

Preventing syphilis in the 16th century: the distinguished Italian anatomist Gabriele Falloppio (1523-1562) and the invention of the condom

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SUMMARY

By the end of the 15th century, syphilis had reached epidemic proportions in Europe.

Unable to ascertain its causes, physicians resorted to superstition. At the beginning of the 16th century, the sexual transmission of the disease was established. Initially, the principal measure of infection control was sexual abstinence and mutual fidelity. However, during the same period the Italian anatomist Gabriele

Falloppio (1523-1562) proposed a method of preventing syphilis transmission: the medication-soaked linen sheath.

Thus was born the idea of a mechanical barrier against sexually transmitted diseases: the condom.

Keywords: syphilis, history of venereal diseases, condom, prevention, Falloppio.

■ INTRODUCTION

Syphilis appeared at the end of 15th century and spread rapidly across Europe. Unable to match syphilis with a disease of the past, physicians initially adopted “a national name” such as the French, Neapolitan or Polish disease, in an effort to transfer the stigma of sin, while in 1530 the term “syphilis” was coined by the Italian physician and polymath Girolamo Fracastoro (1478-1553) in his poem “Syphilis, sive morbus gallicus” (Syphilis, or the French disease) [1, 2].

In an attempt to interpret the appearance of a new, virulent and lethal disease, physicians and chroniclers of the time resorted to superstition, attributing its appearance to the planets or to the punishment from God for blasphemy [2]. How-

ever, at the beginning of 16th century, Gaspard Torella (1450-1512) mentioned the sexual transmission of the disease, as well as, the contagion by breastfeeding [3]. His observations were followed by the work of the French physician Jacques de Béthencourt (1477-1527) who de-stigmatized the “French disease” introducing first the term venereal disease (*morbus venereus*) [4].

The principal measure of infection control was sexual abstinence and mutual fidelity and according to clergy, wedding was indispensable for those who were unable to resist temptation [5]. However, during that period the Italian anatomist Gabriele Falloppio (1523-1562) proposed a method in preventing syphilis transmission: the condom.

Falloppio's life and work

Gabriele Falloppio was born in Modena, a city in Northern Italy, in 1523 [6] (Figure 1). Initially, he studied classics and in 1542, he became a priest serving at the Cathedral of Modena [7]. However,

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Figure 1 - The eminent Italian anatomist Gabriele Falloppio (1523-1562).

soon he turned towards medicine, studying, at the beginning anatomy in Modena, under the physician Nicolo Machella (1494-1554) [8] and later on at the University of Ferrara under the guidance of the celebrated physician and botanist Antonio Musa Brassavola (1500-1555). In 1548, he received his medical diploma and soon afterwards he was appointed professor of anatomy at Ferrara school of medicine. In 1549, at 25 years old, Falloppio obtained the chair of anatomy at the University of Pisa being expert not only in anatomy but also in botany and chemistry [7, 9]. In 1551, he accepted the prestigious chair of anatomy and botany at Padua, the most prestigious school of medicine at this time, succeeding Realdo Colombo (c. 1515-1559). Follower and pupil of the founder of modern anatomy Andreas Vesalius (1514-1564), Falloppio exceeded his master in the number of anatomical discoveries [7].

In 1561, he published his book *Observationes anatomicae* (Anatomical Observations), a critical commentary of Vesalius' *De humani corporis fabrica* (On the Structure of the Human Body). In his book, Falloppio corrected some anatomical errors of Vesalius while in his turn, Vesalius, at that time physician to King Charles V of Spain (1500-1558), replied in a kind manner to Falloppio in *Andrae*

Vesalii, anatomicarum Gabrielis Fallopii observationum examen (Analysis of Andreas Vesalius on the observations of Gabriel Falloppio) [7]. Falloppio was the first to describe the tubes connecting the uterus and ovaries (*tubae uteri*) that now bear his name. He also provided a clear account of the relations of uterus with its ligaments and blood vessels. He described in details the muscles of the face and scalp, the development of primary and secondary teeth, the semicircular canals, the chorda tympani of the ear and the bony passage in the temporal bone through which the facial nerve passes known as the *fallopian aqueduct* [7]. He also introduced the terms *vagina* and *placenta* and debated the first description of clitoris accusing Colombo, who highlighted its presence in female genitalia years earlier, for plagiarism [10].

Remembered as anatomist, Falloppio was an excellent surgeon too and he published a variety of treatises on the treatment of ulcers, nasal polyps, head wounds, tumours, luxations and vascular ligatures [6]. Famous as master of anatomy, his lessons were attending by a crowd of students and according to the British anatomist James Douglas (1675-1742) Falloppio was *in docendo maxime methodicus, in medendo felicissimus, in secundo expeditissimus*, meaning most methodical in teaching, most successful in healing and most expeditious in dissecting [11].

He died at 39 years old, in 1562, from pleurisy probably due to tuberculosis.

Posthumously, his work on syphilis *De morbo gallico liber absolutissimus* (1564) was published as well as his book entitled *De partibus similaribus humani corporis* (1575) where he mentioned that organs contain "similar parts" or tissues [9].

In Padua University he was succeeded by his pupil, Girolamo Fabrizi d'Acquapendente, (1537-1619), known as the father of embryology.

Falloppio and the invention of condom

In 1564, two years after Falloppio's death, his book on syphilis was published [12] (Figure 2). It was actually an account of a newly introduced disease, syphilis. Falloppio stressed the hypothesis that Christopher Colombo (1451-1506) and his sailors brought syphilis from the New World and recognized that the disease spread in Europe shortly after the siege of Naples (1494). According to him: "Columbus was a genius because he discovered the West Indies, brought pearls, gold,

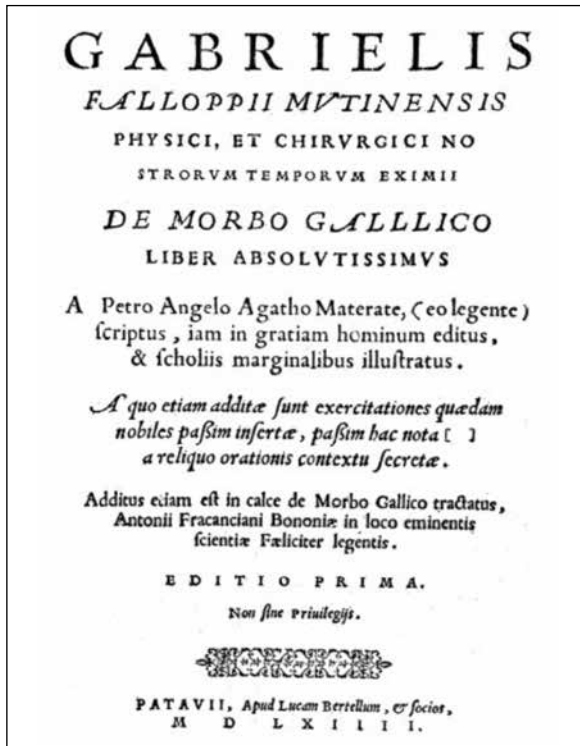


Figure 2 - Frontispiece of Falloppio's book on syphilis entitled *De morbo gallico liber absolutissimus*.

but also syphilis. Besides, there is no rose without a thorn" [12].

In his work, Falloppio correctly distinguished syphilitic and non syphilitic condylomata and observed the congenital transmission of syphilis. Moreover, he mentioned the lethal effects of mercury intoxication in syphilitic patients who underwent mercury fumigations [13].

Realizing that syphilis was a sexually transmitted disease, Falloppio proposed a preventing measure: the linen sheath. Sheaths were used as penis protectors in ancient civilizations. Falloppio's sheath was embedded in a decoction made of several substances among which wine, guaiac and mercury and was applied in penis after intercourse [14]. Guaiac was a famous drug for syphilis treatment deriving from the plant *Guaiaecum Officinale* and was administered externally in ointments and internally in potions; mercury, in various forms, dominated syphilis therapeutics until the early 20th century and wine was used

in the decoction for its astringent effect [2]. Furthermore, Falloppio performed probably the first clinical trial of condom's efficacy mentioning: *se fecisse experimentum in decem mille hominibus et nullum eorum fuisse infectum* (it was experimented in thousand men, and none of them have been infected) [15]. However, it still remains unclear if Falloppio truly conducted the above mentioned clinical trial. Nevertheless, the medication-soaked cloth of Falloppio did not eradicate the transmission of syphilis from intercourse as guaiac and mercury, the main substances of the decoction, did not present anti-treponemal action [1].

However, the idea of preventing a sexual transmitted disease by a penile sheath was established and Falloppio's invention developed through time from a post-coital embedded sheath to the 18th century membranous condom, the 19th century rubber condoms and our days synthetic ones [14].

■ CONCLUSION

Prolific anatomist, Gabriele Falloppio starred in the anatomical revolution held in Italian Universities during the Renaissance period. Besides his important contribution to human anatomy, Falloppio, almost 500 years ago, conceived a measure for protecting against sexually transmitted diseases, the condom.

Conflict of interest

None

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