



ORIGINAL RESEARCH

**Clinical Assessment of Doshaja Kasa with special reference to
Haematological Parameters**

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Abstract

Kasa is one of the most common ailments encountered in daily clinical practice, primarily affecting the Pranavaha Srotas. Among the five principal types of Kasa described by the Acharyas, Vataja, Pittaja, and Kaphaja Kasa exhibit distinct clinical features and Samprapti (pathogenesis). Early management of Kasa is essential, as it is recognized as a Nidanarthakara Vyadhi—a condition capable of leading to secondary diseases such as Kshaya (tissue depletion).

This observational study was conducted on 150 subjects aged between 16 and 60 years to evaluate the diagnostic significance of hematological investigations—namely T.C., D.C., A.E.C., and E.S.R.—in identifying Vataja, Pittaja, and Kaphaja Kasa. The type of Kasa was determined using a scoring system based on classical symptoms, and the variations in laboratory parameters were recorded accordingly. The results were derived from the statistical analysis of each type of Kasa in correlation with the respective hematological findings. Among these, neutrophil count, absolute eosinophil count, and lymphocyte count demonstrated a significant association with Vataja, Pittaja, and Kaphaja Kasa respectively.

Keywords: Kasa, Vata, Pitta, Kapha, Haematological Investigations

Introduction

The respiratory system remains in constant contact with the external environment from birth throughout life, making it highly susceptible to infections and hypersensitivity disorders. *Kasa* is a disease described in Ayurveda that presents with symptoms of respiratory tract involvement. Among various

respiratory ailments, *Kasa* is a significant manifestation affecting the *Pranavaha Srotas*, and its rising prevalence today calls for greater attention. The term *Kasanat Kasa* denotes a condition characterized by a sudden expulsion or movement from the head and throat. Ayurveda describes three primary types of *Kasa*—*Vataja*, *Pittaja*, and *Kaphaja*. Although



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numerous subjective parameters exist for evaluating *Kasa*, incorporating objective parameters enhances diagnostic accuracy. Objective assessment holds equal importance as subjective evaluation in determining disease pathology. Hematology, the branch of medicine concerned with the study of blood, plays a crucial role in this regard. Despite the advancements in medical diagnostics, blood analysis remains a key tool in identifying various illnesses and disorders. A thorough examination of blood components provides essential insights for accurate diagnosis and management. Therefore, this study aims to evaluate the role of hematological investigations in the diagnosis of *Doshaja Kasa (Vataja, Pittaja, and Kaphaja)*.

Aims and Objectives

- To diagnose *Vataja, Pittaja, and Kaphaja Kasa* on the basis of classical clinical manifestations.
- To determine the correlation between *Vataja, Pittaja, and Kaphaja Kasa* and hematological parameters, and to evaluate the significance of hematological investigations in the diagnosis of *Doshaja Kasa*.

Materials and Methods

Diagnostic criteria

Subjects of *Kasa* diagnosed with following Lakshanas and of acute origin of cough with duration less than 15 days were selected.

S. No.	Type of Kasa	Lakshanas
1	Vataja	<ol style="list-style-type: none"> Shushka Kapha Krichranmukta alpatam Vrajat Shushka Kaasa Nirghosha Hrit, Parshwa, Ura, Shira, Shank, Udara shola Kshaamananha Angaharsha
2	Pittaja	<ol style="list-style-type: none"> Peetanishteevana Pratatam Kasavegena

		<ol style="list-style-type: none"> Jyoteemsheeva Cha Pashyati Urovidaha Paridahyamaana Tiktasyata Bhrama Moha Vaktrashosha Daha Jwara
3	Kaphaja	<ol style="list-style-type: none"> Bahulam, Madhuram Snigdham, Nishteevati Ghanam Kapham Kasamanohi Arug Vakshaha Alpa Ruk in Ura, Murdha Alpa Ruk in Hridaya Mandagni Aruchi Chardi Peenasa Utklesha Gourava Lomaharsha Asya Madhuryata Sadana

Selection of Subjects

Inclusion Criteria

- Individuals of both genders within the age range of 16 to 60 years were included in the study.
- Participants exhibiting symptoms of *Vataja, Pittaja, or Kaphaja Kasa* as described in classical Ayurvedic texts were selected for the research.

Exclusion Criteria

Other respiratory disorders like- *Kshataja & Kshayaja Kasa*, Bronchiectasis, Pleural effusion, Lung abscess, Pulmonary Tuberculosis.

Assessment Criteria

Subjective Criteria

- Subjects fulfilling the diagnostic criteria.
- Characteristics of sputum- (color, volume, odor, any other unusual findings)

Objective Criteria

1. Hematological investigations- TC, DC
2. Absolute Eosinophil Count
3. Erythrocyte Sedimentation Rate

Pittaja Kasa

- 1 - 3 – Low
4-6 – Moderate
More than 7- Severe

Study Design

- A total of 150 subjects meeting the inclusion criteria were selected for the study.
- Each participant underwent a detailed examination, and symptoms were evaluated based on the *Lakshanas* of *Vataja*, *Pittaja*, and *Kaphaja Kasa* as described in Ayurvedic classics.
- The study was conducted by assessing both subjective and objective parameters of *Vataja*, *Pittaja*, and *Kaphaja Kasa*.
- Venous blood samples of the subjects were analyzed for TC, DC, AEC, and ESR using standard laboratory methods.
- The findings obtained from the clinical assessments and hematological investigations were critically analyzed to evaluate *Doshaja Kasa*.

Kaphaja Kasa

- 1-3 Lakshanas – low
4 – 6- Moderate
More than 7– Severe

- The selected objective criteria's (T.C, D.C, A.E.C, E.S.R) were also categorized in to low, normal and high based on their laboratory values.
- Now chi-square test is applied between (low, moderate and high) severity of *Kasa* and (low normal and high) values of hematological investigations to assess the association between the subjective and objective parameters and to know the significance of the selected hematological investigations in diagnosing *Doshaja Kasa*.

Statistical Analysis

1. Data collected was entered in MS-Excel and analyzed using SPSS version 23.
2. Data is represented as tables and graphs as relevant.
3. Chi square test was applied for the data to assess the association between subjective and objective parameters.
4. Obtained results were interpreted statistically significant at $p < 0.05$.

Discussion on Results

Significance of Neutrophils in *Vataja Kasa*

The crucial involvement of neutrophils in immune-related disorders, particularly those affecting the respiratory system, is undeniable. Both innate and adaptive immune components play significant roles in activating neutrophils during various respiratory conditions. Neutrophils frequently interact with lymphocytes, together forming a vast immune-regulatory network.

- Neutrophil sequestration serves as a vital defensive mechanism within the lungs, involving several sequential processes, such as:

- Activation of transcription factors
- Production of chemokines
- Upregulation of cell adhesion molecules
- Strengthening of cell-to-cell interactions

These steps help elucidate the

Grading Pattern

Each of the *Doshaja Kasa* were graded on severity in to low, moderate and high based on number of *Lakshanas* present i.e., for

Vataja Kasa

- 1-2 Lakshanas – low
3 - 4 – Moderate
>4 – Severe

key molecular components of innate pulmonary defense.

- The accumulation of neutrophils is therefore essential for initiating an effective adaptive immune response within the host.
- Various environmental stimuli can trigger chemotactic activity that directs neutrophils toward inflammatory sites.
- Neutrophils act as the first responders among immune cells, initiating further immune processes by signaling lung-resident lymphoid cells through the release of primary cytokines.
- Moreover, neutrophils and the cytokines associated with their chemotaxis and activation may play a role in the pathogenesis of dry cough, which could explain the elevated neutrophil count observed in *Vataja Kasa*.

Significance of Eosinophils in Pittaja Kasa

Eosinophils are multifunctional leukocytes that play a key role in the pathogenesis of various inflammatory conditions.

- In response to diverse stimuli such as immunoglobulins, cytokines, and components of the complement system, eosinophils become activated and migrate from the bloodstream to the site of inflammation. Once localized at the inflammatory focus, they influence immune activity by releasing several pro-inflammatory mediators.
- They are also involved in regulating cellular trafficking, vascular permeability, and mucus secretion.
- Eosinophilic cationic protein, secreted from eosinophil cytotoxic granules, suppresses T-cell proliferation, modulates immunoglobulin synthesis by B cells, induces mast cell degranulation, and stimulates mucus secretion within the respiratory tract.
- Since *Paka* (inflammatory process) and *Shotha* (swelling) are characteristic features of *Pitta Vruddhi*, the actions of

eosinophils described above can be correlated with the pathophysiological mechanisms seen in *Pittaja Kasa*.

Significance of Lymphocytes in Kaphaja Kasa^[12,13]

Lymphocytes play a vital role in the innate immune defense against viral, bacterial, and fungal infections, exhibiting rapid activation through cytokines and growth factors.

- There are three main types of lymphocytes: T cells, B cells, and natural killer (NK) cells.
- **T lymphocytes** act as immunomodulators and cytokine producers. Based on cytokine secretion patterns, helper T cells are categorized into **Th1** and **Th2** types. Th1 cells release IL-2, IFN- γ , and lymphotoxin, contributing primarily to antiviral immunity, while Th2 cells secrete IL-4, IL-5, IL-6, and IL-10, facilitating humoral responses. T cells recognize viral antigens present on the surface of infected cells, initiating targeted immune reactions.
- **B cells** are responsible for antibody production, which activates immune mechanisms to eliminate pathogens. They can identify surface antigens of both bacteria and viruses.
- **Natural killer (NK) cells** are cytotoxic lymphocytes capable of destroying infected or abnormal cells before extensive damage occurs. They form a crucial part of the body's early defense against viral infections.

Given that lymphocytes are predominantly involved in immune responses to viral pathogens, the elevated lymphocyte count observed in *Kaphaja Kasa* may be attributed to the presence of viral infections.

Discussion on other Clinically Significant Investigations

A.E.C was clinically significant in Vataja Kasa with 32% of the subjects of Vataja Kasa were recorded with higher ranges of A.E.C

Conclusion

- *Vataja Kasa* can be clinically identified by an increase in neutrophil and absolute eosinophil counts (AEC).
- The rise in AEC indicates the inflammatory activity of eosinophils, which is characteristic of *Pittaja Kasa*.
- The correlation between lymphocyte count and *Kaphaja Kasa* could not be conclusively established due to the limited sample size; hence, further detailed studies are required.
- Other hematological parameters such as basophils, monocytes, and total leukocyte count (T.C.) did not show any significant diagnostic relevance.

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