

History of tooth transplantation

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Abstract

A dental transplant happens when a tooth is transplanted from one individual to another. Several types of allotransplantation exist when a tooth is transplanted within the same species. This carries the danger of transmitting infections or triggering a histocompatibility reaction. Autogenous transplantation is when a tooth is moved from one place to another in the same individual. Reimplantation is when one's tooth is reinserted into the same place after extraction. Such procedures are no longer used today.

Keywords

oral surgery, tooth replacement, transplantation, implantation

Tooth transplantation and reimplantation preoccupied ancient and medieval surgeons. In ancient Rome, Cornelius Celsus suggested that avulsed teeth be secured to adjacent teeth with a gold thread (1). *Chirurgia Magna*, published in 1363 by Guy de Chauliac, dealt with an experiment in tooth reimplantation. A century later, Florentine Michael Savonarola proposed fixing reimplanted teeth with linen or silk thread. Nicolò Faluccci (1411) subsequently illustrated the technique of tooth implantation with the help of metal ligatures (2).

In 1572, the preeminent military surgeon Ambroise Paré described a case of transplantation, although not performed by him (3). In 1685, Charles Allen wrote about tooth transplantation in *The Operator for the Teeth*, the first dental textbook published in English. Here, to restore the teeth, he recommends implanting the teeth of dogs and sheep in the place of diseased and extracted teeth.

In 1614, in *Le Miroir de la Beauté et de la Santé du Corps*, L. Guyon advised dentists to immediately put the tooth back in its socket and fasten it to the adjacent tooth with a thread. In 1633, Dupont, Louis XIII's dentist, published *De la Greffe Dentaire*. In it, Louis' dentist recommended tooth extraction and immediate reimplantation in case of toothache treatment. He was the first to perform dental avulsion surgery and reimplantation when treating an abnormal tooth. Almost all the best French dentists adopted Dupont's

therapy. The subsequent granuloma and periapical abscess were not yet associated with the pulp necrosis that ensued in the procedure. In 1649, Schearmmer filled the teeth before reimplanting them (4).

In his book *Le Chirurgien Dentiste*, published in 1728, Pierre Fauchard shares his experiences in this direction. His case reports include transplantation, e.g., in 1715, a captain named Romatet ordered one of his soldiers to hand over his healthy tooth for implantation instead of his upper left canine tooth. Later it turned out that a filling had to be inserted, which was performed two weeks after the implantation. This tooth remained in the captain's mouth eight years later (5). Philipp Pfaff published his *Abhandlung von den Zähnen des menschlichen Körpers und deren Krankheiten* in 1756, describing a tooth transplant taken from a corpse.

However, before implanting the tooth, he prepared it: he sealed it apically with lead or wax (6). In 1772, the Scottish surgeon Sir John Hunter documented his human-to-human transplants. One of the secrets of a successful intervention was that the transplanted tooth had to be smaller to fit into the alveolus (7). In 1785, Benjamin Bell already recognized the risk of a transplanted tooth carrying infection in the case of scurvy and syphilis. A serious business began to develop, with poor people selling their teeth to replace the rotten teeth of wealthy people. The demand only grew; there were not always living teeth for sale. On the other hand, many young soldiers died in the Napoleonic Wars, so the front teeth were mainly extracted from those who died on the battlefield. This was especially true in the Battle of Waterloo, hence the name Waterloo Teeth.

Around 1950, autotransplantation began to appear in the dental literature, sparking renewed interest in tooth transplantation. However, the procedure was only about 50% successful and was later abandoned.

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1. Figure Transplanting of teeth. 1787. Rowlandson, Thomas (1756-1827). Wellcome Collection.