

# Defining moments that have shaped Rhinology today

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## Introduction & Methods

Disorders of the nose, sinuses, and anterior skull base have intrigued humankind since time immemorial. Despite Rhinology now being driven by innovation and advances in technology, a

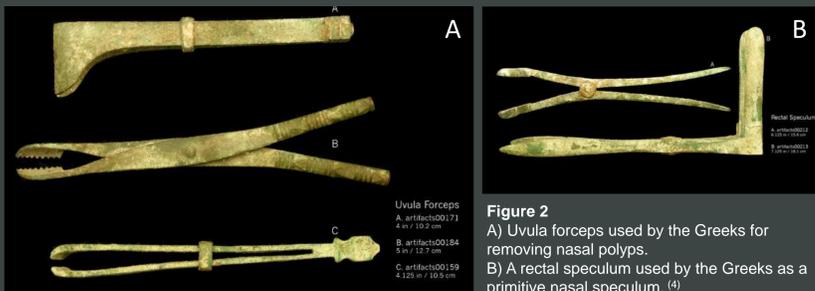
knowledge of history can help in understanding current rhinological practices. In keeping with the meeting's theme, "Look back, look forward", the aim of this review is to highlight some key events in

the history of Rhinology that have shaped today's practice. A search of PUBMED and MEDLINE was conducted for relevant articles.

## Ancient Times (3700 BC – 500 AD)

A documented understanding of the anatomy of the nose and paranasal sinuses dates back as far as the Ancient Egyptians, as early as 3700-1500 BC.<sup>(1,2)</sup> Excerebration was part of the mummification process, involving the removal of the brain through a hole in the cribriform plate. This indicated knowledge of the anterior skullbase (Figure 1).<sup>(1)</sup>

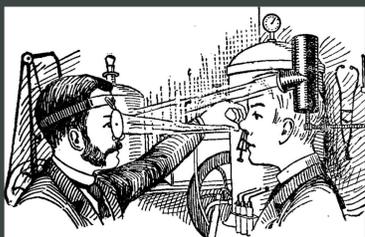
Hippocrates described nasal polyps and how to remove them using a rectal speculum and forceps (Figure 2). Nasal fractures and means of reducing them were also described by Hippocrates.<sup>(4)</sup> In his medical treatise 'De Medicina', the Roman physician Aulus Celsus described the surgical anatomy of the nose, and how the olfactory nerves pass through the cribriform plate of the ethmoid bone.<sup>(5)</sup>



**Figure 2**  
A) Uvula forceps used by the Greeks for removing nasal polyps.  
B) A rectal speculum used by the Greeks as a primitive nasal speculum.<sup>(4)</sup>

## 18th Century

By the eighteenth century, maxillary sinusitis was well-described. In 1707, English surgeons Drake and Cowper recognised halitosis caused by suppurative maxillary sinus disease and pulled patients' teeth to drain the sinuses through the alveolus.<sup>(2)</sup> In the mid-1700s, the French physician Jourdain attempted to irrigate the maxillary sinus through its natural ostium; however, he had limited success.<sup>(6)</sup> The French physician Levert developed a binocular head mirror in 1743 whilst he was studying the larynx, which became a staple tool used by otolaryngologists for centuries to come (Figure 4).<sup>(1)</sup>



**Figure 4.** An artist's depiction of a 18th century physician using a head mirror to examine the nasal cavity.<sup>(1)</sup>



**Figure 5.** An artist's impression of Harvey Cushing's trans-sphenoidal approach to access pituitary tumours.<sup>(6)</sup>

## 20th Century - Today

The twentieth century saw the development of what we know as Rhinology today. The first recorded instance of endoscopy being used for visualization of the nasal passage was in Berlin, Germany in 1901.<sup>(2)</sup> Alfred Hirschmann, who designed and made medical instruments, modified a cystoscope to be used in the nasal cavity in 1903. In 1910, the first endoscopic sinus surgery was performed using a 7 mm endoscope.<sup>(1)</sup> In 1912, Harvey Cushing started the trans-sphenoidal approach in resection

of pituitary tumours (Figure 5).<sup>(2)</sup> The use of modern endoscopy in sinonasal surgery was further developed by Walter Messerklinger and his successor Heinz Stammberger.<sup>(7)</sup> The use of new technologies generated an advance in endoscopic techniques, especially with the development of the fiberoptic endoscope in 1954. The CT scan was developed in 1969 by Geoffrey Hounsfield, which made it possible to have a detailed analysis of the nasal cavity, especially the lateral wall and the

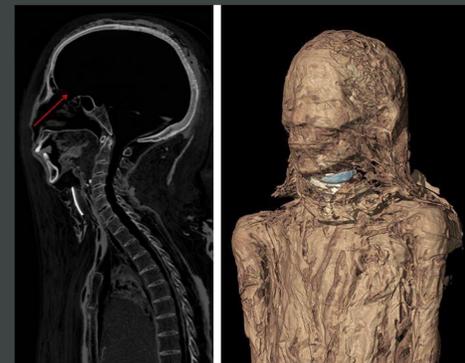
ostio-meatal complex.<sup>(2)</sup> The CT scan also contributed to the development of functional endoscopic sinus surgery, realised by Kennedy.<sup>(7)</sup> Reynolds and Brandow refined surgical treatment of refractory sinusitis with the use of antrostomies carried out under endoscopy. David Kennedy, Heinz Stammberger, and Wolfgang Draf were major participants in the popularisation of the use of modern endoscopy in sinonasal surgeries.<sup>(1,2)</sup>

## Conclusion

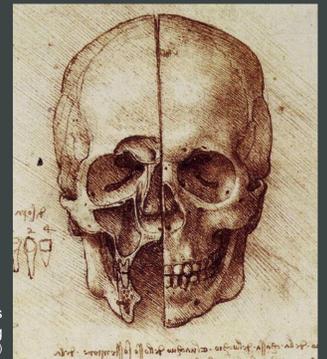
Despite being a technologically advanced subspecialty, many of the principles of Rhinology have existed for millennia. Looking back provides a fascinating perspective on, and appreciation of, our current practices.

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**Figure 1.** CT scan of Nestawedjat, a wealthy member of Egyptian society, mummified in 700-680 BC in Thebes. A defect in the cribriform plate and empty cranial vault indicates excerebration.<sup>(3)</sup>



**Figure 3.** Leonardo Da Vinci's depiction of the human skull including the maxillary and frontal sinuses.<sup>(1)</sup>

## Renaissance Period (14th – 17th Century)

The Renaissance period saw further description of nasal and paranasal sinus anatomy by anatomists such as Eustachius, Fallopius, and Highmore.<sup>(2)</sup> In 1462, Leonardo Da Vinci's drawing of the human skull clearly depicts the maxillary sinus and frontal sinus and highlights the close relationship between the maxillary sinus and the roots of the upper molar teeth (Figure 3).<sup>(1)</sup> Despite these advances, the function of the sinuses remained unclear. It was believed the sinuses were stores of lubricants to aid eye movements or, in the case of Spanish physician Sansovino, "la cloaca del cerebro", cavities that drained the brain of its "malignant spirits".<sup>(2)</sup>

## 19th Century

Mikulicz-Radecki was the first to describe the opening of the maxillary sinus through the inferior meatus in 1886. By the 1870s, anatomists such as Emil Zuckerkandl developed a more comprehensive understanding of the anatomy of the nose and paranasal sinuses. This was consolidated by the works of Harris Peyton Mosher of Harvard, who described in detail the anatomy of the ethmoid sinuses and claimed that intranasal ethmoidectomy was "the easiest way to kill a patient".<sup>(1)</sup>