

Missing Teeth and Dental Implants

by

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Ectodermal Dysplasia and a big smile, they just don't seem to go together do they, but they can! Back in 1976 at the Eastman Dental Hospital in London we began to see increasing numbers of patients with congenitally missing teeth (Hypodontia or Oligodontia), whose treatment was being planned piecemeal. That year colleagues in Prosthetic Dentistry, Orthodontics and Children's Dentistry established a dedicated team to help these young patients. The Eastman Hypodontia Clinic was born. The intervening years have seen considerable changes and expansion in activity. The team now includes a specialist in Conservative Dentistry, and with the number of treated patients comfortably exceeding 3,000 it has become the world's largest centre for this type of work. We are just about to appoint a further consultant to the team to cope with increasing demand, and now have a group of three head nurses who introduce new patients and their families to the clinic and explain how we work. This can be very comforting for youngsters and their families, as well as saving time for the consultants to concentrate on their clinical roles. Some of our first patients are now bringing their own children for consultations, as hypodontia can be inherited.

Treatment combines the skills of several specialists, and has changed considerably over the years, with the increasing use of adhesive restorations and dental implants representing two of the most dramatic developments.

Modern dental implants, largely developed in Sweden, are precision devices made from very pure titanium, which can become anchored to the bones, or 'osseointegrated'. It was this discovery by Prof. P-I Branemark which enabled dentists to use dental implants to reliably anchor artificial teeth to the jaws. The implants, or fixtures, are at first buried in the jaw while they integrate, and 3-6 months later exposed and used to anchor a bridge or denture. The operation may be carried out under local anaesthesia, or general anaesthesia on a day-stay or overnight basis, although the latter is not common. The choice depends upon clinical criteria, including the patient's general health, the complexity of the procedure and the operator and patient's preference. Some modern implant designs can be loaded shortly after insertion, however many patients may not be suitable for this technique and we prefer at the Eastman to use the two-stage approach for patients with Hypodontia.

Implant treatment is very complex and needs to be carried out by specially trained clinicians. Of particular importance is the preliminary detailed planning, since not all patients are best helped with the technique. This includes checks on general health, and detailed analysis of the jaws and any natural teeth which are present. For implant treatment to succeed it is important that there is sufficient space to accommodate the implants, and that the bone is adequately dense to provide good anchorage. Occasionally

it may be necessary to consider augmenting the jaw with transplanted bone from elsewhere, such as the hip, although this is not always feasible.

An implant is of no use if it cannot be restored successfully, and thus the planning includes a careful check on the type of prostheses which may be used. These can include single crowns and fixed bridges, which only a dentist can remove, and partial or complete dentures clipped very securely onto the implants. Fixed bridges tend to be used for replacing smaller numbers of teeth, and removable appliances where large deficiencies are to be restored, the profile needs increased support, or it is necessary to increase the height of the remaining teeth. Sometimes the teeth are also built-up in conjunction with implant therapy. This may be done by gluing a tooth coloured filling material on to them, or sometimes, particularly at the back of the mouth bonding a gold "onlay" onto the top of the crown. These have good wear resistance. The possibilities are almost endless; no wonder treatment planning can take some time!

The initial cost of this type of therapy is relatively high, although the benefits are considerable. A figure of 600 GBP per fixture would be typical, and that's only the implant components, with technical and professional fees and materials costs in addition! It should be borne in mind however that when replacing larger numbers of teeth it is not essential to use one implant per tooth being replaced. Much depends on the size of the jaws and anticipated loads on the implants. Fortunately NHS funding in specialist centres is often available for suitable cases, although the longer-term position in relation to this is currently less clear.

Treatment is normally deferred until the jaws have stopped growing, to avoid growth related problems, typically this means in the very late teens or perhaps early 20s. Most patients of this age are also better able to make the lifetime commitment which this type of treatment requires. Home care must be of a high standard, and regular monitoring by a suitably trained dentist is essential.

Implants are not always successful, and failure rates of 5-20% have been reported, depending on the clinical situation. Outcomes tend to be poorer in the upper jaw, while bone shape, size and composition, loading patterns and home care can all have profound effects. But then biology offers few guarantees.

Patient satisfaction is almost always very high, but expectations must be realistic; implants are not a miracle cure and need patient commitment, you can't fit and forget, and they are certainly not suitable for all. If they are not for you, don't despair, modern dentistry can offer many other solutions to your problems.

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