Dental implantology: Evolution or the road to ruin?

By Dr Awais Alani, UK

Why and where?

The searching question needs to be asked, “where has this technological revolution taken implantology and what are the real reasons why this was and is happening?” Increasingly, the shadow of periimplantitis 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 now a new breed of diseases. Periimplantitis is relentlessly once established within fine threads of the implant and the bone resorption and soft tissue problems that follow can result in spectacular problems. Part of the key issue probably lies in the surface exposed to the susceptible patient’s oral environment, as most microbiologists will agree. The bacterial content and make up of the bio film is a reflection of the surface that it resides on. Implanted 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. How ever speed is not always helpful. Experience shows that some things are better taken slowly over time - rather similar to making love.

Once exposed to the environment of a susceptible patient the macro topography of the threads provide an ideal ecolonic niche for bacterial proliferation. Furthermore nanolevel features make the implant surface a veritable “Vallannian 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.

Patient selection issues

We need to consider the types of patients for whom we are now accepting for implant provision. At one time there were specific criteria for state sponsored implant provi sion largely involves patients with hypoplasia and those who have suffered trauma. Usually both cohorts are likely to present with.

Maintained minimally restored dentitions or with scope for oral health improvement prior to the complexities for any restoration let alone an implant. Unfortunately we are unable to provide this treatment for smokers. This is in stark contrast to patients who may be provided with implants in general and specialist practice for patients who are likely to have lost teeth as a result of plaque associated diseases. Indeed it could be consid ered a paradox by many interested observers that some clinicians are providing patients with implant retained restorations when have shown that they are highly prone to plaque associated disease via tooth loss and have not demonstrated any real capacity for chang ing 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 periimplantitis (Alani et al. 2014).

Biological versus mechanical problems

If we are being frank the pathogenic bacterial induced diseases are not the only long-term problem that we now see. The reported frequency of mechanical complications has risen over the years but the reported problems are probably only the tip of the iceberg as many complications have not and will not be reported for a variety of understandable reasons.

Over time the components of implants have shown notable weaknesses. Screw loosening, fractured screws, loose abutments and the cracking of ceramic can be labourious and expensive to manage. One aspect, which may be just on some is that, lacking a periodontal ligament dental implants, cannot and will never be able to acclimatise to changing occlusal and non-axial forces. These are very likely to create stresses within the masticatory system thereby resulting in breakages. These forces are compounded greatly if patient’s parafunction on a daily basis and is sometimes an unknown risk factor until it is too late. The more implants that are placed usually the fewer teeth are present resulting in a net reduction in 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 medico-legal perspectives. This is particularly so when patients are convinced to undergo elective extractions of teeth which often seem reasonably intact and/or treatable with conventional proven treatment strategies. It seems 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 seems to many concerned clinicians to be quite irrational. As ethical oral health practitioners, deliberately removing savable teeth for prosthetic replacement using implants as support seems 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 to others would genuinely have it done to themselves or done to some close family member?

Planned obsolescence

A state of the art implant today is likely to be obsolete tomorrow. Electronically removing teeth is irreversible and replacing teeth with implant retained devices means that patients that are trapped in the era of Implantology in which these were placed and restored, that means issues of manufacturing, surface blasting, roughness, platform switching, design and attempts at bone augmentation by cow, coral or Californian substances. The list goes on and on and will probably continue to expand with what many would call “human experimentation without licence”.

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

A wiser, pragmatic approach seems to be to concentrate everyone’s efforts on saving teeth and thereby eke out their usefulness for the patients lifetime. Recently, the legendary Jan Lindhe writing in the British Dental Journal summarised the state of play as there “is an overuse of implants in the world and an underuse of teeth as targets for treatment”. 44