform switching, design and attempts appear to be consciously flying in the face of increasingly apparent evidence of various complications with implants and many would consider that approach to be foolish. How many ‘implantologists’ doing that would genuinely have it done to themselves or done to some close family member?

Now comes the time for implant manufacturers to take stock of their many “market-driven” mistakes, including fast initial integration with the roughest possible surfaces. Instead they need now to produce proven (i.e. not only aesthetically pleasing) designs to better prevent these well-known problems of infection and breakage.

A wiser, pragmatic approach appears to be to concentrate every one’s efforts on saving teeth and thus keep out their usefulness for the patient’s lifetime. Recently, the legendary Prof Jan Lindhe, interviewed in the British Dental Journal, summarised the state of play as physiological feedback and thereby creating an increased chance of failure of some type. Ethical, moral and legal issues

These problems become much more worrying when viewed from ethical, valid consent and medicolegal perspectives. This is particularly so when patients are permitted to undergo elective extractions of teeth that often seem reasonably intact or treatable with conventional proven treatment strategies. It appears that there is a worrying drift towards aggressive treatment with extractions in order to provide a supposed full-mouth rehabilitation with multiple implants. The increasingly dubious practice of sacrificing teeth for the sake of implants appears to many concerned clinicians to be quite irrational. Ethical oral health practitioners, deliberately removing saveable teeth for prosthetic replacement using implants as support appears to be consciously flying in the face of increasingly apparent evidence of various complications with implants and many would consider that approach to be foolish. How many ‘implantologists’ doing that would genuinely have it done to themselves or done to some close family member?

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