



Research Article

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AN OBSERVATIONAL STUDY ON BACTERIAL FLORA IN PRATISHYAYA WITH SPECIAL REFERENCE TO RHINITIS

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ABSTRACT

Ayurveda is one of the most renowned traditional systems of medicine that has survived and flourished from ages till date. With the enormous knowledge of nature-based medicine, the relationship of human body constitution and function to nature and the elements of the universe that act in coordination and affect the living beings, this system will continue to flourish in ages still to come. Ayurveda is based on the idea that each person has certain life forces (doshas) and everything in the universe is connected. An imbalance in one area can affect another. Pratishyaya (Rhinitis) is one among the common diseases affecting respiratory system. It is common Nasagata Rogas and it is the one which is described by almost all the Acharya in detail. The term "microbiota" refers to all microorganisms that live in the body, including bacteria, fungi, viruses, protozoa, and archaea. They are found in our body in large number and varying proportion. However, very few studies have been conducted to determine whether there are differences in nasal microbiota in different types of Pratishyaya. In this study the first aim is to identify the microbes in the middle meatus in patients with Vataja, Pittaja, Kaphaja Pratishyaya and to compare with the normal nasal flora [bacteria]. The second aim of the study to observed microscopically to correlate the bacteria with features of nasasrava and other symptoms from Ayurvedic point of view.

Keywords: Pratishyaya, bacterial flora, Vataja, Pittaja, Kaphaja.

INTRODUCTION

The naso pharynx of the infant is sterile at birth but within 2-3 days after birth acquires the common commensally flora and the pathogenic flora carried by the mother and the attendants¹. Respiratory allergies are a major cause of morbidity in both children and adults. Among Nasagata Rogas (nasal disorder) Pratishyaya is one which is described by almost all the Acharyas in detail which shows its importance due to dreadful nature. The symptoms of rhinitis resemble with that of the condition of Pratishyaya mentioned in the Ayurvedic medical literature. The study aims to observe the change in the microbial [bacterial] flora in Pratishyaya patients with symptoms as told by different Acharya.

Pratishyaya definition: "Vatam Prati abhimukham shyayo gamanam Kaphaadeenam yatra sa pratishyayah"².

Prathi = Opposite direction (means to outside)
Shyayah = Moment of the doshas. (Elimination of dosha)
Kaphadi doshas are eliminated out through the nose, is known as pratishyaya.

Pratishyay laxana

Tasya rupam shirahashool gaurvam ghranaviplavaha I
Jwaraha kasaha kaphaukleshaha swarbhedoruchihni klamha II³

Its symptoms are - headache, heaviness, olfactory derangement, fever, cough, excessive sputum, hoarseness of voice, anorexia,

impairment of senses. Thereafter yakma (Tuberculosis) manifests.

These all indicate inflammation of the nasal mucosa.

Badhiryamandyamghrtwam ghoramshch nayanamyan I
Shothagnisadkasamshch vrudhaha kurvanti pinasaha II⁴

All varieties of peenasa (Rhinitis) neglected will, in course of time, produce deafness, blindness, loss of senses of smell, severe kinds of eye diseases, swelling of the body, poor digestion, and cough.

The disease pratishyay is elaborated described in the ancient Ayurvedic treatises like Charaka Samhita⁵, Sushruta Samhita⁶ and Ashtanga Hridaya.⁷

The term "microbiota" refers to all microorganisms that live in the body, including bacteria, fungi, viruses, protozoa, and archaea. They are found in our body in large number and varying proportion. This ration changing during the first two years of life and after which it maintain balance. Microbial flora refers to the microbes about the specific location like the oral cavity, nasal cavity, ear and that which may be discernible with the aid of microscope.⁸

It will be difficult for us to answer whether nasal bacterial flora change in Pratishyaya. Hence the study aims to observe the changes in the bacterial flora when affected with Vataja pratishyaya, Pittaja Pratishyaya, Kaphaja Pratishyaya only.

METHODOLOGY

Null hypothesis (H₀): There is no relation between the pathogenesis of pratishyaya with special reference to rhinitis.

Alternate Hypothesis (H₁): There is a relation between the pathogenesis of pratishyaya and with special reference to rhinitis.

Place of work: Parul Ayurveda hospital and Khemdas Ayurveda hospital, Kayachikitsa OPD no 24 Limda, Waghodia, Gujarat, India.

Inclusion criteria: Patients of 20 to 60 years of age on either gender fulfilling diagnostic criteria. Patients were selected irrespective of their caste and religion and occupation.

Criteria for diagnosis: Patients presenting with laxanas (symptoms) of Pratishyaya.

Exclusion criteria: like Tuberculosis, Pneumonia, Nasal polyp, DNS, etc.

Assessment of result: The result of microbial [bacterial] flora was assessed based on the microscopically examination of the gram-stained slide and Catalase test.

Subjective parameters: Signs and symptoms were given scoring according to their severity by self-evaluation methods.

Symptoms of Prtishyaya: Nasa srava (Vata-tanusrava, Pitta-peetha and usna, Kapha-swetha and sheetha), Shira gourava, Kshavathu, Manyagraha, Jwara etc.

Objective parameters: Examination of patient's nose, eyes, ears, and sinus areas, back of throat, chest, and lungs.

Preparation of nasal swab: The cotton swab was used to collect the exudates without scraping. Before taking nasal smear, the patient was asked to blow his/her nose, then collected the exudates from nose. One drop of normal saline was put on the sterile nasal swab.

Preparation of Nutrient Agar: Nutrient Agar made by adding 2% Agar to Nutrient broth.

Streaking the nasal swab on Nutrient Agar culture plate: We were using three-sector streak plate techniques [T- streak]. Written the name of patient and date on the plate.

Incubation of culture media: Nutrient Agar plate was incubated for 24 hours at 37 °C for bacterial growth in an incubator.

Gram staining Procedure

Under safety precaution made a slide of your bacterial sample: Placed a small drop or piece of your bacterial sample on a sterile slide. Add one drop of sterile water on it. Took a sterile toothpick

and spread a piece of bacteria on a slide in a circular manner to prepare a 1cm circle diameter. Passed the slide through the flame of a Bunsen burner 3 times to heat fix the sample. After that we added 5 drops of crystal violet to the slide for 1 minute. Gently we rinsed the slide to remove the stain for 5 seconds. This process was removing any dye that was not bound to the sample. We added 5 drops of Gram's Iodine to the slide for 1 min. Then we rinsed the sample with a few drops of alcohol or acetone [decolorizing agents] for 3 seconds. If bacteria were a Gram-negative strain, these agents were removed the stain from the bacterial cell walls. Gently we rinsed with water for 5 seconds to remove the alcohol or acetone. We counter-stained the solution with 5 drops of safranin [red dye] for 1 min., which was active as a counter-stained to the crystal violet and dyes any bacteria that did not hold the violet stain. We rinsed with water for 5 seconds very gently. Then dried the slide under the fan for a while

Microscopic observation: was done under the microscope at 1000X magnification. A Gram-positive strain appeared purple or violet. Gram-negative bacteria have appeared in red from the safranin counter stained.

The final diagnosis was done based on clinical symptoms and signs, microscopic examination of nasal swab culture, etc. In this study total of 50 patients of Pratishyaya were registered which were randomly selected & divided into three groups Vataja Pratishyaya, Pittaja Pratishyaya, Kaphaja Pratishyaya only as per presence of signs and symptoms. In the present study total 50 patients were registered and studied based on age, sex, income, province, habits, etc.

Ethical Clearance: Ethical clearance was obtained from the institutional ethical committee (I.E.C.) of Parul Institute of Ayurveda, Parul University, Vadodara, and Gujarat, India.

Approval Number: PU/PIA/IECHR/2019/18

CTRI Number: CTRI/2019/10/021807

RESULTS AND DISCUSSION

Present study has been carried out into two main groups.

Conceptual: It includes the study of Ayurvedic literature as well as modern literature.

Ayurvedic references were studied from Samhita and other relevant textbooks. All the references of Rhinitis from the modern text, authorized website, articles, and previous thesis were studied.

Clinical: A minimum of 50 patients suffering from lakshana (symptom) of Pratishyaya were selected according to the inclusion criteria for the study. It has been divided into two groups

1. Study of general clinical features of pratishyaya
2. Microbial flora [bacterial] observation under a microscope.

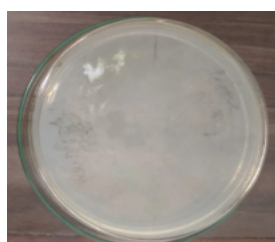


Figure 1: Nutrient Agar Petri dish

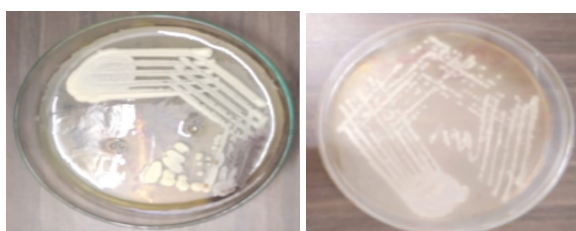
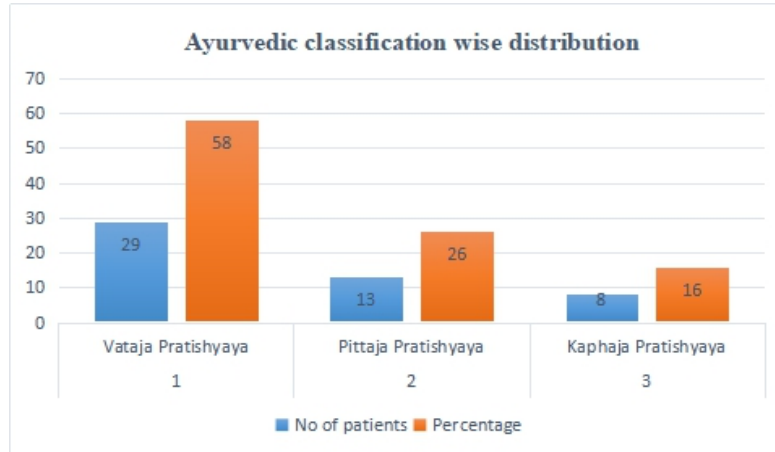


Figure 2 and 3: After 24 hours of streaking nasal swab culture on Nutrient Agar plate

Table 1: Ayurvedic classification wise distribution of 50 Pratishyaya patients

Types of Pratishyaya	Number of Patients	Percentages
Vataja Pratishyaya	29	58%
Pittaja Pratishyaya	13	26%
Kaphaja Pratishyaya	8	16%



From the above table it has been observed that Maximum 29(58%) were having Vataja Pratishyaya, 13(26%) were having Pittaja Pratishyaya, and a minimum of 8(16%) were having Kaphaja Pratishyaya.

Table 2: Culture report the wise distribution of 50 Pratishyaya patients

Culture report	No of patients	Percentage
Staphylococci	43	86%
Diplococci	4	8%
No growth	3	6%

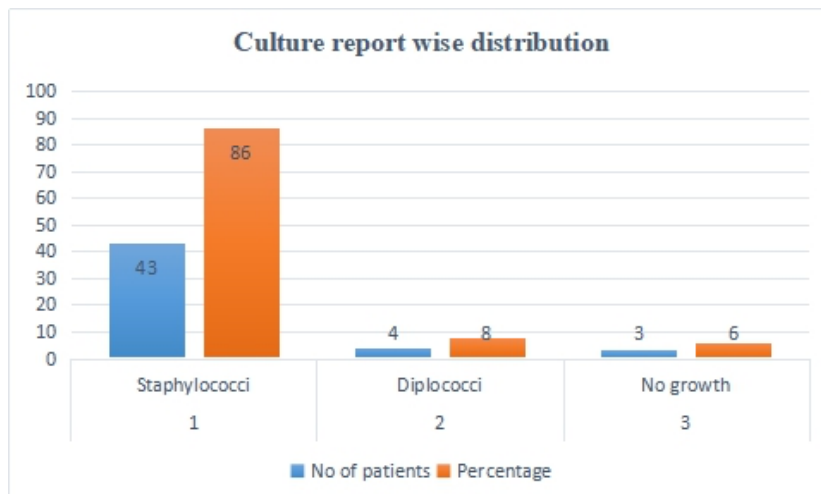
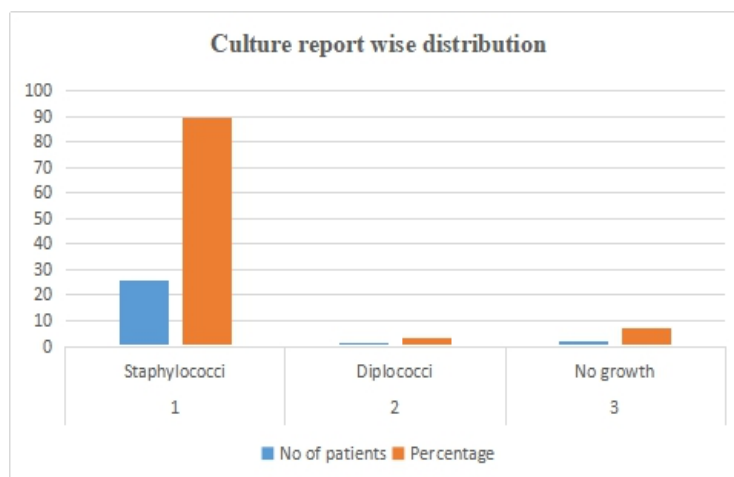


Table 3: Culture report wise distribution of 29 Vataja Pratishyaya patients

Culture report	No of patients	Percentage
Staphylococci	26	89.65%
Diplococci	1	3.45%
No growth	2	6.90%



From the above table, it has been observed that in 29 patients of Vataja Pratishyaya, Maximum 26(89.65%) were observed Staphylococci on gram staining of nasal swab culture, Maximum 1(2%) were observed Diplococci on gram staining of nasal swab culture. Maximum 2(6.90%) were observed no Growth on their culture plate

Table 4: Culture report wise distribution of 13 Pittaja Pratishyaya patients

Culture report	No of patients	Percentage
Staphylococci	10	76.92%
Diplococci	3	23.08%
No growth	0	0%

From the above table, it has been observed that in 8 patients of Kaphaja Pratishyaya. Maximum 7(87.5%) were observed Staphylococci on gram staining of nasal swab culture. No Diplococci on gram staining of nasal swab culture. Maximum 1(12.5%) were observed no Growth on their culture plate.

In most of the Vataja Pratishyaya, Pittaja Pratishyaya, and Kaphaja Pratishyaya, it was found that Staphylococci bacteria was dominantly present Usually the normal bacterial flora which presents in the nasal cavity is Staphylococci. In the case of vataja pratishyaya piercing pain, sneezing, nasal block, shosha (dryness of mouth, nose etc.), nistod (pain) and swarasada (change of voice) symptoms were seen. After taking a culture report it has been found that Staphylococci were seen in 89.65% of vataja prarishyaya. Sub-acute rhinitis is also having the same symptoms which present in vataja pratishyaya.

In Pittaja pratishyaya yellowish and hot discharge from the nose, fever, trushna (feeling of thirst), bhram (giddiness) etc. symptoms were seen. Acute rhinitis is also having the same symptoms which present in Pittaja pratishyaya.

In Kaphaja pratishyaya kandu (itching), whitish, cold thick discharge, kasa (Cough), aruchi (anorexia), swasa (dysnea), shirogourava (heaviness in the head), etc. symptoms were seen. Hypertrophic or chronic rhinitis was also having the same symptoms.

Table 6: Catalase test

Test	No of patients	Percentage
Catalase Test	43	100%

In staphylococci culture report 43(100%) patients in which staphylococcus bacteria were seen all these patients were having

From the above table, it has been observed that in 13 patients of Pittaja Pratishyaya. Maximum 10(76.92%) were observed Staphylococci on gram staining of nasal swab culture, Maximum 3(23.08%) were observed Diplococci on gram staining of nasal swab culture.

Table 5: Culture report wise distribution of 8 Kaphaja Pratishyaya patients

Culture report	No of patients	Percentage
Staphylococci	7	87.5%
Diplococci	0	0%
No growth	1	12.5%

a catalase test positive. The catalase test is one of the main tests used by microbiologists to identify species of bacteria. If the bacteria possess catalase (i.e., are catalase-positive), when a small amount of bacterial isolate is added to hydrogen peroxide, bubbles of oxygen are observed. The catalase test was done by placing a drop of hydrogen peroxide on a microscope slide. An applicator stick was touched to the colony, and the tip was then smeared onto the hydrogen peroxide drop. If the mixture produces bubbles or froth, the organism is said to be 'catalase positive.

CONCLUSION

The following conclusion can be drawn from the above reasoning obtained from the conceptual, clinical, and observational study. In most of the Vataja Pratishyaya, Pittaja Pratishyaya, and Kaphaja Pratishyaya it was found that Staphylococci bacteria was dominantly present. In this study Staphylococcus in maximum either can even be viral-induced and it becomes difficult to analyze which specific bacterial flora is found in which type of Pratishyaya [Rhinitis] like Vataja, Pittaja, and Kaphaja. Based on the above reason we can conclude that the null hypothesis is accepted, and the research hypothesis can be disapproved. So, the study did not find any other bacteria other than Staphylococcus as it is normally present in the nasal cavity.

REFERENCES

1. Ananthanarayan and Panikar's Textbook of Microbiology, Arti Kapil 9th edition 2013, Universities Press (India) Private Limited, Hyderabad, Andra Pradesh, p 622.
2. Sushruta Samhita of sushruta with the Nibandha Samgraha Commentary of Sri Dalhanacharya, Uttar Tantram, chapter 24, shloka 1&2 edited by Vaidya Jadvji Trikamji Acharya

- from the beginning of 9th Adhyaya of chikitsasthan and rest by Narayan ram Acharya Kavyatirtha, Chaukhamba Sanskrit Sansthan, Varanasi, 2012. p 651.
3. Charaka Samhita, edited by Prof Priyavrat Sharma, vol II, Chikitsa Sthana, Publisher Chaukhamba Oriental, Varanasi, edition 2005, p 147.
 4. Madhava Nidanam of Mdhavakar, translated into English by Prof. K. R. Srikanta Murthy, Publisher Chaukhamba Oriental, Varanasi, edition 2011; p 200.
 5. Charaka Samhita, edited by Prof Priyavrat Sharma, vol II, Chikitsa Sthana, Publisher Chaukhamba Oriental, Varanasi, edition 2005; p 147
 6. Shushruta Samhita, English translator Prof. K.R. Shrikantha Murthy, vol III Uttara Sthana, Publisher Chaukhamba Oriental, Varanasi, edition; 4th 2010, p 126
 7. Ashtanga hridayam of Srimadavagbhata, editor with Nirmala Hindi Commentary by Bhramhanand Tripathi, Publisher by Chaukhamba Sanskrit Pratisthan Delhi, reprinted; 2011, p 1013.
 8. J.M. Willey, L. M Sherwood, C. J. Woolverton Prescott's Microbiology, 9th edition, McGraw hill, chapter 2 Microscopy, p 24

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