

Nasal Saline Irrigation for Healty Nose to Mucociliar Clearence: Perspective In Medical Study and Al-Qur'an

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Abstract

Upper respiratory conditions, such as acute and chronic rhinosinusitis, viral upper respiratory tract infection (URTI), and allergic rhinitis, are common disorders that negatively affect patients' quality of life. Saline nasal irrigation is an adjunctive therapy for upper respiratory conditions, likely originating in the holy Quran. Its use, including indications, solutions, and administration devices, was first described in medical literature in the early 20th century. Saline nasal irrigation is an effective management strategy for many sinonasal conditions. Nasal irrigation is performed by inhaling saline into one nostril and allowing it to drain out of the other nostril, bathing the nasal cavity such as instinsyaq in wudhu. Saline nasal irrigation can be performed with low positive pressure from a spuite, or with gravity-based pressure using a vessel with a nasal spout. Mucociliary clearance is a major element of the defense system of the entire respiratory tract. Impairment of the mucociliary clearance serves as a medium for sinonasal infections. Saline nasal irrigation is believed to alleviated pathologic nasal symptoms by clearing excess mucus, reducing congestion and remove infectious materials from the inspired air.

Key words: nasal saline irrigation, mucociliar clearence,instinsyaq

Preface

The mucosa of the nasal cavity is a respiratory-type pseudostratified columnar epithelium. This epithelium is contiguous with the paranasal sinuses, and it is lined with a surface layer of cilia ¹. The respiratory cilia are extremely effective in transporting mucus, trapped inhaled particles, and bacteria, propelling material at speed of 2 to 25 mm/min.² Nasal irrigation, or nasal lavage or nasal douche, is a personal hygiene practice in which the nasal cavity is washed to flush out mucus and debris from the nose and sinuses. The practice is generally well-tolerated and reported to be beneficial with only minor side effects.³ In islam, nasal saline irrigation has been narrated in Hadith Rasulullah SAW: "Perfect it the wudhu, spread the water between the fingers, and be true in istinsyaq (inhale the water into the nostrils), unless you fast "(HR.Bukhari and Muslim).⁴ Imam Al-Bukhari in hadist 159 said : He rinsed his mouth and inhale the water into his nostrils (shahih)⁵

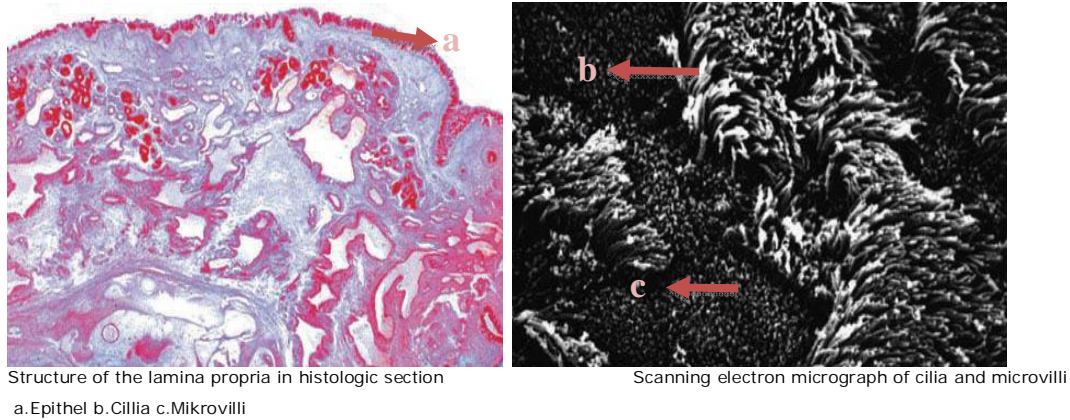


Figure 1. Respiratory nasal mucosa

Method

Delivery of irrigant into the nose can be safely accomplished by a wide variety of methods. Some evidence exists suggesting mists are less effective than higher volumes of liquid in reaching the sinuses and in longevity of measured physiological effects like ciliary beat frequency and mucociliary transport time. No device has been reported to be damaging.⁶

Step by step guide of nasal saline irrigation



Prepare the tools : spuit 10 cc, transfix, saline solution NaCl 0,9% , container of water



Rotate your head to one side. Insert the spuit 10 cc into the uppermost nostril. Breathe through your mouth.



Vigorously spray saline into nose to deliver a large volume to wash. Repeat the procedure for the other nostril.

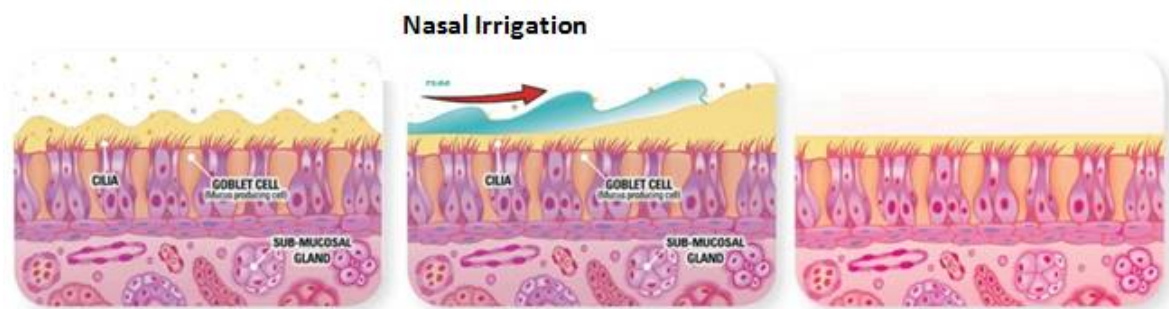
Result

Nasal saline irrigation proven Benefits to

1. Washes away allergens, dust, dirt, and pollens.
2. Increases mucus flow out of the nose and clears sinus passages.
3. Improves breathing by pulling fluid out of swollen mucous membranes.
4. Reduces nasal swelling and other upper respiratory problems.
5. Helps prevent sinus infection

Discussion

Ciliary motion consists of three phases and is initiated by adenosine triphosphate (ATP)-splitting proteins, which cause a movement of the filaments within the cilia (sliding filament theory). The superficial gel layer is propelled toward the nasopharynx by a coordinated but metachronous beating of the cilia. The dynamics of ciliary motion has been likened to a "field of grain swaying in the wind." The cilia beat at a high frequency, but their motion is influenced by external factors such as temperature and humidity.⁷ Once the foreign particles or bacteria are trapped, the nasal can effectively drain the mucus through the mucociliary clearance system.² During purulent mucous, ciliary beat frequency is reduced or absent but the ciliary function returns to near normal after removal of the secretion by saline irrigation.⁸



In wudhu there is the term *istinsyaq* and *istintsar*. *Istinsyaq* is breathing water into the nose, while *istintsar* is taking it out with the breath. Medical studies explain that *istinsyaq* and *istintsar* are performed 3 times each time wudhu will clean the germs and harmful bacteria contained in the nose, which can cause respiratory diseases, pneumonia, fever, rheumatic sinusitis and allergies. Dr. Musthafa Syahata Dean of the ENT Faculty of the University of Alexandria said that the number of germs in human noses will be reduced by half after the first *istinsyaq*, then decreases by a quarter after the second *istinsyaq*, then very little after the third *istinsyaq*.⁴ Inhaling water to the nose and gargling is recommended to be performed outside the wudu when the nose is dirty from dust.⁹

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