

Milestones of Cosmetic Dentistry - A Review

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ABSTRACT

Cosmetic dentistry has a very long history. It has been in practice in different forms, for thousands of years. The ancient and medieval civilization had a desire for white teeth. They used various natural materials such as Datium, Miswak, coal, baking soda, salt and chalk to keep the teeth clean and aesthetic. The advancements in preventive, restorative and prosthetic dentistry has paved way for new age cosmetic dentistry.

Keywords: Aesthetic dentistry; cosmetic dentistry; history.

INTRODUCTION

The history of aesthetic and cosmetic dentistry is long and vast. The desire for white and beautiful teeth has been recorded even in the ancient and medieval civilisations. For maintenance of oral hygiene, various forms of toothbrushes were used by different civilisations through different periods of time. Bleaching of teeth came into practice in middle ages. Prosthetic cosmetic dentistry has come a long way from the era of carved seashells, animal bones to flexible acrylic dentures. Dental implants is another breakthrough in the development of cosmetic dentistry. In recent times, different organisations of aesthetic dentistry have been established to further develop the field of cosmetic dentistry that fulfill the modern dental requirements.

ANCIENT HISTORY

The history of aesthetic and cosmetic dentistry is long and vast. The ancient and medieval civilisation, counted to 3000 B.C. also had a desire for white and beautiful teeth. The people during that time used tree twigs and bird feather to clean and protect their teeth. Various forms of toothbrushes have been used by different people through the different ages.¹⁻⁶ Ayurveda mentions the use of "Datium", a neem twig in the Indian sub-continent and similarly "miswak" was used by the Muslim world. These twigs had antiseptic properties to protect the teeth.

The Africans used coal as tooth cleaning agent and rubbing the teeth with abrasives like baking soda, salt and chalk were some traditional practices.

The first toothbrush is believed to have its origin during the late 1400s in China, it resembled the modern toothbrush and used stiff hairs from the animal attached to a bamboo stick.⁶ During the same era, Etruscans and Europeans also developed toothbrush out of animal's hair. However the credit for the first mass production of toothbrush using animal bone and natural bristles in 1780 goes to William Addis of England. The natural animal hair bristles were replaced by synthetic nylon fibres by DuPont in 1938, Bristol-Myers Company, USA in 1959 introduced Broxodent, which was the first electric toothbrush.²⁻⁴

LATE MIDDLE AGES

During the era between 1100 A.D. to 1400 A.D. barbers who worked as the dentists, used acids to whiten the teeth that eroded the tooth enamel. This led to the disappearance of barbers gradually from the dental practice. A desire for white teeth during the Medieval civilizations era, made the Egyptians and Romans, touse pumice stone, vinegar and even urine as the tooth whitener.^{1,6,7} The ammonia present in urine

worked actually as a natural tooth whitener. In the mid 1900's, bleaching of teeth was done by using hydrogen peroxide.⁸

COSMETIC DENTISTRY

As early as 700 B.C. the people had realized that a smile without teeth was not very appreciable. This led to many approached for replacement of teeth. Selling tooth or carved dentures became a trade during those days. The Etruscan carved animal bones and ivory into a beautiful tooth replacing their missing ones and during 250 A.D., they made dental bridges using gold wires and further modified them into gold plates.⁹ The Egyptians around 600 A.D., carved seashells and hammered them into gums to replace the natural teeth as implants, later they tried the same with metals. Though their early practice on dental implants failed, they developed the zest for replacement of missing tooth.

Historically Etruscans, Egyptians and Europeans can be accounted as the most innovative in regards to cosmetic dentistry. Around 1700 A.D., they made dentures by carving animal bones and hippopotamus ivory and by late 1700's, the skill was much refined when they made dentures with elephant ivory.^{5-7,10,11}

A vast improvement in prosthetic dentistry occurred that helped pave the way for contemporary cosmetic dental procedures. The first porcelain dentures were fabricated around 1700's.^{3,6} However, it took another ten years to deliver it to the first dental patient. The porcelain dentures were introduced in the United States (US) in the early 1800's and became very popular resulting in a bustling dental economy. Thereafter the dentists started using the plaster to make moulds of their patient's mouths for better-fitting dentures. In 1840, the dental world saw the invention of Vulcanite: a rubber material used as a base for false teeth that made wearing of dentures easier.^{3,6,7} The first dental lab started to manufacture the prosthetic teeth, a decade later.

By the early 1900's, dental labs switched to acrylics dentures. Acrylic still continues to be the standard material for modern dentures today. Charles Land in 1903 created "porcelain jacket crown," a substitute for amalgam and gold dental fillings. However, they were not very strong. Later in 1950's crowns made up of porcelain fused to

metal was the answer to the problem. The dental practice witnessed the development of tooth colored restoration for anterior teeth with silicate cement in 1903, and most popular aesthetic cement glass ionomer was developed in 1970.^{3,6,7}

MODERN ERA OF AESTHETIC DENTISTRY

The modern aesthetic dentistry has been separated from prosthodontics and restorative dentistry since late 1900's. The development of newer technologies incorporated in the aesthetic or cosmetic dental practice started with the introduction of composite resin restorations.^{3, 6} In the mid 1900's chemical and thermos-cured composites were used in dentistry. In 1955, Michael Buonocore invented the first white tooth colored composite resin filling and also advocated acid etch technique. Light cure composite was introduced in 1980. Modern dental veneers were invented by Charles Pincus in 1930 for movie stars. The present day aesthetic dental practice sees a wide use of porcelain laminates to mimic the life-like translucency of the tooth.¹²⁻¹⁵

Contemporary teeth whitening system uses proper chemicals that do not erode the tooth enamel and do not cause tooth sensitivity. In 1989, Dr. Haywood and Dr. Heymann introduced bleaching trays and carbamide peroxide for bleaching of the tooth. More recently, Laser teeth whitening was introduced in 1996.

Use of dental implants is another break-through in the development of aesthetic dentistry. Osseo-integrated implants was invented by Alvin Strock in 1937. First successful dental implant was made possible by Dr. Per-Ingvar Branemark in 1965.

In recent decades, aesthetic dental practice has been institutionalised by the establishment of numerous societies, organizations and academies related to aesthetic and cosmetic dentistry. In 1994, International Federation of Aesthetic Dentistry (IFED) was founded by American, Japanese and European academies of aesthetic dentistry. Likewise, Asian Academy of Aesthetic Dentistry (AAAD) was established in 1990 and regionally South Asian Academy of Aesthetic Dentistry (SAAAD) was established in 2005. In many countries, the dental profession flourished with the formation of national level aesthetic dental societies, in which nationally

Nepalese Academy of Cosmetic and Aesthetic Dentistry (NACAD) formed in the year 1999.

Modern day aesthetic dental practice has been developed as a separate specialized branch of dentistry with the focus on patient's desire on dental aesthetics, enhancement of smile with maintenance of oral health. The aesthetic or cosmetic dental dentistry follow the principal of minimal invasive dentistry and encompass aesthetic restoration and replacement of teeth, enamel augmentation,

enhancement of gingival contours, whitening of teeth, and correction of malocclusion with multi-disciplinary approach. The major breakthrough being the use of tooth colored restorations and anterior restorative cements, porcelain crowns and veneers, invention of light-cure composite restorations, success of dental implants, use of lasers in dentistry, micro/macro air abrasion, newer tooth whitening systems, alignment of teeth using aesthetic orthodontic appliances like lingual techniques, and invisalign.^{7,16-19}

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