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## History of cleft lip and cleft palate

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### Abstract

Cleft lip and palate are the results of tissues of the face not joining properly during development. They are a type of birth defect. A cleft lip contains an opening in the upper lip that may extend into the floor of the nose on one or both sides.

### Keywords

oral surgery, plastic surgery, anesthesia, congenital malformation, developmental disorders, harelip, cleft lip, cleft palate

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Cleft lip and palate are congenital deformities causing feeding, speech, and hearing difficulties, frequent ear infections, and psychosocial challenges. They can affect self-confidence, causing depression, social isolation, community exclusion, and communication problems. These congenital defects were already known in ancient times and were initially seen as a manifestation of an evil spirit.

The oldest evidence comes from Peru, 3000 B.C.E., from a representation of a ceramic water container from a mummy's tomb (Figure 1). Ancient Greek pottery from 700-300 B.C.E. also displays a clown with a cleft lip (1). The Pharaoh Tutankhamun had a cleft palate (2). Apparently, Demosthenes, the famous Greek orator, put pebbles in his mouth as an obturator to redress a cleft palate, not a stutter (3). The European military states, Sparta and the Roman Empire, disposed of such babies by exposing them on the Taygetos and the Roman rocks or leaving them there. Galen named the phenomenon lagooncheilos "rabbit lips," later termed by John Arder, a famous English surgeon who operated on them, "harelips".

A successful intervention to solve the defect was reported from China's Chin Dynasty in C.E. 390. There are many descriptions of cleft lip repair in European literature up to the seventeenth century. All interventions involve freshening up and suturing the edges of the cleft. For example, Charaf ed-Din (1135-1213) included cleft lip and palate in his illustrated manuscript (4). The Flemish surgeon Jehman Yperman (1295-1351) wrote that unilateral and bilateral clefts "can be sutured at some distance from the cut margins". Turkish physicians initially tried hot iron, like with necrotic tissue, to avoid an incision, and combined the two burnt edges of the wound. In 1497 military surgeon Hieronymus Bruschiwig in *Buch der Chirurgia* also reported successful interventions. Pierre Franco (1505-1579), a French surgeon, was probably the first to

describe the congenital origin of the cleft palate and was among the first to recognize the importance of the palate in speech (5).

Carl Ferdinand Graefe of Berlin in 1816 and Philibert-Joseph Roux in Paris shortly after in 1819 published the first, what we would consider, successful cleft palate surgery. After the introduction of ether anesthesia in 1846, the success of other surgical interventions, including cleft operations, developed rapidly.

A long list of outstanding surgeons provided innovations in this field; here are only a few authors and publication dates: Werner H. Hagedorn, Magdeburg (1848), Victor von Bruns, Tübingen (1854), Bernhard von Langenbeck, Berlin (1862), Gustav Simon, Prague (1867), Edoardo Bassin, Genoa (1878), Walter Hagedorn, Leipzig (1884), Jules Ehrmann, Paris (1897), Sir Harold Gillies and William Fry, London (1921), Edna Young, Minneapolis (1928), Victor Veau, Paris (1931), Arthur Le Mesurier, Toronto (1949), C.W. Tennison (1952), and Peter Randall (1959), to name a few (6). In the 20th and 21st centuries, thanks to technological and scientific advances, optimal, atraumatic, and plastic surgical solutions were refined.



Figure 1. Portrait Vessel of a Man with Tattoos and a Cleft Lip, Moche, North Coast, Peru, 100 B.C.E. – 500 C.E. - Art Institute of Chicago. Figure 2. Illustration of cleft lip repair - from Victor von Bruns. *Chirurgischer Atlas*, Tubingen: H. Laupp'schen, 1854.

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