

॥ श्रीः ॥

AJEERNAJANYA DRAVAMALPRAVRITTI - VINISHCHAYA AND CHIKITSA

**(Diarrhoea due to Indigestion - Diagnosis and Management with
special reference to Shunthi Zingiber officinale L.)**

अजीर्णजन्य-द्रवमलप्रवृत्तेः विनिश्चयः चिकित्सा च ।

By

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इत्यनेन लिखितः**

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Chapter 1

INTRODUCTION

Diarrhoea is a very common symptom of these days as also is indigestion. The two are commonly seen to be associated. The incidence of diarrhoea has always been very high. This occurrence has a socioeconomic background. A modern man is not free to eat what he chooses and the circumstances do not allow him to eat what is definitely beneficial for his health. In the vast rural population of India, this has got an economic background. Their poverty makes them to eat whatever food, whichever be its nature and source, they can get. The middle-class people of urban areas cannot eat their food, although it may be available for them, in a way so as to be digested and utilized properly. Fast eating, exertion after food, foods carried in tiffin-boxes, food and water at various hotels are some of the responsible factors.

Diarrhoeas have a sufficiently acute onset and can disable a person within a very short time. The remedies advised in diarrhoeas by modern medicine have got many drawbacks. Antibiotics and sulphonamides have got well known side-effects and toxic manifestations. Drugs such as Mexaform have recently been banned because of their toxic manifestations. The major drawback of various drugs seems to be that they constipate the patient first and the patient gets his normal motions only some days after stoppage of the drug. To find out the cause of the diarrhoea, expensive investigations such as staining, culture and sensitivity tests are required to be performed at sophisticated laboratories. To maintain water and electrolyte balance, hospitalization is necessary, and various aseptic measures are also required. The production of intravenous fluids, as also that of many modern drugs, requires a large production unit with many costly and sophisticated machineries. The cost of production has always been on an increase. If drug such as *Zingiber officinale* be scientifically proven to be useful and if they be widely accepted, the demand for these sophisticated factories would certainly decrease and much of the expenses can be saved.

Ginger has been described as being effective against all the doshas and thus can be used in many ailments in one or the other form. It is a very safe drug and does not cause any side effects or toxic manifestations as far as observations indicate. *Zingiber officinale* has been termed as the medicine of the world (*Vishwabhashaj*) by the Ayurvedic classics. This word indicates towards the easy availability and ample remedial outlets of this drug. Bhavprakash has described *Shunthiputpak* to be given in diarrhoeas¹.

Ginger is quite easily available in plenty in every part of the world. It can be cultivated even in a kitchen garden. In fact, Ginger is one of the very few drugs which appropriately fits into the definitions of an ideal drug as has been described in the Ayurvedic literature².

The people and even many doctors feel that Ayurvedic remedies are to be used in chronic conditions (such as arthritis, etc.) and have got a long latent period before they start acting in

the body. The primary idea behind selection of this topic was to show that this belief is false and that Ayurvedic remedies can work even in acute conditions. The idea was also to choose something which is concern of so many, although the treatment is not a challenge to the medical field.

Taking into consideration all the above facts (see also Chapter 14), it was decided that Ginger be tried in patients with diarrhoea - the most commonly and easily available drug to be used in the most common disease of an acute onset. It was thought that such a work in addition of providing a cheap remedy for a common ailment would prove the efficacy of Ayurvedic remedies even in acute cases. This is an attempt towards a scientific enquiry, mostly a Phase I and II trial, into the potential of the wide traditional usage and a celebrated description in Ayurvedic texts of *Gingiber officinale* in diarrhoeas.

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Chapter 2

AJEERNA AND DRAVAMALAPRAVRITTI

Dravamalapravritti or Ateesar means passage of excess of fluid alongwith faeces. The word Ateesar has been explained by Dalhan as follows:

अतिरत्यर्थवचने, सरतिर्गतिकर्मणि । तस्मात् तत् अत्यन्तसरणात् अतीसार इति स्मृतः । निबन्धसंग्रह, सु. उ. 40/1

The term, Ateesar, has been defined by Vijayrakshit as follows:

गुदेन बहुद्रवसरणम् अतीसारः इत्यर्थः । मधुकोश, मा. नि. अतीसारनिदानम् 2.

This word can be अतिसार (Atisar) or अतीसार (Ateesar). However, according to Panini, Ateesar is the correct word for which he has laid down the Sootra घञि अमनुष्ये बहुलम् ।

i.e. the formation of the specific word is effected with अति as the prefix and घञ् as the Pratyaya.

सृ is the root meaning motion. While applying घञ् as the Pratyaya, the ending vowel of the prefix अति is lengthened and thus we get the final form as Ateesar and not Atisar. Moreover, Charak and Sushrut have used अतिसार्यते (Atisaryate) as the verb in many stanzas dealing with Ateesar. This is a specific type of verb designed to indicate motions of a patient who has no control over oneself. Thus, Charak and Sushrut have purposely employed the verb, Atisaryate, which is of the nature of a Karmakartari (passive voice). Atharvaveda along with its Kaushiksootra has not mentioned Ateesar, though it has taken meticulous care in giving the account of आस्राव (Asrawa), the flow of blood. Naturally, we come across the mythical account of Ateesar only in Ayurvedic classicals (Ch. 4).

Ateesar means diarrhoea which means passage of liquid (watery) faeces with or without mucus and/or blood. When mucus and blood and an associated tenesmus accompany the diarrhoea, it is termed as dysentery which occurs due to inflammation of the colon. "Pravahika", which is frequently translated as dysentery, has been described as a subtype of Ateesar by Dalhan:

इदानीं प्रवाहिकासंज्ञम् अतीसारभेदमाह । निबन्धसंग्रह, सु. उ. 40/138

The terms diarrhoea and dysentery being conflicting as also intermingling as regards the occurrence of these features, the term 'diarrhoea' is retained throughout the following discussions to mean Ateesar.

अजीर्णमिति तद् विरोधे नञ्, जीर्णं पक्वं, तद् विरुद्धम् अजीर्णम् ।

मधुकोश, मा. नि. अग्निमान्द्यादि दि 5-6

Jeerna means digested. The prefix अ makes the meaning exactly opposite - thus Ajeerna means "not digested". Ajeerna can be conveniently translated as "Indigestion" although this word does not include the whole meaning of the original Sanskrit word.

Ajeerna is of 6 types, two of these types i.e. Dinapakee and Prakrit being physiological. The remaining 4 types are as follows:

आमं विदग्धं विष्टब्धं कफपित्तानिलैः त्रिभिः ।

अजीर्णं केचिदिच्छन्ति चतुर्थं रसशेषतः ॥ सु. सू. ४६/५९९

- 1) Aam - Caused by Kapha - dosha.
- 2) Vidagdha - Caused by Pitta - dosha.
- 3) Vishtabdha - Caused by Vata - dosha.
- 4) Rasashesha.

The main cause of Ajeerna is overeating³, which deranged the activities of all doshas. This derangement may be of different grades for different doshas and thus ajeerna is said to be caused by predominance of a single dosha - the one which is maximally deranged⁴.

Ayurveda has described 3 stages of digestion of foodstuffs which take place one after the other. These are as follows:

- 1) Madhur - The food becomes sweet due to Kapha in Aamashaya (mainly stomach).
- 2) Amla - The food becomes sour due to Pitta in Pachyamanashaya (mainly small intestines).
- 3) Katu - The food becomes bitter due to Vata in Pakwashaya (mainly large intestine).

The digested food is absorbed as Ahara-Rasa. All body-elements, commencing from Rasadhatu, are formed from this Ahara-Rasa. This may be called as the 4th stage in digestive process, or as a stage of assimilation. The four types of Ajeerna described above occur because of a disturbed digestive process at the above stages respectively. These types mean no digestion or an incomplete digestion at the respective stages.

The process of digestion has been solely attributed to Agni (digestive power). Even the 4th stage of assimilation occurs because of Dhatwagni (a special part of Agni meant for a special purpose i.e. formation of individual Dhatus, etc.). When Agni is depressed, the process of digestion cannot be carried out properly. Thus, Ajeerna is caused by a depressed Agni. It may be speculated that the 4 types of Ajeerna are caused by a derangement of specific part of the Agni, which is of more severity than its precursor.

अजीर्णात् पवनादीनां विभ्रमो बलवान् भवेत् । सु. सू. ४६/?/?

अतिमात्रम् (आहारम्) पुनः सर्वदोषप्रकोपणमिच्छन्ति कुशलाः । च. वि. २/७

Ajeerna itself causes a further derangement of all the Doshas. Any undigested matter, which is called as Aam, is termed as Annavisha (poison) by Charak.

घोरम् अन्नविषं हि तत् । च.सू. १५/४६

This Aam is known to cause certain diagnostic features at the sites where it gets localised. The features appear pertaining to the situations of localization of this Aam. Ajeerna can lead to a

variety of diseases. Thus, Aam causes abdominal diseases (which include diarrhoea) when situated in the "faeces".

यत्रस्थमामं विरुजेत् तमेव देशे विशेषेण विकारजातैः ।

दोषेण येनावततं स्वलिङ्गैः तं लक्षयेदासमुद्भवश्च ॥ सु. उ. ५६/१०-११

अर्थात् यत्र यस्मिन् स्थाने स्थितम् आममजीर्णं निरुजेत् विशिष्टं रुजं कुर्यात् तमेव देशं लक्षयेत् वैद्यः x x ।
निबंधसंग्रह

तत् (अजीर्णं) मूलो रोगसंघातः x x । मा. नि. अग्निमांद्यादिनिदानम् २६

(तत् घोरमन्नविषं) कुक्षिरोगान् शकृत्गतम् (कुर्यात्) । च. चि. १५/४९

Diarrhoea has been described to occur in two stages. The first stage, Aam-stage, is marked by a predominance of Aam whereas in the later stage (Pakwa) Aam is conspicuously absent.

तत्र प्रथमा आमावस्था, ततः पक्वावस्था । निबंधसंग्रह सु. उ. ४०/७-८

As indigestion is caused by Annavisha (i.e. Aam), which causes various diseases according to its localization, it is obvious that Ajeerna can certainly lead to the initial i.e. Aam stage of diarrhoea.

अन्नाजीर्णात् प्रवृत्ताः क्षोभयन्तः कोष्ठं दोषाः धातुसंघान्मलांश्च ।

नानावर्णं नैकशः सारयन्ति शूलोपेतं षष्ठमेनं वदन्ति ॥

- अन्नं च तदजीर्णं चेति अन्नाजीर्णम् । मधुकोष मा. नि. अतिसार ११

आमाजीर्णोपद्रुताः क्षोभयन्तः कोष्ठं दोषाः संप्रदुष्टाः सभक्तम् ।

नानावर्णं नैकशः सारयन्ति कृच्छ्राज्जन्तोः षष्ठमेनं वदन्ति ॥

- आमाजीर्णोपद्रुताः आमाख्येन अजीर्णेन उदीरिताः । निबंधसंग्रह, सु. उ. ४०/१५-१६

Aam diarrhoea is one of the 6 types of diarrhoeas which are caused by profuse Aam (undigested foodstuffs). The above references clearly indicate that this type of diarrhoea is caused by the Aam type of indigestion. Both diseases are caused by Aam. As indigestion has got a short latent period compared with that of diarrhoea, Indigestion occurs first which is followed by diarrhoea. Thus, we denote this diarrhoea as the one caused by indigestion.

It is not that only Aam-indigestion leads to Aam diarrhoea. Other types of indigestion too are involved in the causation of diarrhoea (even of the other types). This is evident from the following stanzas:

दोषाः सन्निचिता यस्य विदग्धाहारमूर्च्छिताः । अतीसाराय कल्पन्ते x x x x ॥

विदग्धशब्देन अत्र अपक्वाहारवाचिना चतुर्विधम् अपि आमं, विदग्धं, विष्टब्धं, रसशेषं च अजीर्णं गृह्यते ।

आयुर्वेददीपिका, च. चि. १९/१४

As has been stated, Aam formed due to depressed Agni, is the main culprit in the causation of both diseases. This Aam is formed due to unwholesome foods and other factors. It is either initiated by abnormal doshas or is combined with them, and thus leads to various diseases.

आमश्च दुष्टान्नकार्यो दोषधातुमलव्यतिरिक्तो वातादि संसृष्टो वातादि प्रेरितो वा रक्तादिवत् व्याध्यारम्भक इति । मधुकोष, मा. नि. अतीसारनिदानम् ४

Formation of Aam (i.e. incomplete digestion) is the basic pathology in indigestion. The word indigestion has got a wider meaning too. Thus, certain foods which can be very well digested and assimilated by many people, may be impossible to digest for some people. Milk, wheat, green gram, fish are some of the foods which cannot be digested by some people whereas many people are using them in their daily diet. Gluten sensitivity, disaccharide sensitivity and other food allergies are now established causes of diarrhoea. There are the so-called incompatible foods of Ayurveda (असात्म्य). The compatibility varies from individual to individual. These variations basically occur because of the status of Agni (digestive power) of the individuals. Thus, in disaccharide sensitivity diarrhoea, it is well known that an enzyme, disaccharidase, is lacking. This enzyme is a part of Agni, and thus the digestive capacity (Agni) of the Individual is partially impaired. This impaired Agni is unable to digest disaccharides i.e. a disaccharide Ajeerna is caused, which leads to diarrhoea.

People have many individual habits about their food. Their Agni is set to the digestion of these food-stuffs and if they be changed, the Agni is unable to digest the new foods as efficiently as before. This leads to an indigestion which manifests as diarrhoea. Diarrhoea during seasonal changes is also due to resetting of the Agni. Thus असात्म्यभोजन i.e. incompatible food which is a common cause of indigestion and diarrhoea is extremely important in understanding the range of meaning of the word 'Ajeerna'.

Aam, which is caused due to depressed Agni, is the main culprit in both of these diseases. Both diseases are seated in the Anna-vaha-srotas i.e. gastrointestinal tract. Although Aam-indigestion is mainly restricted to stomach, the other types of indigestion are situated in the lower parts of the gastrointestinal tract. Thus, the main features in the pathogenesis of both these diseases are same. As has already been stated, the latent period of indigestion being shorter, it appears first followed by diarrhoea. Hence almost all the prodromal features of diarrhoea (Ch. 7) are described as features of indigestion (Ch. 6).

विबन्धो वा प्रवृत्तिर्वा सामान्याजीर्णलक्षणम् । मा. नि. अग्निमान्यादि २७

Diarrhoea has been described as a feature of indigestion. This is not an essential feature of every indigestion as constipation too has been described as one of its features. It is important

to note that constipation is a prodromal feature of diarrhoea and thus this feature of Ajeerna can turn out to be an indication of a latent diarrhoea.

Unwholesome, heavy, irregular, large (excessive), dry, cold and incompatible foods, seasonal changes, suppression of natural urges (such as defaecation, micturition, etc.), fear and grief are some of the etiological factors which are identically described in indigestion as well as diarrhoea. Fasting (Langhan) is the main treatment in both of these diseases. Sushruta has made a direct reference of diarrhoea due to indigestion.

शरीरिणामतीसारः xx चान्यः अजीर्णनिमित्तजः । सु. उ. ४०/२२-२३

It is obvious that indigestion can cause diarrhoea which manifests in its Aam i.e. the first stage.

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रोगानीकस्य ते मूलमजीर्णं प्राप्नुवन्ति हि ॥ मा. नि. अग्निमांद्यादिनिदानम् १४
४. सर्वमजीर्णं त्रिदोषजम् एकदोषव्यपदेशः तु उत्कटैकदोषं लिंगत्वेन उक्तः इति ।
मधुकोष, मा. नि. अग्निमांद्यादिनिदानम् ५-६

Chapter 3

TYPES OF DIARRHOEA (ATEESARA)

There can be many types of diarrhoea. It has been stated that six factors can cause diarrhoea and thus by way of various combinations there can be as many as thirty-six types of diarrhoea⁵. Various complications occur in diarrhoea, and if a diarrhoea with a complication be numbered as a type, the total number of types increases. This has been called as "counting of minute subtype" by Chakrapanidatta⁶ and is not usually practiced. Except Sharangdhar and Harit, all classicals have described six types of diarrhoea. The classification with seven types described by Sharangdhar is just a compilation from Charak and Sushruta. The classification by various classicals is shown in here. (Table 1)

Although there seems to be some difference of opinion about the classification of diarrhoea mainly as to which diarrhoea should be called as the basic types of diarrhoea, the picture becomes clear when it is borne in mind that classifications are made for the purpose of treatment of the condition⁷. Some types are included in this basic classification because they are caused by a specific aetiological factor whereas some are not the types but are the 'stages' that can occur in any type of diarrhoea. Taking these facts into consideration, it appears that the classification described by Vagbhata is most useful and should be followed as a routine practice. He has classified diarrhoeas in 3 ways^{8,9}.

- 1) Classification No.1- 6 types - i) Vataja ii) Pittaja iii) Kaphaja iv) Sannipatik v) Bhayaj vi) Shokaj.
- 2) Classification No.2 - 2 types - i) Sam ii) Niram.
- 3) Classification No.3 - 2 types - i) with blood ii) without blood.

The last two classifications stress the presence of stages in each type of diarrhoea described in the first classification. The following paragraphs deal with the idea behind inclusion of individual types into the basic literary classifications:

1. Aagantoo (Manas-Psychological/nervous) diarrhoea: Charak has described that the two types of diarrhoea which occur because of fear and grief (Bhayaj and Shokaj respectively) are Aagantoo diarrhoea¹⁰. In simple terms it can be stated that Aagantoo diseases are those which are caused by external agents. The circumstances causing grief or fear being external (not within the body i.e. no initial derangement of Doshas), these diarrhoeas have been called as Aagantoo. These diarrhoeas occur because of a psychological derangement and hence are also called as Manas diarrhoea. Thus, they can be included in both the classes of disease.

2. Nija diarrhoea: Nija diseases are those that are caused by deranged Doshas - the derangement occurring because of indiscriminate and excessive indulgence towards unhygienic foods (mainly) which are not advised by scriptures. Thus, these diseases occur because of an internal environment. Although Charak has not made any direct reference of Nija (Sharir)

Table 1.

TYPES OF DIARRHOEA (CLASSICAL DESCRIPTIONS)

Reference	Charak	Sushrut	Vagbhat	Yog Ratnakarr	Sharang-dhar	Bhav Prakash	Madhav Nidan	Harit Samhita
No. of types	6	6	6	6	7	6	6	5
Vataj	*	*	*	*	*	*	*	*
Pittaj	*	*	*	*	*	*	*	*
Kaphaj	*	*	*	*	*	*	*	*
Sannipatik	*	*	*	*	*	*	*	*
Bhayaj	*	-	*	-	*	-	-	-
Shokaj	*	*	*	*	*	*	*	-
Aamaj	-	*	+	*	*	*	*	-
Raktaj	-	-	+	-	-	-	-	*

* Described in classification

- Not described in classification (may be described in other references)

+ Described in other classification

diarrhoea, it can be inferred from his description about Manas and Aagantoo diarrhoea. All Doshik diarrhoeas are included into the Nija type of diseases: thus, all the three basic types of diseases as described by Charak (Nija, Aagantoo and Manas)¹¹ are covered under the classification of diarrhoea.

3. Doshik diarrhoeas: All writers are unanimous in describing 4 Doshik types of diarrhoea e.g. Vataja, Pittaja, Kaphaja, and Sannipatik (i.e. occurring as a result of derangement of all three doshas). This unanimity points towards the importance of Doshik diarrhoeas, because an understanding of Doshik predominance is of immense therapeutic importance in each case of diarrhoea. The features of Bhayaj and Shokaj diarrhoeas are similar to those of Vataj (mainly) and Pittaja diarrhoeas because fear and grief cause a derangement of Vayu¹². As is to be described, Aam diarrhoea and Raktatisar (faecal matter containing blood) are stages of diarrhoea which can occur in every Doshik diarrhoea. Although the treatment differs from stage to stage, the basic doshik configuration remains the same and it has to be taken into consideration while treatment is to be planned.

4. Bhayaj Diarrhoea: This Aagantoo or Manas diarrhoea occurs because of grief. Whereas Charak, Vagbhata and Sharangdhar have included this type of diarrhoea in the basic classification. Sushrut, Madhav, Bhavmishra, and Harit have not done so. Vijayrakshit says that it being due to psychological derangement it can be included into Shokaj type whereas quoting Jejjat he says that as grief causes derangement of Vayu and the features of this diarrhoea are the same as those of Vataj diarrhoea, it can be included in Vataj diarrhoea¹³. He has explained that this diarrhoea has been separately classed by Charak because it has different features, nomenclature and actions. As described by Aadhmalla¹⁴, it seems that this diarrhoea has been classed separately because of its specific aetiological factor (i.e. grief) and a specific treatment of this causative factor (i.e. Harshan). In circumstances of extreme fear, sudden evacuation of bowels can occur. This is a rare occasion as compared to that of occurrence of sudden involuntary micturition (with the clothes 'on'), and this might be the reason of absence of Bhayaj diarrhoea as a separate type in the writings of Sushrut, Madhav, Bhavmishra and Harit.

5. Shokaj diarrhoea: In contrast with the Bhayaj type of Manas and Aagantoo diarrhoeas, all classicals excepting Harit sahita have described diarrhoea occurring because of grief as a special class. The features of this diarrhoea also are similar to those of Vataja diarrhoea. According to Vijayrakshit, this diarrhoea has been separately described because it has distinctive features, nomenclature and actions. As with the Bhayaj diarrhoea, it seems that this diarrhoea also has been classed separately because of its specific causative factor (i.e. grief) and its specific treatment (i.e. Ashwasana).

6. Aam diarrhoea : This has been included in the 6 basic types by Sushrut, Madhav, Bhavmishra, Sharangdhar and Yogratanakar, whereas Vagbhat has made a separate classification which consists of two types of diarrhoea i.e. Sam and Niram. Although Charak and Harit have not included this type in the basic classification, they have described the role of Aam at other places. Charak has described the features of Vataj diarrhoea in two classes, one dealing with Aam Vatatisar and other with Pakwa Vatatisar. Vijayrakshit says¹⁵ that as Aam diarrhoea can be included into Sannipatik diarrhoea (because Aam is formed as a consequence of deranged Doshas due to indigestion), Charak has not described it as a separate type. This explanation does not seem to be proper as Charak himself has described Aam type of a Vataja diarrhoea. According to Vijayrakshit, Aam, being a specific causative factor, needs a specific treatment and hence Sushrut has classified it as a separate type.

That Aam diarrhoea is a stage in every type of diarrhoea has been testified by many references in Ayurvedic classicals. Charak has described¹⁶ Vataj diarrhoea as Sam and Pakwa, and in his commentary. Chakrapanidatta has quoted Ksharpani that Sam nature of Pittaj and Kaphaj diarrhoeas does exist¹⁷. Dalhana says that Aam stage is first to occur in every type of diarrhoea which is later on followed by Pakwa (Niram - without Aam) stage^{18,19}. This fact has also been stated by Chakrapanidatta in his commentary²⁰. The two types of diarrhoea i.e. Sam and Niram described by Vagbhata in addition to the basic classification stress the presence of these stages in each type of diarrhoea. (This statement is probably untrue in case of Manas diarrhoea, because the faeces in these cases are Plawa i.e. they float on water indicating the absence of Aam).

Dalhan states that diarrhoea can be caused by aam when it is formed in profuse quantities and hence its distinct identification has been made by Sushrut¹⁹. Vijayrakshit further says²¹ that this Aam is the basic initial cause of this type of diarrhoea. The diarrhoea is initiated by Aam alone, whereas the doshas play a subsidiary role of excitation (Prerana) of Aam on being combined (Samsarga) with it. Madhav has described distinctive features of Aamvata (Rheumatism) caused by Aam is combination with individual doshas e.g. Pittaja Amavata with redness and burning sensation, etc. Thus, it is clear that when combined with Aam, doshas can excite it and cause distinctive manifestations which are initiated by Aam itself. Aam can cause a disease on its own as occurs in the case of Aam diarrhoea. This description although convincing does not appear to be of much use because the doshik features remaining the same, the treatment does not vary. Sushrut himself has stated that there can be no treatment of diarrhoea without knowledge of Aam and Pakwa stages²². He has also stated that whatever may be the cause of diarrhoea, doshik features are always to be found out²³. If Aam diarrhoea is accepted to be caused by profuse Aam on its own; a question remains unanswered as to what happens when the stage of Pakwa diarrhoea is reached.

Although no distinction has been observed between the terms "Aam diarrhoea" and "Aamaja diarrhoea" in any of the classical, it can be stated that a diarrhoea caused by profuse Aam on its

own (a type of diarrhoea) may be called as "Aamaja diarrhoea" whereas the Aam-"stage" occurring in each type of diarrhoea be called as "Aam diarrhoea". Niram (Pakwa) diarrhoea is a later stage in every type of diarrhoea.

7. Raktatisar: Harit has included this type into his basic classification whereas Vagbhata has made a separate classification with two types of diarrhoea e.g. with blood (Sasruk) and without blood (Nirasra). No other classical has described this diarrhoea as a distinct type, but all of them have mentioned the treatment of diarrhoea with blood. Thus, this also is a stage that can occur in every type of diarrhoea (mainly Pittaja). Dalhan¹⁸ as well as Chakrapanidatta²⁴ have made it clear that this is a 'stage' in (Pittaja) diarrhoea. Bhel states²⁵ that when a Pittaj diarrhoea gets located into a "Gambheer Sthana", bleeding occurs per anum. Yogaratnakar has advised to infer the doshik predominance with the help of features of respective dosha in a case of Raktatisara. Chakrapanidatta has stressed that just as Kamala (Jaundice) can occur in absence of Pandu (Anaemia), passage of blood in faeces can occur without any precedence of Pittaja diarrhoea²⁶. Chakrapanidatta has stressed that just as Kamala (Jaundice) can occur in absence of Pandu (anaemia), passage of blood in faeces can occur without any precedence of Pittaja diarrhoea²⁴. From the above description it is clear that Raktatisara is not a type but a stage in diarrhoea.

Nirasra (without blood) diarrhoea is another stage and has been separately classified by Vagbhata. The main intention of Vagbhata while describing a separate classification is to stress the importance of diagnosing these stages in diarrhoeas because of the essential differences in their management.

8. Dwandwaja diarrhoeas: These are the diarrhoeas which are caused by a simultaneous derangement of two doshas and thus can be of three different varieties. These have been mentioned by Vijayrakshit, Dalhan, Harit and Yogaratnakar. According to Dalhana²⁷, due to a peculiar nature of this disease, these types of diarrhoeas do not occur. The explanation offered by Vijayrakshit²⁸ seems to be more acceptable. According to him the Dwandwaja diarrhoea show features which include the features of both doshas in the same form (Prakruti-sama-samawayarabdha). It is a practice of the classical to describe the features of diseases occurring as a result of two or all deranged doshas only when they are different from those of the individual doshas.

9. Minute subtypes of diarrhoea: Aam, faeces, blood, Vata, Pitta and Kapha can individually cause diarrhoea. These six factors individually or in various combinations can cause 36 types of diarrhoeas⁵. The features of these types have not been described. It is obvious that these types are never diagnosed in routine practice and their knowledge is not essential from a therapeutic

viewpoint. It is to be noted that denying all claims about existence of many types of diarrhoea, Kashiraj has stated that there are only six types of diarrhoea²⁹.

10. Dhatugata stage in diarrhoea: While describing Sannipataj diarrhoea, Charak has referred to involvement of Dhatus in diarrhoea³⁰. Various complications that have been described by Vagbhata to occur due to an over-enthusiastic therapeutic purgation³¹ more or less sequentially indicate an orderly involvement of the seven dhatus. The dhatus and the respective features of their involvement are given below:

- i) Rasa - White (watery) faeces without Kapha (mucus) or Pitta (bile)
- ii) Rakta - Black color, feces containing blood.
- iii) Mamsa - Faeces appearing like washings of meat.
- iv) Meda - Faeces appearing like pieces of fat.
- v) Majja - Thirst, giddiness, sinking of eyes. (Although these features can be ascribed to lack of majjadhatu, they occur due to dehydration - lack of Ab-dhabu - and can occur at a very early stage in diarrhoea)
- vi) Shukra - Death.

No features in the description of Vagbhata can be attributed to deranged Asthi Dhatu.

11. Other types in diarrhoea: Yogaratnakar has described treatment of diarrhoea associated with fever, oedema and vomiting³². As has already been stated, if each complication alongwith diarrhoea be numbered as a type, there would be an endless counting of types of diarrhoea. Dalhan and Yogaratnakar have mentioned a late stage in diarrhoea named Purishkshaya or Nihsarak in which only watery fluids are passed per anum without any faecal matter³³. Once it is accepted that classifications are done for the purpose of proper treatment, it becomes clear that Vagbhata's classification is the best suitable one. This classification is accepted during the present dissertation and all further writings are based on it.

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केवलैः सह षट्त्रिंशत् विद्यात् सोपद्रवानपि ॥ च. सि. ८/२१
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१४. निदानं तु नियतानियतभेदेन द्विविधं शोकाजीर्णादिभ्यः अपि कदाचिदतीसार उत्पद्यते । भयनिदानेन अपि आवश्यकमतीसारो भवति इत्यदोषः । यतो दृश्यते हि सभयपुरुषस्य तत्क्षणमेव द्रवसरणं गुदेन इति । तस्मात् अत्र नियतहेतुको नाम सप्तमो भयात् प्रतिपादित इत्यर्थः । दीपिका शा. सं. प्र. खं. ७/७-८ पृ. ७८
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१६. x x इति आमातिसारो वातात् । पक्वं वा xxx ।। च. चि. १९/५
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तत्र शोणितादिषु धातुषु अतिप्रदुष्टेषु x x x । च. चि. १९/९
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निःश्लेष्मपित्तमुदकं श्वेतं कृष्णं सलोहितम् ॥
मांसधावनतुल्यं वा मेदः खंडाभमेव वा ।
गुदनिःसरणं तृष्णां भ्रमो नेत्रप्रवेशनम् ॥
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Chapter 4

TWO STORIES ABOUT DIARRHOEA

During the Golden age, the sacrificial animals were only sanctified and turned away but never slaughtered. But, after the time of Daksha's sacrifice, in the sacrifices performed by the sons of Manu-Narishyat, Nabhag, Ikshwaku, Nriga, Saryati and others - the animals were sacrificed at their instinctive acquiescence. Later on, during the long sacrifice that Prishadhra performed, as goats were not available, cows were offered up for sacrifice, perceiving which all living creatures were grief-stricken. When the flesh of these sanctified cows was eaten, by the heavy, hot, and disagreeable nature of their flesh, as well as by the use of what was not prescribed by the scriptures, people got impaired in their digestive capacity (Agni) and were afflicted with diarrhoea, for the first time during the sacrifice performed by Prishadhra.

This mythical story about the origin of diarrhoea has been stated in Charaka samhita and also requoted by Dalhan³⁴. Although a mythical story, it does indicate towards the causes and pathogenesis of diarrhoea. The salient relevant features which can be gathered from the above story are as follows:

- 1) Sacrifice is a social gathering, where foods are prepared on a large scale. This increases the chances of foods getting soiled i.e. Dushta. Cases of food poisoning do occur at such occasions. Similarly, water which is used on such occasion is also likely to be soiled.
- 2) People generally eat more at social gatherings than they usually do. These 'heavy meals' cause indigestion and a subsequent diarrhoea.
- 3) There is a clear mention of heavy, hot and incompatible foods and also that of grief in this story. These are the chief causes of diarrhoea.
- 4) At such social gatherings, alcohol is likely to be consumed, which itself has been described as a cause of diarrhoea.
- 5) As foods are prepared on large scale, all the food which is prepared is usually not consumed and some food remains unconsumed. This stale food is consumed by various people such as lower-class workers and beggars. This can certainly lead to diarrhoeas.
- 6) Sacrifice of cows was certainly against the prescription of scriptures and caused a great deal of Adharma (impiety). This is also a likely cause of diarrhoea. It is to be noted that Sushruta Samhita describes the Karmaja diseases in the very chapter dealing with diarrhoea³⁵.
- 7) The basic pathology of diarrhoea - deranged digestive capacity (Agni) has been clearly stated in the above story.

A historical story about Buddha which is testified by the Mahaparinibban sutta of the suttapitaka, states as to how Buddha had suffered with diarrhoea. The Bheshajskanda of the Mahavagga deals with a variety of drugs to combat different types of diseases. There is no specific mention of diarrhoea, although it has described the treatment of many ailments such as headache, wind in the stomach, boil, snake bite, etc. Perhaps diarrhoea was not a usual phenomenon in those days because the Bhikkus (monks) of the Buddhist fold were having strict restrictions about their daily diet. They were prohibited from overeating or excess of food.

Viruddha-diet was also a taboo for them. The story about Buddha is as follows:

Because of the pressure of some of the devotees, Buddha was invited at dinner and ate flesh of boar to his full satisfaction. Though he was initially hesitating to do so, due to repeated request of his devotees, he complied with their request. (Though Buddha was against killing of animals by human beings for their daily diet, it seems that he was not against the use of flesh of animals killed by other people). He was not habituated to flesh of boar. It being incompatible, hot and heavy Buddha was afflicted by diarrhoea in due course.

This story also indicates towards some of the main causes of diarrhoea such as 1) soiled food and water (at social gatherings), 2) overeating (heavy meals at social gatherings).

3) Incompatible, heavy and hot foods and 4) grief (possible because of consumption of flesh of a killed animal).

The above stories may not be true but they certainly indicate towards the aetiology of diarrhoea. It is for this reason and also for the purpose of perfection towards compilation that they are included in the present dissertation.

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Chapter 5

AETIOLOGY OF AJEERNA AND ATEESAR

It is estimated that in India about 7.6 million people suffer annually from diarrhoea and dysenteries. An estimated incidence of nonspecific diarrhoeas in a city such as Nagpur is about 115 per 10000 per year. In rural areas this may be much higher. Most of these diarrhoeas are nonspecific and the causative agent cannot be demonstrated in most of the patients. It would be interesting to know the etiology^{36,37} of diarrhoea due to indigestion in view of the modern knowledge.

A) Dietetic causes: Apathya diet (non-beneficial-harmful) has been described to cause indigestion in general. Excessive eating (heavy meals) is the main cause of indigestion³⁸. Whatever be the nature of food, the usual quantum of intake should always be kept as it is. This is never observed at parties, picnics and social gatherings. At such occasions, standards of sanitation are lowered and outbreaks of food poisoning commonly occur. 371 such outbreaks involving 28,563 persons in 1969 were reported from United States of America. Excessive fresh fruit intake too is known to cause diarrhoea. Milk is a mild laxative - thus its excess intake is likely to cause diarrhoea. Excess intake of water has been described to cause diarrhoea. Although this cannot be properly explained, it is likely that all ingested water may be getting absorbed through the bowels. A counterpart of this overeating (**Atyashana**) is Adhyashana. When foods are ingested in absence of a properly complete digestion of the foods consumed earlier, it is called as **Adhyashana**.

Vishamashana is another cause. Foods ingested in an improper way, at improper times and in improper quantities are included in this category. It is a common observation that people residing in urban areas such as Bombay are many a times required to eat fast, exert after food (such as for catching local train), eat even though they are not hungry (because of some appointments, etc.) and thus Vishamashana is almost a daily practice for them. Foods consumed at improper times have been specifically described to cause indigestion.

Viruddhashana and **Asatmya-bhojan** have also been described to cause diarrhoeas.

Incompatible foods may vary from individual to individual. This is because of the digestive capacity (Agni) of that individual i.e. he may be allergic to certain foods. Milk, green gram, disaccharides, gluten, etc. are all known to cause "allergic diarrhoeas".

Qualitatively, exceedingly heavy (for digestion-Guru). unctuous (oily - Snigdha), dry (Rooksha), hot (Ushna), fluid (Drava), cold (Sheet), slimy (Pichchila) and thick (Sthoola) foods are considered to be causing indigestion and diarrhoea. Thin and dry meats (such as Bombil), gingelly seeds (Til), laddoos and such other sweets and germed legumes (grains) have been specifically described as causing diarrhoea. It is well known that fats delay the rate of emptying

of stomach by way of a hormone, enterogastrone. This causes indigestion. Thus, excess of groundnuts as also fried foods cause indigestion and resultant diarrhoea. It is to be noted that Sneh-ajeerna (indigestion of oils) has been specifically described as a cause of diarrhoea. The incidence of diarrhoeas is high in the developing countries and other areas where sanitation is poor. Epidemics of diarrhea are due to sewage contamination of the water supply following natural disasters of flood, earth quake, etc. or accidents or neglect in the community water supply system. Although no causative agent can be demonstrated, a direct spread of diarrhoea is supposed to occur through faecal-oral transfer. Indirect transmission occurs through ingestion of food or drink contaminated by food-handlers, houseflies, dust, etc. Contamination of food may occur owing to unhygienic methods of preparation, handling or storage. No food is ever sterile under ordinary circumstances. If a large number of bacteria multiply in food and if such food be ingested, it is likely to cause diarrhoea as a result of bacterial food poisoning. Shigella, Salmonella, Pathogenic E. coli, Staphylococci, Streptococci, Clostridia, entero- and other viruses are the usual culprits in infective diarrhoeas.

Aam, Ashuchi and Sandushta are the terms that are used to indicate contaminated food and water by the Ayurvedic classicals. These words mean the foods that are uncooked or partially cooked, unclean and contaminated respectively. It is well known that they have described the construction of a good kitchen and also have advised that cooked foods should be stored at a clean (Shuchi) place³⁹. This clearly indicates the awareness of ancient Ayurvedicians about contamination of food and water. Dushta-neer (contaminated water) has been called as a 'poison by Sharangdhar⁴⁰ whereas Charak⁴¹ has described the properties of unconsumable water. These properties have also been quoted by Adhamalla⁴⁰. Salient among them are:

- 1) Containing organisms (Jantu-sankeerna, Krimila)
- 2) Frothy
- 3) Slimy (Pichchila), Heavy (Guru)
- 4) Containing mud, leaves, moss (an aquatic plant), grass, etc.
- 5) Contaminated with faeces, urine, mucus (phlegm) etc.
- 6) Having foul odour.
- 7) Having an abnormal colour and taste.
- 8) Containing poisons etc.

The above references do not require any comments. It is amply evident that Ayurvedicians were aware of contamination of foodstuffs and water and have added to avoid them.

All dietetic causes of diarrhoea basically derange the Agni and thereby vitiate the Doshas. This in turn causes indigestion and diarrhoea.

B) Psychogenic causes: Fear, grief, envy, anger, worries, impatience, imbecility have all been described as causes of indigestion or diarrhoea. Foods consumed when one is not in a position of mental health show an immediate effect by way of indigestion. The foods which are disliked,

if consumed, can cause indigestion. With these and such other psychogenic conditions, a person cannot be expected to eat in such a way as to be definitely beneficial for him. The diets are usually sparing and thus derange Vayu due to lack of Dhatus⁴². "Nervous diarrhoea" are well documented in books of modern medicine. Factitious diarrhoeas have also been described. These are caused by surreptitious laxative ingestion.

C) Seasonal and Environmental causes: Seasonal changes and abnormal seasons cause diarrhoea. Summer diarrhoea occurring in children is well-known. When one season changes to another, a process of accommodation is set up in the body. During this period, vulnerability of the individuals is considerably increased and thus diarrhoeas can occur. Abnormal seasons, such as heavy rains, heavy heat, and heavy rains during summer season also increase the susceptibility. Environment too has got its own influences. Thus, migratory labourers (such as those in Railways and Aeroplanes) and travellers are apt to suffer from diarrhoea when they visit a place that is strange, and an environment that is different from the one they are accustomed to. This has been described as Dosha-vaishamya by Ayurvedic classicals.

D) Other causes: Late sleeping at night, sleeps in the afternoon, and disturbed sleep can lead to indigestion. Suppression of natural urges can cause Ateesar. Excessive swimming has also been described as a cause of Ateesar.

E) Causes of individual diarrhoeas: Charak has described causes of doshik diarrhoeas individually⁴³. Those are as follows:

- 1) Vataja diarrhoea - In a person of Vata habitus, Vata gets provoked by excessive exposure to wind and sun, by over exertion, by dry, scanty and late meals, daily indulgence in strong wine and sexual act, and the suppression of natural urges.
- 2) Pittaja diarrhoea - In a person of Pitta habitus, Pitta gets provoked by excessive use of Amla, Lavan, Katu, Kshara, Ushna and Teekshna articles of diet, by an impairment of the body by the strong effects of long exposure to fire, sun-heat and hot wind, and by the effects of strong emotions of anger and envy.
- 3) Kaphaja diarrhoea - In a person of Kapha habitus, the Kapha gets provoked by constant use of heavy, sweet, cold and unctuous articles, by excessive impletion, by a thoughtless life, by a habitual day sleep, and lethargy.
- 4) Sannipatik diarrhoea - All three doshas get provoked as a consequence of impaired gastric fire caused by very cold, unctuous, dry, hot, heavy, rough, hard, irregular, Viruddha and non-homologatory articles of diet, by abstinence from diet, or by late meals, by eating whatever comes in hand, by drinking vitiated wine or beverage, by excessive indulgence in wine, by lack of seasonal purification, by the wrongful

effects of therapeusis or by lack of therapeusis or excessive exposure to fire, sun, wind and water, by lack of sleep or by excessive sleep, by suppression of natural urges, by abnormality of season, by exertions beyond ones' capacity, by excess of fear, grief and anxiety and by excessive emaciation due to helminthiasis, cachexia, fever and hemorrhoids.

F) Diarrhea caused by diseases: The enlisted diseases⁴⁴ which cause diarrhoea as one of their features are as follows:

- 1) Indigestion of any oleaginous dietetic article (i.e. Ghee, Oil, etc.)
- 2) Pravahika (dysentery)
- 3) Shoola (colicky pain in abdomen)
- 4) Visoochika (Cholera)
- 5) Indigestion
- 6) Poisoning (This includes food poisoning also)
- 7) Arsha (Haemorrhoids)
- 8) Helminthiasis.

Grahani, a celebrated disease of Ayurveda, also causes diarrhoea⁴⁵. This possibly includes various diseases stated in the etiology of diarrhoea by books of modern medicine such as malabsorption (sprue), malnutrition (marasmus, kwashiorkor), pancreatic diseases (insufficiency, endocrine tumors), cholestatic syndrome (billiary atresia), neurologic diseases (diabetic neuropathy, tabes dorsalis), metabolic diseases (hyperthyroidism) and immunodeficiency diseases (IgA deficiency).

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Chapter 6

FEATURES OF AJEERNA

A schematized list of features of Ajeerna in general as well as those of its pathogenic types and its complications is given below. This list may well be compared with the list of prodromal features and features of Ateesar (Ch. 7 and 8)

General features of Ajeerna⁴⁶

1. Vishtambha - Constipation
2. Sadan, Anga-narda - Malaise
3. Shiro-ruja - Headache
4. Moorcha - Fainting
5. Bhrama - Giddiness
6. Prishthagraha - Backache
7. Kateegraha - Pain in the loins
8. Jrimbha - Yawning
9. Trishna - Thirst (This is a feature of proper digestion of food too)
10. Jwara - Fever
11. Chhardee - Vomiting
12. Pravahan - Frequency of motions, Straining at defaecation
13. Arochaka - Anorexia
14. Avipaka - Indigestion
15. Glani - Drowsiness
16. Gaurwa - Heaviness of the body
17. Marut-moodhata - Inability to pass wind
18. Vibandha - Constipation
19. Pravritti - Diarrhoea
20. Ashuddha-udgara - Eructations with bad smell and taste
21. Nirutsaha - Lethargy
22. Ayathochit Vega-utsarga - Unusual (inconsistent with the nature of food) passage of faces, wind, urine, etc.
23. Vishada - Pain (Generalized body ache)
24. Shleshma-seka - Nausea (excess salivation)
25. Swasthavritta-uparodha - Inability to carry out usual (beneficial) bodily activities
26. Arati - Restlessness

General Features of Aam Ajeena⁴⁷

1. Guruta - Heaviness of body (especially that of limbs)
2. Utkleda - Excess salivation
3. Gand-akshi-koota-shotha - Puffy face
4. Udgar-yathabhukta - Eructation having smell and taste of the consumed food. These are not sour.
5. Utklesha - Nausea

Aam-indigestion is caused by a predominance of deranged Kapha. While describing features caused by overeating associated with Kapha, Charaka has described the following additional features⁴⁸:

6. Chhardi - Vomiting
7. Arochaka - Anorexia
8. Avipaka - Indigestion
9. Sheet-Jwara - Fever with (mild) rigors
10. Aalasya - Lethargy

General Features of Vidagdha-Ajeerna⁴⁷

1. Sour, bitter, smoky eructations
2. Bhrama - Giddiness (Vertigo)
3. Trishna - Thirst
4. Moorcha - Fainting
5. Sweda - Excessive sweating (perspiration)
6. Daha - Burning sensation (generalized)
7. Various pains due to Pitta such as pulling (osha), chewing (chosha), etc.
8. Moha - Mental confusion

Vidagdha-indigestion is caused by a predominance of deranged Pitta. While describing features caused by overeating associated with Pitta, Charak has described the following additional features⁴⁸:

9. Jwara - Fever
10. Ateesar - Diarrhoea
11. Antardaha - Internal burning sensation
12. Mada - Delirium
13. Bhrama - Giddiness (vertigo)
14. Pralap - Talking of insensical (incomplete) sentences

General Features of Vishtabdha-Ajeena⁴⁷

1. Bhrisha-toda - Intense pricking pain (in abdomen)
2. Bhrisha-shoola - Intense colicky pain (in abdomen)
3. Various pains due to Vata
4. Vibandha - Constipation
5. Aanaddha-vata - Inability to pass wind
6. Aadhmana - Distension (abdominal)
7. Sada, Angamarda - Malaise
8. Jrimbha - Yawning
9. Shiroruja - Headache
10. Stambha - Loss of movement
11. Moha - Mental confusion
12. Angapeeda - Bodyache

Vishtabdha indigestion is caused by a predominance of deranged Vata. While describing features caused by overeating associated with Vata, Charak has described the following features⁴⁸:

13. Shoola - (Colicky) pain (in abdomen)
14. Aanaha - Flatulence
15. Angamarda - Malaise
16. Mukhashosha - Dryness of mouth
17. Moorcha - Fainting
18. Bhrama - Giddiness (vertigo)
19. Agni-vaishamya - Impaired Agni (digestive power)
20. Parshwa-graha - Pain in the flanks
21. Prishtha-graha - Backache
22. Kati-graha - Pain in loins
23. Sira-akunchan-stambhan - Muscle contracture

General Features of Rasashesha-Ajeerna^{48,50}

1. Although the eructations are clear (i.e. without any disagreeable taste or smell) there is anorexia which is so severe as to manifest a hate of food.
2. Hrid-vyatha - Pain and heaviness in chest
3. Vadan-snigdhata - An unctuous feeling in mouth
4. Sandhi-ruja - Pain in joints
5. Arochaka- Anorexia (inability to feel the taste of foods)

6. Hrillasa - Nausea
7. Jwara - Fever
8. Moorcha - Fainting

Complications of Ajeerna

1. Moorcha - Fainting
2. Pralapa - Talking of insensical (often incomplete) sentences
3. Vamathu - Vomitting
4. Praseka - Excess salivation
5. Sadan - Malaise
6. Bhrama - Giddiness (vertigo)
7. Maran - (even) death

Kashyapa has described⁴⁶ the following complications which, he says, according to their number and severity decides the prognosis in Ajeerna.

8. Tandra - Drowsiness
9. Shoola - (colicky) pain
10. Arati - Restlessness
11. Glani- Drowsiness
12. Trit - Thirst
13. Vidaha - Burning sensation (generalized)
14. Aruchi- Anorexia
15. Bhrama - Giddiness (vertigo)
16. Angamarda - Malaise
17. Jwara - Fever
18. Aabha – Flatulence

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Chapter 7

PRODROMAL FEATURES OF ATEESAR

As opposed to the actual features, the common prodromal features for all types of diarrhoea have been specifically described⁵¹. These are as follows:

1. Toda - Pricking/piercing pain in the heart (chest), anal region and abdomen - especially flanks and umbilical region
2. Gatravasada - Malaise
3. Anil-sannirodha - Inability to pass wind per anus (flatulence)
4. Aadhma - Abdominal heaviness (and a possible distention)
5. Avipaka - Indigestion
6. Vit-sang, Malagraha - Constipation

As has been described, deranged Vayu and depressed Agni (digestive capacity) are the initial abnormalities that cause diarrhoea. Of the above features, pain and flatulence, are caused because of deranged Vayu, indigestion and malaise because of depressed Agni whereas these two together cause abdominal heaviness and constipation. Constipation is an interesting prodromal feature. It has been stressed by Vijayrakshit⁵², that this feature is found because of specified derangement of doshas and subsides as the manifestation of diarrhoea occurs. The constipation as a prodromal feature of diarrhoea may be complete or incomplete. With complete constipation, abdominal heaviness increases leading to flatulence and finally diarrhoea starts suddenly. Usually the constipation is incomplete. The faeces are more or less solid and sticky, the frequency of bowel movements is more and at every defaecation only a slight amount of faeces is passed whereas the abdominal heaviness remains as it was before the act. Purgatives or laxatives (especially Castor oil) administered at this stage do not work. This stage of incomplete, constipation gradually takes the form of diarrhoea as the liquidity of the faeces gradually increases.

It is to be noted that all the above prodromal features of diarrhoea are included in the features of various types of indigestion (Chapter 6).

Diarrhoea being a disease of acute onset (Ashukari)⁵³ the latent period during which these prodromal features manifest is usually very short. They may sometimes pass unnoticed and a careful and detailed history-taking is required to elicit these features. It is many a times unusual for a modern Ayurvedician to get a case of diarrhoea during its prodromal stage. These features occur also in Agnimandya which is a chronic disease and demands an altogether different therapy.

It is interesting to note that Kashyap has described⁵⁴ the prodromal features in children. These are as follows:

1. Dehavaivarnya - Discolouration of skin.
2. Arati - Restlessness.
3. Mukh-glani
4. Anidrata - Insomnia.
5. Vatakarma-nivritti - Lack (depression) of activity of Vayu (i.e. movements of various kind).

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५२. विट्संग पुरीषाप्रवृत्तिः एतच्च दोषदूष्यसंमूर्च्छनावस्थाप्रतिनियतं पूर्वरूपं, तेन रूपावस्थायां नानुवर्तते,
यद्यनुवर्तते तदा तत्र व्याधिरेव नोत्पद्येत, विट्संगातिप्रतिषेधात् । मधुकोष मा. नि. अतीसारनिदानम् ५
५३. (अतिसारः) x x आशुकारी स्वभावतः । वा. नि. ८/१७
५४. काश्यपसंहिता सूत्रस्थान वेदनाध्याय

Chapter 8

FEATURES OF ATEESAR

Although the general features of diarrhoea are not specifically described in Ayurveda classicals, they can be inferred from the meaning of the word Ateesar⁵⁵, prodromal features⁵¹, and features of cure of Ateesar⁵⁶. Thus, the features of diarrhoea are as follows:

1. Passage of more liquids (exceeding the usual water content of the faeces which is approximately 65 %) through anus i.e. passage of liquid faeces. The liquidity of the faeces depends on the nature and severity of the pathology and thus indicates towards the severity of the disease.

Fluidity of the faeces which ranges from semisolid to watery is the only criterion: merely increased frequency of motions does not necessarily mean that the disease is present. It may sometimes occur that patient passes large volume of watery motions only for 2-3 times and gets disabled; whereas in some instances, patient passes 5-6 motions of usual consistency and does not feel any uneasiness so as to seek advice of his physician. Many people are habituated to passing 4-5 motions a day so that much depends of the habit of the individual as far as frequency of motions is considered. This does not mean that the frequency of motion has nothing to do with the assessment of a patient of diarrhoea. Frequency of motion has got a prominent role in the assessment of diarrhoea, but it cannot be taken as a sole feature as far as its diagnosis is considered.

2. Systemic features:

- a) Pricking/Piercing pain in the heart (chest), anal region and abdomen - especially flanks and umbilical region
- b) Malaise
- c) Abdominal heaviness
- d) Indigestion
- e) Inability to pass flatus

Malaise and indigestion occur because of impaired Agni, pain because of deranged Vayu whereas these two together cause abdominal heaviness. It is to be noted that constipation and inability to pass flatus are the two prodromal features which do not occur when diarrhoea manifests itself⁵².

3. Others:

- a) Emission of faeces at the time of micturition.
- b) Impaired passage of flatus - emission of faeces at the time of passing flatus, flatus passed less than usually passed, flatus not passed even though it is desired.

c) Impaired digestive capacity (Agnimandya).

d) Heaviness in the abdomen.

The first two features occur because of impaired Vayu (mainly Apana) and indicate towards uncontrolled passage of motions, whereas the others occur because of impaired Agni.

4. To the above features that are described by the Ayurvedic classicals some important initial features of dehydration (Abdhatukshaya – Chapter 11) should be added. These are as follows:

a) Dryness of mouth - thirst.

b) Dryness of body.

c) Klama, Glani - weakness.

d) Shrama - Feeling of exhaustion.

e) Shabda-asashishnuta - Dislike towards sound (loud and/or sustained).

5. Urine has been described to resemble rice-water (Tandul-toya) in diseases caused by Ajeerna⁵⁷ (such as diarrhea).

Before going for actual features of individual diarrhea, certain basic facts may be laid down.

In Vataja diarrhoea, intestinal movements are more marked, pain is maximal, and onset is more acute. This type of diarrhoea possibly is due to an absolute functional abnormality of intestine where the organic architecture remains intact. This has been inferred mainly from the description of dry faeces and increased frequency of bowel movements in this type of diarrhoea.

In Pittaja diarrhoea, the intestinal architecture is totally disturbed by way of various grades and types of inflammatory processes. Functional derangement is secondary to this organic upset. The condition is more serious than any other doshik type of diarrhoea and requires an immediate and prompt therapeutic measure. Even surgical procedures may be indicated in some patients of Pittaja diarrhoea. The organic derangement is the cause of the main features of this type of diarrhoea e.g. passage of blood along with faeces, burning sensation, fever, etc.

In Kaphaja diarrhoea, all processes are slowed down and the features are of a mild nature - the only disabling feature being a constant urge of defecation. The onset is slow, the features such as pain and liquidity of faeces are of a low intensity, and the recovery is slow as well.

It should be mentioned, however, that diarrhoea with mucus are usually amenable to medical treatment and can be cured without any residual organic damage to the intestines.

Sannipatik diarrhoea is the worst thing to occur because the features of all Doshas being combined, it is least amenable to any of the therapeutic measures.

A schematic description of features of various types of diarrhoea is given below:

VATAJA DIARRHOEA⁵⁸

A) Faeces

- Colour** :
1. Shyava - Brown (yellowish black) Just like Bhasma (ash)/Kapotasthi (Bone of Pigeon).
 2. Arun - Red (like morning twilight).
 3. Dagdha-gud-abhasa - Just like burnt Gur.
 4. Krishna - Black. (Harit's description) A feature of Pittaja diarrhoea as described by Charak and Vagbhata.

Odour

:

- Sam** : Aamagandhi - smelling like putrid flesh. Described in Kaphaja diarrhoea.

Consistency

- Sam** :
1. Drava - Liquid.
 2. Vipluta - Flowing.

- Niram** : Vigrathit - With hardened schybalous masses.

Appearance

- Sam** :
1. Rooksha - Dry.
 2. Drava - Liquid.
 3. Aam - Containing undigested matter.
Described in Kaphaja diarrhoea.
 4. Avasadi - Sinks when put on water (ground)
 5. Vijjal - Slimy.

- Niram** :
1. Saphen - Frothy (not solid).
 2. Sapichha - Slimmy. Described in Kaphaja diarrhoea.

B) Nature of defaecation

- Sam** :
1. Saruk - Attended with pain. (colicky)
 2. Eeshat shabdam Ashabdam wa - passed with little sound or without making any sound.

- Niram** :
1. Alpalpa - Very scanty measure. Described in Kaphaja diarrhoea.
 2. Muhurmuhu - Stools passed frequently.
 3. Saruk - Attended with pain (colicky) Described in Kaphaja diarrhoea.
 4. Sashabda - Attended with sound.
 5. Vibaddha - Formed. Described in Kaphaja diarrhoea.
 6. Sapparikartika Associated with griping pain.
 7. Hrisht-roma - Associated with horripilation.

C) Local features

Niram : Bhrashtapayu - Rectal prolapse.

D) General features

Sam : 1. Shool - Attended with pain.
2. Vibaddha-mootra - Retention of urine.
3. Vayuh Antahkoshthe Sashabdan Charati-Gurgling sounds in abdomen.
4. Vibaddha-vata - Retention of flatus (inability in passage).

Niram : 1. Shushk-asya Dry mouth (Parching of mouth).
Thirst described in Pittaja diarrhoea.
2. Vinishvasan - Associated with groans.
3. Katishool- Pain in loins.
4. Urushool - Pain in waist.
5. Triakashool - Pain in sacral region.
6. Janushool - Pain in knees.
7. Prishthashool - Pain in back.
8. Parshwashool - Pain in flanks.
Shool (of generalised nature) has been described in Pittaja diarrhoea by Vagbhata.

PITTAJA DIARRHOEA⁵⁸

A) Faeces

Colour : 1. Peeta - Yellow(ish).
2. Haridra - Yellow (ish) like Halder (Curcuma longa).
3. Harita - Green (ish). Shadwala-prabhan. Like young green grass.
4. Neel - Blue (ish).
5. Aalohita - Red (dish).
6. Asit - Black (ish).

Odour : Durgandhi, Atidurgandhi - Foetid. Foul smelling. Also described in Sam Vataja and Khaphaja diarrhoea.

Consistency : Bhinna - broken into pieces.

Appearance : 1. Ushna - Hot.
2. Atiteekshna - Not touched by flies (Makshikapsarpan).
3. Mamastoyaprakhyā - Resembling washing of meat.
Described in Sannipatik diarrhoea.
4. Raktapittophata - Tinged with blood and Pitta (bilious).
5. Sarakta - Containing blood (frank or occult). Described in Raktatisar.

B) Nature of defaecation

1. Vegavat - Emitted with sharp or acute force.

C) Local Features

1. Paka - Redness-mainly that of anus (and adjoining region).
(?Proctatitis).
2. Gudasantapa - Burning sensation at the anus.

C) General features

1. Trishna - Thirst (Dryness of mouth). Described in Sannipatik diarrhoea.
2. Moorchcha - Fainting.
3. Daha - Burning sensation in the whole body, mainly in the epigastrium and anal region.
4. Sweda - Sweating, perspiration.
5. Jwara - Fever.
6. Shoola - Pain (Heaviness in the body - malaise - Arati)
Described in Sam Vataja diarrhoea.
7. Shosha - Malnutrition (Cachexia - asthenia - debility).
8. Pandu - Anaemia.
9. Bhrama - Giddiness.

RAKTATISAR⁵⁹

As generally described, Raktatisar (passage of blood along with faeces) occurs as a consequence of Pitta provocation in a patient of Pittaja diarrhoea. It has been stressed by Chakrapani²⁴ that passage of blood in faeces can occur even without a precedence of Pittaja diarrhoea just as Kamala (Jaundice) can occur even in absence of Pandu (Anaemia). Yogaratnakar²⁶ has advised the observation of Doshik features in cases of Raktatisar. Thus, it is clear that although described as a 'type' of diarrhoea, Raktatisar is a 'stage' in each type of diarrhoea and is frequently reached in Pittaja diarrhoea.

A) Faeces

Colour : Not described. It may vary from red (frank bleeding) to black (occult blood).

Odour : As per doshik nature of diarrhoea.

Consultancy : As per doshik nature of diarrhoea.

Other Features: Bleeding may occur either before or after defaecation.

B) Nature of defaecation: Abheekshna - Repeated, frequent, exceedingly quick.

C) Local features: Guda-paka - Severe inflammation of anus (anal canal).

D) General features:

1. History of Pittaja diarrhoea (may not be obtained) and practicing of Pitta-provoking factors.
2. Shosha - Dryness (Chiefly manifesting in mouth). Asthenia.
3. Daha - Burning sensation in the body. (Mainly in eyes).
4. Jwara - Fever.
5. Shoola – Pain.
6. Trishna - Thirst.

NIRASRA DIARRHOEA

In this type (stage) of diarrhoea, faeces do not contain blood. All features are as per doshik predominance and are described under separate headings. This type has been mentioned by Vagbhata because of the importance of the therapy of the other type i.e. Raktatisara.

KAPHAJA DIARRHOEA⁵⁸

A) Faeces

- Colour** : Shweta - White (ish).
Odour : Visra/Aam/Durgandhi - Foul smelling.
Described in Sam Vataja and Pittaja diarrhoea.
Consistency : Sandra, Ghana- solid, formed (as compared to other types).
Appearances :
1. Snigdha - Unctuous
 2. Pichhila - Slimy
 3. Tantumat - Containing fibrinous shreds
 4. Guru - Heavy
 5. Sheet - Cold.
 6. Aam - Containing undigested matter. Described in Sam Vataja diarrhoea.
 7. Shleshmayuka - Containing mucus.

B) Nature of defaecation

1. Alpalpa - Scanty, frequent. Adsorbed in Niram Vataja diarrhoea.
2. Sapraavahik - Associated with straining.
3. Abheekshna - Frequent. Described in Raktatisar.

4. Vibaddha, Baddha, Anubaddha - solidified
(as compared to other diarrhoeas).
5. Saruk - Associated with pain (gripping). Described in Vataja
6. Hrishtaroma - herpilation.
7. Mandavega - Urge of low intensity.

C) Local features

Krute Api Akrut-sandhya - A sense of constant urging (even after passing stool patient feels that he/she has not evacuated his bowels. Each motion only creates an apprehension of fresh one in the mind).

D) General features

1. Nidralu - Sleepy, drowsiness.
2. Angasada - Lethargy. Lassitude - Described in Sannipatik diarrhoea.
3. Alasya - Laziness.
4. Gaurava - Heaviness.
5. Tandra - Drowsiness. Described in Sannipatik diarrhoea.
6. Nihswana - Associated with groans.
7. Annadweshya - Disrelish for food.
Aruchi - Lack of appetite.
8. Utklesha - Nausea.
9. Undar-gurutwa - Heaviness in the abdomen.
10. Basti-gurutwa - Heaviness in the hypogastrium.
11. Guda-gurutwa - Heaviness in the anal region.
12. Vankshana-gurutwa - Heaviness in the ilioinguinal region.
13. Mandavedana - Dull ache.
14. Mandagni - Depressed Agni (digestive capacity).

SANNIPATIK DIARRHOEA⁵⁹

The features of Sannipatik diarrhoea have not been specifically detailed out as in the case of other doshik types of diarrhoea. It is stated that the features of all doshik diarrhoea are combined in Sannipatik diarrhoea which is less amenable to any of the therapeutic measures. The features that are specifically mentioned to be occurring in Sannipatik diarrhoea are given below:

A) Faeces

- | | | |
|--------------------------|---|--|
| <u>Colour</u> | : | Nonspecific/varied colour i.e. combination of various colours described under doshik diarrhoeas. |
| <u>Appearance</u> | : | It is like Varah-Vasa (Pig-fat), Mamsambu (Washing of meat), Til |

(Gingelly seeds - Sesamum Indicum), Pakwa-jamboophala (Ripe Jamun fruit).

B) Nature of defaecation

Not specifically described.

C) Local features

Not specifically described.

D) General features

1. Tandra - Drowsiness.
2. Moha - Delirium, Swoon/fainting.
3. Sada - Lassitude.
4. Asya-shosha - Dryness of mouth.
5. Trishna - Thirst.

BHAYAJA DIARRHOEA⁶⁰

A) Faeces

Consistency : Drava - Liquid.

Other features : 1. Ushna - Hot.
2. Plawa - Floats on water.

B) Nature of defaecation:

1. Kshipra - Increased frequency of motions.
2. There is spontaneous (involuntary) passage of faeces in situations of extreme fear.

C) Local features

Not described.

D) General features

1. History of fear.
2. Relieved by removal of fear by giving an assurance of safety.
3. All features of Vataja and Pittaja (mainly Vataja) diarrhoea.

SHOKAJA DIARRHOEA⁶⁰

A) Faeces

Colour : Kakananti-prakash - Red resembling Gunj (Arbus precatorius).

Odour : May or may not be present.

Consistency : Drava - Liquid.

- Other Features :**
1. Plava - Floats on water.
 2. Ushna - Hot (to touch).
 3. May or may not contain faecal matter.

B) Nature of defaecation

Kshipra - Increased frequency of motions (Spontaneous motions)

C) Local features

Not described.

D) General features

1. History of grief by way of parting of dear brother, and such other incidences.
2. All features of Vataja and Pittaja (mainly Vataja) diarrhoea.

AAM DIARRHOEA⁶⁰

As stated earlier, this is a stage in every doshik type of diarrhoea and has got an immense therapeutic importance. Features of various Doshas are found in all Aam diarrhoea as according to the doshik predominance. The features mainly pertaining to Aam are described below:

A) Faeces

Colour : Various colours (according to the doshik predominance).

Odour : Aamgandhi.

Consistency : Not described.

Other features:

1. Guru - Heavy.
2. Apsu Majjati - Sinks in water. This is the most important diagnostic feature (cf. Kaphaja diarrhea) of Aam diarrhoea.
3. Pichhila - Slimy.
4. Wide variations in features (according to the dominant Dosha).

B) Nature of defecation

Alpalpa: Frequent passage of small quantities of faeces.

C) Local features

Not described.

D) General features

1. Ann-ajeerna, Aam-ajeerna - History of Indigestion.

2. Aatopa - Borborygmi.
3. Vishtambha - Constipation.
4. Arti - Pain (in abdomen).
5. Praseka - Nausea (excessive salivation).
6. Srotorodha - Obstruction of channels-Srotas.
7. Bala-bhramsha - weakness.
8. Gaurava - Heaviness in body (abdomen).
9. Anilmoodhta - Inability to pass flatus.
10. Alasya - Laziness.
11. Apakti - Indigestion.
12. Aruchi - Anorexia.
13. Klama - Malaise.

NIRAM DIARRHOEA

After an initial stage of Aam, severe diarrhea passes into a stage of Niram diarrhoea. No feature pertaining to Aam can be obtained at this stage and only doshik features can be perceived. The important diagnostic difference from Aam diarrhoea is manifested in faeces. The faeces of niram diarrhoea do not have foul odour, are not slimy, are light and hence float on water. The general features of Aam diarrhoea are seen to be reversed in this stage.

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मुंचत्यल्पमल्पं सफेनं रूक्षं श्यावं सानिलं मारुतेन ।
दुर्गन्ध्युष्णं वेगवान्मांसतोयप्रख्यं भिन्नं स्विन्नदेहेः अतितीक्ष्णम् ॥
पित्तात् पीतं नीलमालोहितं वा तृष्णामूर्च्छादाहपाकज्वरार्तः ।
तन्द्रानिद्रागौरवोत्कलेशासादी वेगाशंकी सृष्टाविट्कः अपि भूयः ॥
शुक्लं सान्द्रं श्लेष्मणा श्लेष्मयुक्तं भक्तद्वेषी निःस्वनं हृष्टरोमा ।
तन्द्रायुक्तो मोहसादास्यशोषी वर्चः कुर्यान्नैकवर्णं तृषार्तः ॥
सवोद्भूते सर्वलिङ्गोपपत्तिः कृच्छ्रः चायं बालवृद्धेऽप्यसाध्यः । सु. उ. ४०/९-१२; मा. नि. अतिसारनिदानम् ६-८;

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पित्तं प्रदुष्टं तस्याशु रक्तातीसारमावहेत् ॥
ज्वरं शूलं तृषां दाहं गुदपाकं च दारुणम् ।
यो रक्तं शकृतः पूर्वं पश्चाद्वा प्रतिसार्यते ॥ सू. उ. ४०/११६-११७; च. चि. १९/६९-७० मा. नि.
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स्त्रोतरोध बलभ्रंश गौरवानिलमूढताः ॥
आलस्यापक्ति निष्ठीव मलसंगारुचिकलमाः ।
लिंगं मलानां सामानां निरामाणां विपर्ययः ॥ वा. सू. १३/२३-२४; मा. नि. अतीसार ११; सु. उ. ४०/१६-१८

Chapter 9

DIAGNOSIS OF AJEERNAJANYA DRAVAMALAPRITTI

Most attacks of these diarrhoeas are of a mild to moderate severity. They are usually short and self-limiting. Hence diagnosis is to be based mainly on history and clinical findings. A detailed history - especially about ingested food - is absolutely essential. A definite history of consumption of unwholesome foods may be obtained in many of these cases. Features such as fever, burning sensation of eyes, pain in abdomen, anorexia, burning sensation at anal region, tenesmus, etc. should also be enquired.

Clinical examination of the patient for the appearance of tongue, site and severity of tenderness, hepatic enlargement, local pathology at the rectum and anal canal, tachycardia and nature of pulse, hypotension, etc. should be carried out. This examination and the history would usually lead to a proper doshik diagnosis. The severity of pain and tenderness and a history of fever and passage of blood and/or mucus with faeces help in diagnosis of the doshik configuration.

A careful stool examination is essential in every case (this may not be possible for a general practitioner). A small amount of faeces is taken with a glass rod and is dropped into a glass beaker containing water. Because of its velocity, the faeces initially sink and then come up to float. If they do not float i.e. sink, presence of Aam should be Inferred. The method is not applicable to the faeces that are very hard, very fluid (watery), very cold and containing a lot of Kapha (mucus)⁶². It seems to be very difficult to know as to which faeces are to be called as 'cold'. Such cases may not be obtained at all. The faeces which are very hard can be tested after homogenizing them with water. When the faeces are watery and do not contain any formed faecal matter, the examination is impossible. But, if some amount of faecal matter is present, it can be collected by concentration method (e.g. revolving in a centrifuge). The utility of this technique requires to be confirmed.

Instead of dropping a small part of faeces into water, the whole stools may be put into water. This method was employed during the present trial. The patient was asked to pass stools in a bed pan containing small quantity (about 1 cm height) of water (to disallow sticking of stools to the bed pan). This bed pan was then filled with water. In this case floating may be complete or partial (i.e. some part floats and the other sinks). The presence and severity of Aam can be inferred accordingly. Sinking of faeces containing Aam occurs essentially because of a higher specific gravity. To be more objective, specific gravity of stool should be determined. The whole faeces should be homogenized with a glass rod or with some other mechanical device such as magnetic stirrer or homogenizer with a flexible stirrer. A known volume of these faeces can be weighed and thus the specific gravity can be calculated. If the specific gravity be more than 1,

the faeces will sink. It is to be noted that determination of specific gravity of stools is a totally new concept for modern medicine.

An Intelligent patient using flush-latrines may tell that his faeces do not float in the latrine. Foul odour and slimy nature are difficult to know with objective criteria. The associated features of Aam such a pain, heaviness, malaise, excess salivation, etc. should always be asked for. Considering the wide variations in these features, it seems that estimating the specific gravity of the faeces would be the best objective criterion for assessment of Aam. It must be noted, however, that steatorrheic faeces float on water because of the lower specific gravity of fats. In steatorrhea, the fats cannot be digested and hence are passed with stools. Thus, it occurs due to Agnimandya. Whether it is to be called as an Aam disease is anybody's guess. Microscopic examination for presence of mucus, red cells and pus cells should be carried out. Stool culture helps in knowing the bacterial origin. This is not usually helpful in diagnosis, as usually the report becomes available only after the patient becomes alright. Many nonpathogenic as well pathogenic organisms harboured in the intestines are normally passed with faeces. The organisms that are isolated, thus, need not be the cause of diarrhoea. Serological test, especially with fluorescent antibodies can be helpful in the diagnosis. Various sensitivity tents can be used in the diagnosis of allergic diarrhoea. In each case of diarrhoea, water and electrolyte loss must be estimated. This can be known by serum electrolytes determination. The severity of diarrhoea in each case should be determined by a Severity Index. Diarrhoea is a feature of many diseases other than Ajeerna⁴⁴. A history of passing worms may be obtained in *helminthiasis*. Children are the usual patients and a history of consumption of clay may be obtained. Serial stool examination may be helpful and a positive report is diagnostic. If the mucus is passed in plenty (with almost no faecal matter) it is to be called as *Pravahika*⁶³. In diarrhoea due to *Grahani*, a history of alternating constipation is to be obtained. *Grahani* is an organic disease of intestines⁶⁴ and demands elaborate investigations before a final diagnosis is arrived. Diarrhoea usually occurs at the time of *eruption of teeth* in small children. *Visuchika* (cholera) is an acute condition in which diarrhoea is severe and is associated with severe vomiting. The condition of the patient deteriorates suddenly and hence requires a prompt treatment. Various *poisons* are known to cause diarrhoea. *Fat Indigestion*, *Adhoga-Amlapitta*, *excessive laxative/purgative intake* and a pure *Vata derangement* are the other causes of diarrhoea.

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आयुर्वेददीपिका च. चि. १५/३८-४१

Chapter 10

OMNIOUS FEATURES IN DIARRHOEA

Ominous features are those which indicate a certain death⁶⁵. No patient can survive when these features appear. Ominous features have been described in almost every disease. This is a probable specialty of Ayurveda. The pathogenesis of these features cannot be described in the usual terms. The features described are usually in lay-terms and consist of news communicated to Vaidya by relatives of the patient or messengers, planetary situations, appearance of entrance gate of the residence of the patient, the dreams of the patient, etc. No treatment has been advocated in these circumstances because it is unlikely to be successful. This does not mean that no treatment should be given to such patients. Until the patient is alive, treatment must be given - perhaps his luck may save him/her even though ominous features have appeared⁶⁶.

Charak has described "complications (Upadrav) in diarrhoea⁶⁷. Almost all of them have been described as ominous features (Rishta Lakshana) elsewhere. Those which are uncovered are:

1. Pravahika - Dysentery and
2. Parikarti - Anal fissures (gripping pain)

The features of Sannipatik diarrhoea have been described by Charak under two distinct headings⁵⁸.

- 1) The features which indicate that an elaborate treatment would be required and that the patient is difficult to be cured although he/she can be cured (Krichrasadhya). If these features are accompanied with complications, the patient is impossible to be cured.
- 2) The features which indicate that the patient is incurable and should not be treated.

The ominous features in diarrhoea as have been described by various classicals are enlisted below:

A) Faeces

- | | | |
|----------------------|---|--|
| <u>Colour</u> | : | <ol style="list-style-type: none">1. Black. Asit - Black/Dark.2. Blue.3. Arun-prabha - Red (like morning twilight).4. Mechak - Dark blue.5. Harit - Green. |
| <u>Odour</u> | : | <ol style="list-style-type: none">1. Like that of garlic.2. Putrid. (Aam-gandhi)3. Like that of dead body.4. Like that of pus (Pooya-gandhi). |

5. Pleasant (Perfume).
 6. Pooti, Visra - Foul.
 7. Fishy
- Consistency** :
1. Solid or containing solid matter.
 2. Bowel evacuations containing no faecal matter or a lot of faecal matter.
- Appearance** :
1. Faeces contain Dhatus.
 2. Faeces containing undigested matter (Aam)-Just like ingested food
 3. Occupied by flies.
 4. Shining, illuminated. (containing Chandrika - aluminated particles).
 5. Containing threads (of mucus).
 6. Kuthit - Putrid.
 7. Ushna, Sheet - Hot or cold.
 8. Achcha Crystal clear (transperant) - Just like water.
 9. Snigdha - Unctuous.
 10. Pichchil- Slimy.

The appearance of faeces resembles with the following:

11. Ghee.
12. Oil.
13. Milk.
14. Curd.
15. Pus (Pooya).
16. Honey.
17. Asav - Liquor.
18. Fat. (Meda)
19. Vasa - oily exudation from muscles.
20. Majja - Bone marrow.
21. Brain (Mastishka).
22. Pieces of liver (Yakrut-khand).
23. Washings of meat (Mamas-dhawan).
24. Vesawar- ambu.
25. Ink
26. Blue moss (Shaiwal - a kind of aquatic plant).
27. Mud-water.
28. Mud
29. Anjan - Collyrium.

30. Ripe jamun fruit (Purple).
31. Manjishtha (Rubia cordifolia) - (Red).
32. Pigeon (whitish grey).

B) Local features

1. Arsha, Pakwa-wali-guda - Haemorrhoids.
2. Parikarti-Anal fissures.
3. Anal prolapse.
4. Sheerna-payu-wali - Torn rectal vessels.

C) General features

1. Thirst.
2. Retention of urine.
3. Gata-ushana - Cold body.
4. Burning sensation.
5. Fever.
6. Oedema.
7. Anaemia.
8. Discolouration (of skin).
9. Loss of skin complexion.
10. Loss of Mamsa (muscular tissue).
11. Loss of strength (weakness).
12. Loss of hair - alopecia.
13. Muktanala Collapsed vessels (veins) - Peripheral circulatory failure.
14. Depression of digestive power (Agni).
15. Anorexia.
16. Hiccups.
17. Vomiting - Vomitus variously coloured.
18. Anaha, Adhman - Flatulence, massive abdominal distention evident even from a distance.
19. Pravahika - Dysentery, straining at defaecation.
20. Pain - Mild to colicky (generalised - mainly abdominal).
21. Pain in the flanks.
22. Pain in the bones.
23. Joint pain.
24. Inflammation of the phalangeal joints.
25. Cough.
26. Dyspnoea.
27. Visheshta - Abnormal movement.

28. Vikshepa - Shaking, moving to and fro.
29. Scratching of Chin.
30. Viprakeerna-mukha - Outstretched (wide) face.
31. Biting of own tongue.
32. Gatra-paristabdha - Paralysis of all limbs.
33. Stimit - Motionless.
34. Vikal - Unnerved, sinking, dropping.
35. Tama - Darkness in front of eyes
36. Bhrama- Giddiness.
37. Arati - Languid, restless.
38. Pralap - Talking of nonsensical words.
39. Sam-moha - Confusion (mental), Insensibility.
40. Mada - Inebriety, Insanity, Delirium.
41. Moorchcha - Fainting.
42. Avedana - Insensibility to pain - paresthesia.
43. Weak patients.
44. Aged patients.
45. Infants.
46. Young patients with tremendous derangement of Dhatus.
47. Prateep - Retrograde changes towards death.

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तृष्णोष्णदाह मूर्च्छादीन् चैषां विद्यात् उपद्रवान् ॥ च. सि. ८/२२

Chapter 11

ABDHATU AND DIARRHOEAL DEHYDATION

The factor of dehydration is usually never adequately stressed by Ayurvedic Physicians. The cause for this inadequate stress seems to be scattered references about Abdhtu (bodily water) and no direct mention of Abdhatu in the chapters of diarrhoea by most of the Ayurvedic classicals. Many of the diarrheas get cured themselves with adequate replacement of water and electrolytes and an absolute bed rest. This points towards the importance of Abdhatu in case of diarrhoea. Although cases of diarrhoea with severe dehydration were not selected during the present trial and no intravenous fluids were administered as far as possible, this chapter is presented with an intention of collection of references about Abdhatu and an establishment of correlation between Ayurvedic descriptions and modern knowledge about loss of water and electrolytes.

A man weighing 65 kg. contains 40 litres of water in his body. This body water is distributed as follows:

Intracellular water	:	20 litres.
Extracellular water	:	12 litre. (Interstitial fluid - 9-10 litres + Plasma 2-3 litres)

The amount of water which is contained in the body shows its importance in the bodily functions. Ayurvedicians, too, have described the importance of water in the body in their own way⁶⁹. Water, which occupies whole of the universe, is essential for the life of human beings. One may be able to live without food but can never spare water. Hence, unless it is specifically contraindicated, no thirsty person should be restricted from consuming water. Excess thirst leads to delirium (and later on coma) and further to death (cf. dehydration). "Soma" has been called as "Prana" (life) by Sushrut⁷⁰. This soma includes all fluid content of the body. Abdhatu means bodily fluid (water)⁷¹. Srotasas (Channels) are now being accepted to be more functional (physiological) than organic (anatomical) entities of the body. Such Srotasas have been described for Abdhatu⁷². The features of their abnormalities have also been described. Everything in the body except Vayu has got a contribution of Apya-mahabhoot during its formation⁷³.

Vijayrakshit has stated that the usual and main passage of Abdhatu is through urine⁷⁴. Another convincing fact about Abdhatu is that the amount of various bodily elements has been described in "Anjali" measures⁷⁵. Anjali is a measure of fluid volume. Thus, as their amounts are described in fluid volumes, they do contain water within them. Thus Rasa, Rakta, Meda, Majja, Shukra, Oja, Kapha, Pitta, Sweda (Sweat), Mootra (Urine), Pureesh (Faeces), Vasa, Mastishka, Lasocki, Stanya, Raja and Retas are fluid in nature and contain water (Abdhatu).

Diarrhea by definition means loss of plenty of fluids per annum. This indicates that dehydration and associated deficits are to be expected in diarrhoea. Charak and Kashyapa have directly

referred to loss of Abdhātu in their descriptions elsewhere⁷⁶. It is interesting to note that deranged Samanavayu, which is the main culprit in diarrhoea, is 'situated' in Udakwahasrotas (channels of water)⁷⁷. If loss of Abdhātu is restricted to water loss only, the deficit of electrolytes remains uncovered. Electrolytes are usually lost along with diarrhoeal faeces and the deficit is responsible for any of the complications. Average values (with range in brackets) of volume and electrolyte content of fluid losses in diarrhoeal stools per day are estimated as follows:

Volume	500 - 17000 ml.
Sodium (Na ⁺)	120 (20 – 160) mEq / liter.
Potassium (K ⁺)	25 (10 - 40) mEq/1iter.
Bicarbonate (HCO ₃ ⁻)	45 (30 - 50) mEq/1iter.
Chloride (Cl ⁻)	90 (30 - 120) mEq/1iter.

Rasadhātu is the first of the Dhatus to be formed in the body and to be lost from the body when losses such as those in diarrhoea take place. Rasadhātu has been many a time compared with plasma. Thus, serum electrolytes can be easily covered up by the term 'Rasadhātu'. Involvement of Dhatus and their lack have been described in cases of diarrhoea^{30,78}. Thus, it is to be expected that the initial deficit to occur is that of Rasadhātu.

Although the features of deficit of Rasadhātu have been described in classical, those of Abdhātu have not been described. It is obvious that there is no much of difference between diarrhoea and therapeutic purgation (Virechana) as far a loss of water and electrolytes is considered. The management during post-purgation and post-diarrhoeal period has been described to be of same nature⁷⁹. Hence, although the features of lack of Abdhātu have not been described in ayurvedic texts, they can be inferred from the description of overdose of purgation. The general features that have been described to occur due to heavy purgation are as follows^{31,80}:

1. Thirst.
2. Dryness of throat.
3. Loss of strength (Bala).
4. Loss of voice (Swara) - Inability to speak.
5. Burning sensation.
6. Pain (in abdomen).
7. Prolapse of rectum.
8. Netra-praveshana - Sunken eyes.
9. Bhrama - Giddiness.
10. Moorchha - Fainting

Thirst, dryness of the body, headache, giddiness, tremors, weakness, hollowness of mind, and various features relating to heart (pain, palpitations, etc.) have been described in Rasa-deficit⁸¹.

The ominous features described in diarrhoea can occur as a result of water and electrolyte deficiencies. The features of these deficiencies, as have been described by textbook of modern medicine are enlisted below. The equivalent features in Ayurveda are also given. Those marked with asterisk* are described either in Rasa-deficit or Abdhātu-deficit. Most of the remaining features have been described as "Rishta-lakshnas". (ominous features). Those features that remains uncovered are marked by a minus (-) sign.

Water deficit – Dehydration

1. Thirst - Trishna*.
2. Skin - Dehydrated appearance, doughy consistency. – Shosha*, Rookshata*, Varna-hani.
3. Flushing of skin - Vaivarnya.
4. Acute weight loss - Bala Mamsa - Kshaya, Glani* (which has been interpreted as Apachaya by Arundatta)⁸².
5. Dry mucous membrane - Shosha*
6. Mental confusion - In later stages, hallucinations and delirium occur. - - Moha, Pralap. Mada.
7. Vertigo - Bhrama*.
8. Dysphagia - Kantha-shosha*.
9. Oliguria – Mootranigraha.
10. Tachycardia - Hrit-drava*.
11. Hyperpnea - Shwas.
12. Collapsed veins - Mukta-nala.
13. Coma -

Sodium deficit – Hyponatremia

1. Extracellular dehydration - Shosha*.
2. Sunken eyes Reduction of intraocular pressure - Netra – praveshana*.
3. Dry, wrinkled skin with loss of elasticity. (appears older than the age of the patient) – Rookahata*, Varna-hani.
4. Laxity of subcutaneous tissue.
5. Contracted peripheral veins containing dark blood - Mukta-nala, Vaivarnya.
6. Cold skin and limbs - Gata-ushman.
7. Tongue coated, dry, brown (may be parched in advanced cases) – Shosha*, Agni-hani.
8. Hypotension.
9. Tachycardia - Hrit-drava*.

10. Scanty, dark urine with high specific gravity (Prerenal uraemia in later stages)- Mootra-nigrah.

Bicarbonate and chloride-deficit - Metabolic acidosis

1. Dry lips – Shosha*, Rookshata*.
2. Parched tongue - Agni-hani.
3. Hyperpnea - Rapid, deep, unremitting respirations (Kussmaul's breathing) - Shwasa.
4. Hypertension⁻.
5. Tachycardia - Hrit-drava*.
6. Strongly acid urine⁻.
7. Mental confusion - Moha, Pralap.
8. Coma -

Potassium deficit – Hypokalemia

1. Impaired neuromuscular transmission - Vata-derangement due to lack of Dhatus⁸³ (Vataprakop due to Dhātu-kshaya).
2. Apathy - the patient has an intense drowsiness, lies listless in bed and desires to be left in tranquility in bed - Arati.
3. Slow and slurred speech - fails to complete sentences - Pralap.
4. Mental confusion - Moha.
5. Generalized muscular weakness (Hypotonia) – Atishayan, Viklam, Sharma*.
6. Reflexes lost - paresis or flaccid paralysis - Stimit, Gatrāparistabdha, Mamsa-hani.
7. Paresthesia - Avedana.
8. Polyuria - Incontinence of urine⁻.
9. Thirst (due to polyuria) - Trishna*.
10. Oedema (due to low cardiac output) - Shotha.
11. Impaired ventilation - gasping, rapid, shallow respirations - Shwasa.
12. Hypotension⁻.
13. A - V block - cardiac arrest - Features relating to heart in Rasakahaya*.
14. Bounding pulse⁻.
15. Abdominal distension amounting to paralytic (adynamic) ileus which is characterized by -
 - i) Continuous mild to moderate pain in abdomen with minimal nonlocalized tenderness - Arti.
 - ii) Distension (characteristic feature of ileus) which is generalized and may be massive-Adhman which is evident even from a distance.
 - iii) Absence of intestinal sounds (borborygmus)⁻.

iv) Vomiting which may later become faecal - Vivarna chardi.

It is untrue to say that Ayurveda does not advocate any treatment when ominous features appear⁶⁶. Treatment must be administered until the patient is alive. Although most of the above features are ominous ones according to Ayurveda, the treatment cannot be denied. This treatment consists of adequate replacement of water and electrolytes. Usually glucose too is administered along with water to meet the caloric requirements of the body. It is to be noted that 1 pint (500 ml.) of 5% glucose consists of 25 gm. of glucose which can produce only 100 Kcal of energy.

Mantha has been advocated in the treatment of excess purgation⁸⁴. Mantha is to be prepared of sweet and/or sour articles (drugs) which are to be mixed with water. Mantha gives an immediate strength (Santarpana), gives stability to the body (Sthairya - by way of replacement), improves the colour of the skin and allays thirst and weakness. Santarpana action can be immediate or delayed. Mantha causes immediate (Sadya) Santarpana because it is of a fluid (watery-Drava) and cold (Sheet) nature and hence is absorbed and assimilated in the body very quickly⁸⁵. From the above description it is evident that Mantha preparation has been advised for an immediate replacement of fluids in the body. The therapy of excess purgation and that of diarrhoea being similar, Mantha can be administered in cases of diarrhoea too.

As Manths contains a large volume of water one may think that Santarpan therapy is to replace the water loss only. This is not so. The drugs that have been advised for Santarpan⁸⁶ contain a substantial quantity of various electrolytes. These drugs and their relevant constituents are enlisted in Table 11.1.

Table 11.1**ENERGY AND MINERAL COMPOSITION OF SANTARPANA DRUG**

Values per 100 gms. of edible portion. - Not known *Present Basic nature = ml of 0.1 N base

Name	Energy Kcal	Carbohydrates Gm	Minerals Gm	Sodium Mg	Potassium Mg	Magnesium Mg	Basic nature
1. Kharjoor (Fresh dates) Phoenix dactylifera	-	33.8	1.7	-	-	-	-
2. Mrudweeka (Raisins- partially dried grapes) Vitis vinifera	-	13.55-22.94	0.2-0.9	-	-	-	-
3. Mandhook: Fruits Bassia Lactifolia: Dried flowers	110 -	22.7 50-60	0.7 4-8% Ash	- -	- -	- -	- -
4. Parooshaka (Phalsa) Grewia asiatica	-	14.7	1.1	4.4	351	72	158
5. Sharkara (Sugar)	400	-	-	-	-	-	-
6. Ghrita (Ghee)	900	-	-	-	-	-	-
7. Kshoudra (Honey)	-	79.5	0.2	-	-	-	-
8. Laja (Roasted grain)	-	-	-	-	-	-	-
9. Dadima (Pomegranate) Punica granatum.	-	14.5	0.7	0.9	133	12	35
10. Aamalaka (Amla) Phyllanthus emblica.	-	13.7	0.5	5	225	-	-

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मंजिष्ठाभं मस्तुलुंगोपमं वा विस्त्रं शीतं प्रेतगंधि अंजनाभम् ॥
राजीमद्वा चन्द्रकैः सन्ततं वा पूयप्रख्यं कर्दमामं तथोष्णम् ।
इन्यादेतत् यत् प्रतीपं भवेच्च क्षीणं हन्युः चोपसर्गाः प्रभूताः ॥
असंवृतगुदं क्षीणं दूराध्मातमुपद्रुतम् ।
गुदे पक्वे गतोष्माणम् अतीसारकिणं त्यजेत् ॥ सु. उ. ४०/१९-२१; सु. सू. ३३/१९; च. चि. १९/९, च. सि. ८/२२; वा. नि. ८/१५-१६; वा. शा. ५/८०-८४; हारीत तृतीय ३/७५-७८; भैलचिकित्सा अ. १०; मा. नि. अतीसारनिदानम् १०-१८; यो. र. अतिसार १८-१९ पृ. २५६; भा. प्र. म. खं. अतिसार १२४-१२७ पृ. ४११
- ६९ जीविनां जीवनं जीवो जगत्सर्वं तु तन्मयम् (वारिमयम्) । भा. प्र. म. रवं. ज्वराधिकार ७४, पृ. २३१
पानीयं प्राणिनां प्राणाः तदायतं हि जीवनम् ।
तस्मात् सर्वास्ववस्थासु कैश्चिद्वारि न वार्यते ॥
अन्नेनापि विना जन्तुः प्राणान् धारयते चिरम् ।
तोयाभावे पिपासार्तः क्षणात् प्राणैर्विमुच्यते ॥
तृषितो मोहमायाति मोहात् प्राणान् विमुंचति ॥
तस्मात् प्राणस्य रक्षार्थं वारि देयं पिपासवे ॥ राजवल्लभनिघण्टु, द्वितीय परिच्छेद १२१-१२३
७०. x सोमो x x x प्राणाः ॥ सु. शा. ४/३
७१. अपां धातुः कायद्रवः x x x । निबंधसंग्रह, सु. उ. ४०/६
७२. सु. शा. ९/१२; च. चि. ५/८
७३. भानुमती टीका सु. सू. १५/५-८
७४. अतीसारे हि संप्राप्तिरियं - यन्मूत्रोचितः अपि द्रवधातुः गुदेनैव प्रवर्तते, सर्वस्यैव अब्धातोः गुदप्रवृत्तत्वात्, यदा तु मूत्रमार्गेण प्रवर्तते तदा अपि पुरीषप्रवृत्तिसमकालमिति । मधुकोष, मा. नि. अतीसारनिदानम् २३
७५. वा. शा. ३/८०-८१
७६. तद्यथा - दशोदकस्य अंजलयः शरीरे स्वेन अंजलिप्रमाणेन, यत्सु प्रत्ययमानं पुरीषम् अनुबध्नाति अतियोगेन तथा मूत्रं रुधिरम् अन्यांश्च शरीरधातून् x x x तदुक्तं दशांजलिप्रमाणम् x x । च. शा. ७/१५
दशैवांजलयः प्रोक्ता उदकस्य त्वगाश्रयाः ।
तेनोदकेन पुष्यंति धातवो लोहितादयः ।
अतिसारे पुरीषं च ततो मूत्रं प्रवर्तते । का. सं. पृ. ७८
७७. स्वेददोषाम्बुवाहिनी स्तोतांसि समाधिष्ठितः ।
अन्तरग्नेश्च पार्श्वस्थः समानः अग्निबलप्रदः ॥ च. चि. २८/८

- ७८ तदा (उत्तरकाले) हि रोगस्वभावात् धात्वपचयो अवश्यंभावि x x । सर्वांगसुंदरा, वा. चि. ९/१
७९. तस्मात् कार्यः परीहारस्त्वतीसारे विरिक्तवत् ।
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८०. च. सू. १६/९-१०; च. सि. ६/४५-४६; सु. चि. ३३/२४
८१. रसे रौक्ष्यं श्रमः शोषो ग्लानिः शब्दासहिष्णुता । वा. सू. ११/१७; हारीत तृ ९/१८; सु. सू. १५/९; च. सू. १७/६४
८२. ग्लानिरपचयः । सर्वांगसुंदरा, वा. सू. ११/१७
८३. स्वे स्थाने मारुतः अवश्यं वर्धते कफसंक्षये ।
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८४. लाजचूर्णः पिबेत् मनन्थम् अतियोगहरं परम् । च. सि. ६/४९
८५. सद्यः संतर्पणो मन्थः स्थैर्यवर्णबलप्रदः ।
- अत्र रुक्ष सत्कृतस्यापि मन्थस्य द्रवत्वशैत्यदेहानुसारित्वैः सद्यः संतर्पकत्वं भवत्येव, x x स्नेहादि
बृंहणद्रव्ययोगात् कालन्तरतर्पकत्वमपि भवति । आयुर्वेद दीपिका, च. सू. २३/३९
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- मन्थः सद्योबलकर इति सद्योबलकरः अयं नोत्तरकाले बलकरो रुक्षत्वात् । निबंधसंग्रह सु. सू. ४६/३८६
८६. जलं खर्जूरमृद्धीका मधूकैः सपरुषकैः ।
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तर्पणं सघृतक्षौद्रं लाजचूर्णः प्रदापयेत् । x x ।
मन्दाग्नेरम्लसात्म्याय तत् साम्लमपि कल्पयेत् ।
दाडिमामलकैः विद्वानम्लार्थं चानुदापयेत् ॥ च. चि. ४/३३-३५

Table 11.1**ENERGY AND MINERAL COMPOSITION OF SANTARPANA DRUG**

Values per 100 gms. of edible portion. - Not known *Present Basic nature = ml of 0.1 N base

Name	Energy Kcal	Carbohydrates Gm	Minerals Gm	Sodium Mg	Potassium Mg	Magnesium Mg	Basic nature
8. Kharjoor (Fresh dates) Phoenix dactylifera	-	33.8	1.7	-	-	-	-
9. Mrudweeka (Raisins- partially dried grapes) Vitis vinifera	-	13.55-22.94	0.2-0.9	-	-	-	-
10. Mandhook: Fruits Bassia Lactifolia: Dried flowers	110 -	22.7 50-60	0.7 4-8% Ash	- -	- -	- -	- -
11. Parooshaka (Phalsa) Grewia asiatica	-	14.7	1.1	4.4	351	72	158
12. Sharkara (Sugar)	400	-	-	-	-	-	-
13. Ghrita (Ghee)	900	-	-	-	-	-	-
14. Kshoudra (Honey)	-	79.5	0.2	-	-	-	-
8. Laja (Roasted grain)	-	-	-	-	-	-	-
9. Dadima (Pomegranate) Punica granatum.	-	14.5	0.7	0.9	133	12	35
10. Aamalaka (Amla) Phyllanthus emblica.	-	13.7	0.5	5	225	-	-

Chapter 12

PATHOGENESIS OF DIARRHOEA

Diarrhoea manifests itself as a result of three basic events (Fig. 12.1). These are as follows:

1. Depression of Agni (Digestive Capacity).
2. Derangement of Vayu (Abnormal movements).
3. Derangement of Abdhatu (Imbalance of bodily water).

These three events are interrelated and occur hand in hand. It cannot be stated as to which event is the first to occur, but certain inferences can be derived from the available literature. Possibly depression of Agni is the first event to occur and the other two events occur as a result of it. These three events are dealt with at length in the following paragraphs.

Depression of Agni (Agnimandya)

Although all diseases occur because of deranged Agni, those of digestive tract are more common⁸⁷. Diarrhoea is a disease of Antahkostha and occurs because of deranged Annavahsrotas (digestive tract). Vagbhata and Charaka⁸⁸ have described diarrhoea as a disease of digestive tract. Antahkostha includes Anashaya and Pakwashaya as well as Amapakwashaya i.e. the whole gastrointestinal tract including liver and pancreas. The Ashyas may be called as functional entities and thus the three basic functions of gastrointestinal tract i.e. secretion, digestion and absorption are referred to as Amashaya, Amapakwashaya and Pakwashaya respectively. Kashyap has called Grahani (mainly small intestine - digesting organ) as the seat of diarrhoea⁸⁹. Chakrapani⁹⁰ has stated that Grahani is a tube and is the site of Agni. This clearly indicates that anatomically, Grahani means intestines. Charak and his commentators⁹¹ have described Pakwashaya (large intestine) as the seat of diarrhoea. Charaka has used the term "Pureeshashaya" (meaning Pakwashaya) while describing the pathogenesis of individual types of diarrhoea. While describing the importance of Langhan (fast) in diarrhoea, Vagbhata has stated that Amashaya (stomach - secretory part of gastrointestinal tract) is the seat of diarrhoea⁹². Amashaya is a functional entity and thus any organ which plays a secretory role in digestion of food stuff may be called as Amashaya.

From the above description it can be inferred that Amapakwashaya and Pakwashaya (mainly small and large intestines) are the chief seats of diarrhoea - this correctly correlates with the present understanding of modern medicine.

It is enlightening to know that Pureeshdharakala and Pittadharakala can also be referred to in pathogenesis of diarrhoea⁹³. In gastrointestinal tract, Kala includes mucosal surface (secretory

and absorptive) as well as muscular part (movements). The Pureeshdharakala is the wall of Pakwashaya (large intestine) and takes part in formation of Mala (i.e. faeces, urine and sweat) by way of absorption. The Pittadharakala is the seat of Agni and is also called as Grahani. It is the wall of Amapakwashaya (small intestine) and takes part in digestion (by way of its secretions), absorption, and propulsion of the chyme. Thus, with the reference of these two Kalas, the pathology within the intestines becomes clearer and correlates with that described in modern medicine. It should be stressed that a deranged Kala include inflammation and allied abnormalities of the mucosa and the mechanical disturbances (hypermotility, etc.) as well.

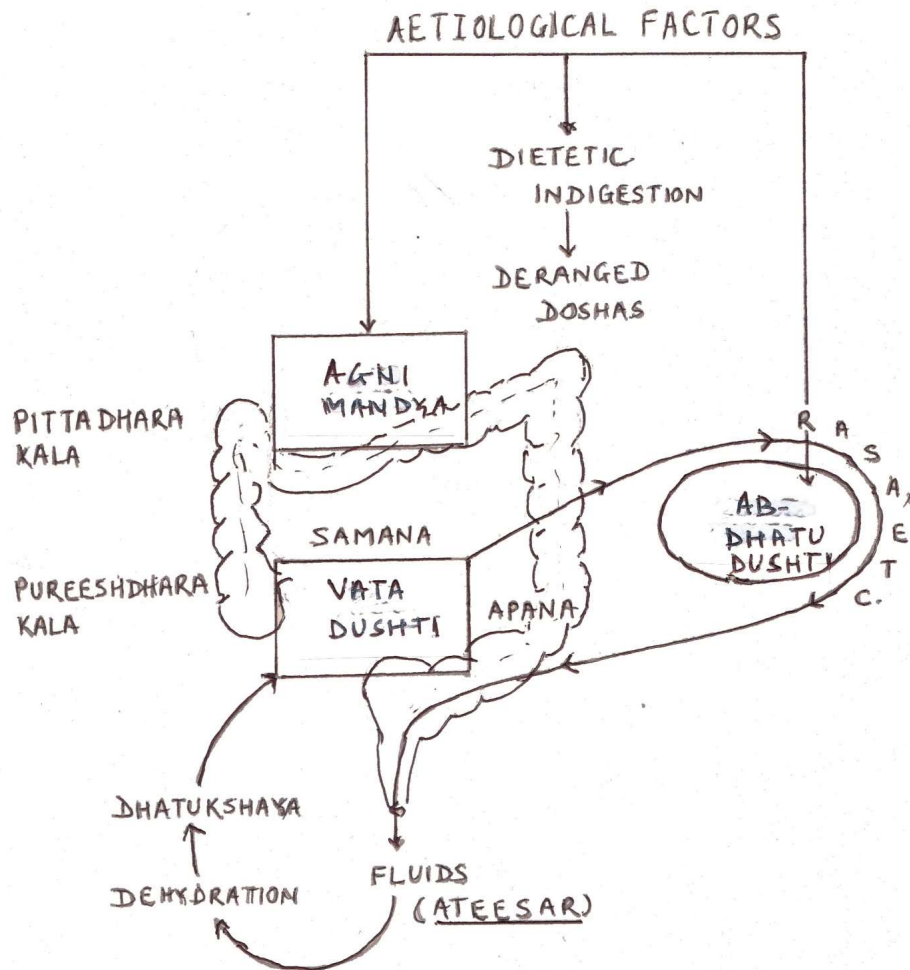


Fig 12.1 Pathogenesis of Doshik diarrhoea (Ayurvedic view) (Schematic)

Sushruta and Madhav have described depression of Agni to be the first event which occurs on the consumption of aetiological factors⁹⁴. Charak⁹¹ has described derangement of doshas to occur first which further leads to depression of Agni. Vagbhata has stated that derangement of Vayu is the first event to occur⁹⁵. The description of Charak seems to be most acceptable. Undigested foods (Vidagdhahar- Ajeerna) get mixed up with increased doshas and cause diarrhoea⁹⁶. Digestion of foods is solely attributed to Agni. Aam is formed because of depressed

Agni⁹⁷. As every diarrhoea is initially in an Aam stage, depression of Agni in the basic initial event in every doshik diarrhoea^{19,20}. Even in diarrhoea due to grief, Sushruta has mentioned the depression of Agni⁹⁸. Depression of Agni occurs as a result of fluidity of Pitta in Pittaja diarrhoea and heavy, sweet, cold and unctuous nature of Kapha in Kapha diarrhoea⁹¹.

Agnimandya being the basic event as far as pathogenesis and management are concerned, its Vikalpa Samprapti requires to be elaborated. This can be very well done by a perusal of aetiological factors³⁸⁻⁴⁶ of Ajeernajanya Dravamalapravritti and application of Samanya-Vishesha Siddhanta as well as Satkaryavada. Agni consists of a predominance of Teja-Mahabhuta. The most important qualities of Agni are that it is Teekshna, Ushna, Laghu, Sara and slightly Snigdha. Guru and Sthoola articles of diet suppress the Laghu nature of Agni. Exceedingly Sheet articles depress the Ushna property. Pichchila and exceedingly Snigdha articles derange the slightly Snigdha property of Agni. Excessive intake of water as well as swimming, while depressing the Ushna nature because of their Sheeta, abnormally increase the Sara property of Agni. This leads to Ateesar. Sleeping in the afternoon increases Snigdha property in the body. This Snigdha has deleterious effects on Teekshna nature of Agni and thus causes Agnimandya. Psychological upsets such as grief and fear cause Vata-dushti. This abnormal Vayu, because of its Rooksha, Sheeta and such other properties causes Agnimandya. As stated by Vijayarakshit⁴³, people with psychological upset are unable to consume sufficient food which causes Vata-Prakopa due to Dhatukshaya. The above Vikalpa- Samprapti of Agnimandya indicates that it occurs as a result of derangement of almost all properties of Agni, especially Ushna, Teekshna, Laghu and Sara.

A reference must be made to Kledaka Kapha and Pachak Pitta. Kledaka kapha helps in digestion by way of forming chyme from foods. Pachak pitta is the one which digests foods. Kashyap says that diarrhoea occurs because of deranged Vata and Pitta⁹⁹. Normally, Pachak Pitta is not of a fluid nature. When it becomes fluid, it depresses the Agni.

Derangement of Vayu (Vatadushti)

Vagbhata has described that deranged Vayu (due to aetiological factors) displaces Abdhata which in turn depresses Agni and makes the faeces liquid⁹⁵. This indicates the preference to derangement of Vayu according to Vagbhata.

Defaecation is a function of Apana-Vayu. Increased frequency of defaecation clearly indicates the derangement of Apana-Vayu. Sushruta has described that diarrhoea occurs because of deranged Saman-Vayu¹⁰⁰. Saman-vayu, by way of maintaining the power of Agni, digests the food stuff. It is situated in the channels of sweat, doshas and water⁷⁷. In light of the features of indigestion, depressed Agni, and dehydration, Saman-vayu seems to be mainly deranged in cases of diarrhoea. The propulsion of food as well as its mixing by way of intestinal movements

can be attributed to Saman-vayu. The site of these movements is Pittadharakala (i.e. small intestines). Thus, derangement of Saman-vayu as well as that of apana-vayu covers the factor of hypermotility in cases of diarrhea.

The cause of abnormal Vayu may be direct or indirect. Dry, cold, foods and such other causes are direct ones. Lack of dhatus (Dhatukshaya) can cause the abnormality in an indirect manner. Vijayrakshit⁴³ has referred to this while commenting on sparing diets (due to anorexia) in case of diarrhoea due to grief. Inadequate foods cause Dhatukshaya (lack of Dhatus) and thus increase Vayu. Dhatukshaya may also be looked upon as a functional entity. Lack of a Dhatu depresses its activities in the body and thus an imbalance of various bodily functions occurs. This has been termed as increase in Vayu due to Dhatukshaya. Especially in the later stages of diarrhoea, this Dhatukshaya and the associated Increase in Vata-activities is very important. An increase in bodily water (Abdhatu) in diarrhoea may be speculated to cause a "dilution" of Dhatus and thus sort of functional deficit. This type of "Dhatukshaya", too, leads to Vata derangement. Charak has stated⁸³ that Vayu increases due to lack of Kapha and as this increased Vata can kill the patient, it should be treated promptly.

Imbalance of Abdhatu (Abdhatudushti)

Sushrut, Madhav and Vagbhata have made a direct mention of Abdhatu (bodily water) whereas while describing the pathogenesis of Vataja diarrhoea, Charak has mentioned that urine and sweat (the "fluid" excretas) is brought to large bowel and are expelled out. Abdhatu means water content of the body. Rasa (plasma), Jala, urine, sweat, Meda, Kapha, Pitta, Rakta, etc. contain Abdhatu¹⁰¹. It is interesting to note that all bodily elements, except Vatadosha, contain water⁷³. As dehydration occurs in diarrhoea, the water from these elements is extracted out leading to a sort of functional derangement (Dhatukshaya).

Various aetiological factors in diarrhoea, while causing a derangement of Agni and Vayu, derange the Abdhatu (do not increase it). This deranged Abdhatu is brought to the intestines by the action of overacting Vatadosha. This water in intestines further depresses Agni. Lack of water in the tissues causes a functional derangement of the respective Dhatu (Dhatukshaya) and thus further upsets the deranged Vatadosha. Thus, the vicious cycle, initiated at depression of Agni, continues until the Vata dosha comes under control. The abnormality of the Udak-vahasrotas is mainly of the nature of Vimarga-gaman. The Abdhatu instead of functioning at its usual sites is brought out by the deranged Vayu in the intestines.

A summary of the above description is given below:

1. Depression of Agni
 - Pachak Pitta, Saman Vayu, Kledak Kapha.
 - Amapakwashaya, Annavaahasrotas.
 - Pittadharakala, Pureeshdharakala (mucosal abnormalities).

2. Derangement of Vayu - Due to direct or indirect (Dhatukshaya) causes.
 - Saman and Apana-vayu (Hypermotility).
 - Pureeshvahasrotas.
3. Imbalance of Abdhatu - Udakvahasrotas.
 - Abdhatu brought into intestines by Vayu.
 - Expelled with faeces.
 - Dhatukshaya - further Vata derangement.

The pathogenesis of individual types of diarrhoea is described below:

1. **Vataja Diarrhoea**⁴³ - The various aetiological factors derange the Vayu and depress the Agni. By way of forcing urine and sweat towards large intestine, the deranged Vayu liquifies the faeces and thus causes diarrhoea.
2. **Pittaja Diarrhoea**⁴³ - The various aetiological factors provoke Pitta which, due to its fluid nature, depresses Agni (just as water depresses fire). The faeces are broken down due to hot, liquid and fluid nature of Pitta and thus diarrhoea is produced.
3. **Kaphaja Diarrhoea**⁴³ - The various aetiological factors cause a provocation of Kapha which being heavy, sweet, cold and unctuous depresses the Agni. Spreading down the colon, this watery Kapha liquifies the faeces and causes diarrhoea.
4. **Sannipatik Diarrhoea**⁴³ - In a person with depressed Agni, the aetiological factors provoke all the three doshas which further depress the Agni, reach the colon and cause diarrhea. These morbid doshas excessively vitiate blood and other bodily elements (Dhatus) and accordingly variously coloured faeces are passed.
5. **Bhavaj and Shokaja Diarrhoea**^{12,98} - Fear and grief provoke Vayu which in turn produces diarrhoea. The factor of Manas doshas e.g. Raja and Tama is also involved. Sushrut has described the diarrhoea due to grief as follows: The suppressed tears of a bereaved person of sparing diet, on depressing the Agni, reach down the intestines. They freely mix with and vitiate the local blood in the intestines which in turn becomes dark red (like Kakananti - Gunja).
6. **Amaja Diarrhoea**⁶¹ - The doshas get deranged and aggravated as a result of unassimilated chyme (Aam). These doshas disturb the bowel, provoke various Dhatus and Malas (body elements and excreta) and cause diarrhoea.

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मधुकोष मा. नि. अतिसारनिदानम् ४

Chapter 13

PRINCIPLES OF MANAGEMENT OF AJEERNAJANYA DRAVAMALAPRAVRITTI

This type of diarrhoea is due to a predominance of Aam (undigested matter). As every diarrhoea manifests in its Aam stage, the therapy is bound to be directed towards Aam. The basic principle of therapy, thus, is Aam-panchan. This can be achieved in various ways which are as follows:

1. Upeksha (wait and watch)¹⁰²

Every diarrhoea is caused by abnormal doshas which remain in the body. This abnormality is aggravated by the stagnated Aam during the initial stages. These Doshas are required to be removed from the body. Diarrhoea is a natural process taking place in the body to expel out these accumulated Doshas. Upeksha of diarrhoea allows the body to act in its own way in dealing with the abnormal Doshas.

2. Langhan (Fast)¹⁰³

Fasting is the treatment of first choice in every Aam-disease. As the Agni does not get any fuel (food) for its digestive function, it utilizes the Aam present in the body. Thus, fasting acts as an Aam-pachan measure. When a total fasting cannot be carried out, a partial fasting can be advised. This includes consuming food in small quantities, and/or consuming foods which are 'light' to digest e.g. roasted grains. The diet may be treated (Samskar) by various Deepana drugs such as Pippali (Piper longum), to make it suitable for an easy digestion.

3. Vaman (Emesis)¹⁰⁴

When abdominal pain, flatulence and nausea are severe and the faeces are large and are very fluid (? solid) in consistency, therapeutic emesis is to be advised. This causes an expulsion of accumulated Doshas and thus relieves the patient of his/her features. The expulsion of Doshas in Vaman occurs in an exactly opposite direction as compared to that of the disease. This helps in establishing the normal Vata-action (Gati). Emesis is to be given with hot salt water.

4. Anuloman (Purgation)¹⁰⁵

It is stated earlier that diarrhoea is a response of body towards bodily abnormal doshas whereby these Doshas are expelled out. If this response be poor, as manifested by frequent small motions, straining at defecation, and associated abdominal pain, some laxative is indicated. The best drug in this respect is Haritaki (Terminalia chebula). Hareetaki also causes Aam-pachan (especially when combined with Pippali). It should be administered along with lukewarm or hot water so as to avoid griping pain in abdomen.

With the purgation, all abnormal Doshas are expelled out and the patient feels 'light', his digestive power (Agni) increases, and he is cured.

5. Aam Pachan¹⁰⁶

The above therapy is that of a shodhan type whereas Aam-pachan is Shaman treatment. When Shodhan cannot be given, Aam-Pachan drugs are to be administered. They are also used in the post-shodhan period to destroy the residual Aam. These drugs are normally of Ushna (hot), Teekshna (piercing) and Laghoo (light) nature and thus dissolve the Aam. Shunthi (zingiber officinale) is the best Aam-pachan drug. Hareetaki, Patha (Cyclea peltata), Musta, (Cyperus rotundus), Vacha (Acorus calamus), Pippali, Dhanyapanchak, Shankhabhasma, Sanjeevani-vati are some of the other drugs having a similar action.

6. Stambhan¹⁰⁷

Continuation of diarrhoea cannot be advised in very young, very old, Vatik, Paittik, pyrexia, very weak and/or a patient with Dhatukshaya and with profuse abnormal Doshas who has passed a lot of stool (along with water). In such cases, stoppage of diarrhoea is indicated, even though the abnormal doshas are not expelled out in such treatment. Drugs such as Jateephala (Myristica fragrans), Bhanga (Cannabis sativa), Ahiphena (Papaver somniferum), etc. can be used in such cases. The Pachan-drugs (such as Shunthi) are many times of a Grahi-nature and thus lead to 'formed' stools.

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क्षीणधातुबलश्चापि बहुदोषः अतिविसृतः ॥

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यदा तु दुर्बलः पुमान् क्षीणश्चामः तदा प्रथमम् उपेक्षया प्रवर्तनं कृत्वा संग्रहणम् कर्तव्यम्,
तस्यां हि अवस्थायाम् असंग्रहणे आतुरस्य बलभंशात् मरणमेव स्यात् । आयुर्वेददीपिका,
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Chapter 14

SHUNTHI (ZINGIBER OFFICINALS) - GENERAL CONSIDERATIONS

It is a common observation that many old ladies administer *Gingiber officinale* to the patients with diarrhoea; it is usually mixed with Gur and Ghee. *Gingiber officinale* has been termed as the medicine of the world (*Vishwabhesaj*) by the Ayurvedic classics. This word indicates towards the easy availability and ample remedial outlets of this drug.

Gingiber is quite easily available in plenty in every part of the world. It can be cultivated even in a kitchen garden. This availability makes it cheap - an asset which makes it very suitable as far as the poor countries such as ours are concerned. Gold is a very good therapeutic agent but it is too costly to be used by an average Indian. *Balsamodendrom mukul* is very good against Vatik ailments, but it is cultivated only in some part of India such as Rajasthan. Ginger, in contrast to these and many other drugs, is plentifully and cheaply available in any part of world. In fact, Ginger is one of the very few drugs which appropriately fits into the definitions of an ideal drug as has been described in the Ayurvedic literature².

Ginger has been described as being effective against all the doshas and thus can be used in many ailments in one or the other form. The wide acceptance of Ginger can be easily demonstrated by going through the contents of certain compound drugs such as *Ashokarishta* (for uterine disorders), *Kanakasav* (for bronchial asthma), *Kankayanguti* (for haemorrhoids), *Punarnavadikwath* (for ailments of urinary tract), *Shireeshadivarti* (for nasal application in headaches), etc. *Trikatu* - a combination of *Gingiber officinale*, *Piper longum* and *Piper nigrum* - has a similar wide usage in Ayurvedic medicine. It is incorporated in *Kanchanarguggulu* (for lymphadenitis), *Chandraprabha*, *Gokshuradiguggulu* (for urinary tract disorders), *Triphalaguggulu*, *Yogarajguggulu* (for Joint disorders such as arthritis), *Tribhuwankirti* (for fever due to various causes), *Navayas-choorna*, *Tapyadiloha* (for anaemias), *Taleesadi-Choorna* (for coughs and colds), *Kankayanguti*, *Jatiphaladi Choorna*, *Bilwadi Choorna*, *Sanjeevani Gutti*, *Dhanyapanchak*, *Samasharkar choorna*, *Hingwashtaka choorna*, *Aampachakvati*, *Vishtindukvati*, *Sootshekhar*, *Ashwakanchuki*, etc. contain *Trikatu* as one of their components. All these drugs act on the gastrointestinal tract in one or the other ways. Of these drugs, *Jatiphaladi-Choorna*, *Bilwadi Choorna*, *Sanjeevanivati*, *Gangadharchoorna*, *Vridhdhagangadhar Choorna*, *Shankhavati*, etc. have been distinctly described in the treatment of diarrhoeas. Bhavprakash has described *Shunthiputpak* to be given in diarrhoeas¹. The above description emphasizes the wide acceptance of Ginger in a variety of ailments and especially in gastrointestinal disorders by the Ayurvedic classics. It is a very safe drug and does not cause any side effects or toxic manifestations as far as observations indicate.

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as the poor countries such as ours are concerned. Gold is a very good therapeutic agent but it is too costly to be used by an average Indian. Balsamodendrom mukul is very good against Vatik ailments, but it is cultivated only in some part of India such as Rajasthan. Ginger, in contrast to these and many other drugs, is plentifully and cheaply available in any part of world. In fact, Ginger is one of the very few drugs which appropriately fits into the definitions of an ideal drug as has been described in the Ayurvedic literature².

A general account of Shunthi is given below¹⁰⁸.

Sanskrit : Shunthi, Mahoushadha, Shringvera, Nagar, Katubhadra, Ooshan, Vishwa, Vishwabheshaja, Vishwa, etc.

Marathi : Sunth

Gujarathi : Shunthya

Hindi : Sonth

Bengali : Soonth

Tamil : Shukhu

Pharsi : Shangweer

Malyalam : Chukka

Arabi : Janjbeel

English : Ginger

Charak - Deepaniya, Shoolaprashamana, Triptighna, Arshoghna, Trishnanigrahana.

Sushrut - Pippalyadi, Trikatuk

Bhavmishra - Panchakol, Shadooshana.

The plant is a small herb, about 30-45 cm in height. It is cultivated almost all over India mainly in the warm, moist regions. Rhizomes are dried by a particular method and are used as drug.

Constituents

Shunthi contains 1-5% aromatic volatile oil of which the sesquiterpene zingiberene is the principle constituent and in which many other terpenes and terpene alcohols are present (camphene, phellandrene, zingiberene, cineol, borneol, citral). The pungency of Shunthi is due to gingerol, a yellowish oily substance which is a mixture of homologues of Zingerone (4-hydroxy-3 methoxy- phenethyl methyl ketone) condensed with saturated aliphatic aldehydes, principally n-heptaldehyde, and to shagol, C₁₇H₂₄O₃, in which the ketone is condensed with hexaldehyde, to give an unsaturated side-chain. It also contains potassium oxalate, resins and much of starch. The essential oils and resins occur just below the skin or epidermis.

Properties

Katu - Rasa

Laghu (light)

Snigdha (unctuous)

Ushna-veerya (hot)

Madhur-vipaka

Aagneya

Actions

Antagonizes Kapha and Vata

Ruchya-stomachic

Deepan (stimulant to gastrointestinal tract).

Grahi (helps formation of stools)

Pachan (digestive, carminative)

Grahi (helps 'formation' of stools)

Vrishya (aphrodisiac, stimulant to genital tract)

Swarya (makes the voice alright)

Hridya (Heart-tonic)

Therapeutic uses

Ateesar (diarrhea)

Aruchi (anorexia)

Vibandha (constipation)

Vami (vomiting)

Grahani

Shoola (pain)

Aanaha (flatulence)

Udar-marut (abdominal gases)

Arsha (haemorrhoids)

Shotha (edema)

Shleepada (elephantiasis)

Amavata (rheumatism)

Shwasa (asthma)

Kasa (cough)

Hridamaya (heart diseases)

Pandu (anaemia)

Shunthi is also used for local application.

Actions and Therapeutic Usage of Shunthi in Disorders of Gastrointestinal Tract

Fresh ginger being aromatic and pleasantly pungent, is commonly used as a spice and in preparation of continents, pickles, etc. It is much used as carminative adjunct along with black pepper and long pepper under the name Trikatu. Shunthi is extremely valuable in dyspepsia, flatulence, colic, vomiting, spasms and other painful affections of stomach and bowels unattended by fever. Shunthi is used as a corrective adjunct to prevent nausea and griping. For indigestion, anorexia, etc. the powder with ghee or hot water is a nice remedy. Samasharkar Choorna, which contains Shunthi, is advisable in such conditions. Bhavprakash has recommended Saubhagya Shunthi which is much used as carminative in dyspepsia and in gastrointestinal disorders of pregnant women. Shunthi is so much effective in gastrointestinal disorders that it is said that diarrhea gets cured with local application of ginger Juice around the naval. Ginger is especially valuable in alcoholic gastritis. It is of use for diarrhoea from relaxed bowel where there is no inflammation.

The most important action of Shunthi is that it is Grahi. Grahi¹⁰⁹ means a drug which is both Deepan and Pachan. Thus, it helps much in the process of digestion by way of improving the condition of Agni. Thus, the digestive capacity is increased. A Grahi drug, being Ushna (hot) absorbs more water and thus solidifies the faeces. This action is important in diarrhoea when the stools are liquid and are required to be solidified. The basic pathology in diarrhoea is a deranged Agni. This is cured by Shunthi. A depressed Agni leads to formation of Aam which is also destroyed by Shunthi. The pouring out of water into intestines is reduced by way of its reabsorption. Shunthi is to be used mainly in Vataja and Kaphaja diarrhoeas.

To understand the activity of Shunthi, its Pancha-bhoutik constitution requires to be elaborated. Dried ginger (Shunthi) has Rooksha properties. This property is further aggravated by treating it with lime during its processing. Hence Tejas constituent is increased. It is light (Laghu) and without any apparent Sneha or any hygroscopic action. Thus, dry powdered ginger has Tejas and Aakasheeya dominance by its constituency.

All of its factors are helpful in combating Ajeerna and Agnimandya. The Katu-Rasa combats mainly Guru, Pichchil and Sandra properties and helps to clear the obliterated secreting orifices (Srotorodha) and hence Vata-Prakopa. The Tejas and Aakasheeya dominance helps in combating Aam where by the Sam body constituents are slowly relieved of it. Thus, the Agni is normalized which by itself functions effectively to combat Ajeerna and consequent Ateesar. The majority of causes which potentiate Ajeerna are Prithvi and Aap dominant. Heavy, excessive, starchy and fatty foods or cold drinks have got Prithvi and Aap dominance. This is capably dealt by Tejas and Aakasheeya dominance of Shunthi. The properties and constituents of Shunthi are homologous to Agni while simultaneously heterogenous to Guru, Pichchil and Styana nature of Aam. By virtue of addition to the desired qualities of Agni i.e. Ushna, Teekshna and Sara, Shunthi simultaneously annihilates the unwanted qualities of Aam and Sam tissues. This

happens in accordance with Samanya-Vishesha Siddhanta. Hence, Shunthi is supposed to be a very effective drug in Ajeerna and Ateesar, especially those caused by a predominance of Kapha and Vata doshas.

Shunthi is also described to be useful in ether gastrointestinal disorders such as anorexia, flatulence, borborygmi, vomiting and even in Grahani-syndrome. It is useful in all these conditions because of its property of Improving Agni and distroying Aam. As opposed to diarrhoea, Shunthi can also be used in constipation. It relieves constipation by way of improving the condition of Agni. Heavy meals and flatulence cause chest pain as a result of pressure on diaphragm. By the word "Hridamaya", this pain is meant which is relieved by Shunthi through its carminative action.

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Chapter 15

TREATMENT OF AJEERAJANYA DRAVAMALAPRAVRITTI (DIARRHOEA DUE TO INDIGESTION) WITH INDIGNOSIS DRUG SHUNTHI (ZINGIBER OFFICINALE L.)

Zingiber officinale was used in cases of Ajeernajanya Daravamalapravritti to study its activity as an antidiarrhoeal agent.

MATERIALS AND METHODS

16 patients, 10 males and 6 females, suffering from various types of Doshik diarrhoea, attending the out-patient casualty department of M.A. Podar Hospital (Worli, Bombay) comprised the clinical material. The age group of these patients range from 16 to 42 years (Average - 25 years, 3 months).

Patient fulfilling the following criteria were selected for the trial -

1. Diarrhoea, with/without mucus and/or blood, more than 3 times a day, persistent since not less than last 24 hours;
2. Duration of diarrhoea not more than 7 days;
3. Absence of pregnancy;
4. Absence of severe abdominal pain, vomiting, fever etc.;
5. Absence of severe dehydration/circulatory shock;
6. Adults of 17-45 years of age;
7. Absence of any previous therapy for the present diarrhoea.

Patients with diarrhoea for more than 7 days were not selected because they might have turned out to be patients of Grahani syndrome. Patients ageing less than 17 years or more than 45 years as well as female patients bearing children were not selected so as to save them from the possible side effects of the drug. Patients with severe dehydration/circulatory shock, severe abdominal pain, vomiting, fever, etc. were not selected so as to avoid the usage of any other drug. No patient with any previous therapy for the present diarrhoea was accepted since this may disturb the results.

Diagnosis was done clinically. This was supported by an adequate history-taking. The severity of features was graded as agent/normal - 0, mild - 1, moderate- 2 and severe - 3. The sum total (score) of gradations of feature was termed as the Severity Index. The Severity Index of patients ranged from 9- 20 (Mean 14.37). 5 patients (31.2%) were those of mild diarrhoea whereas 11 patients (68.75) were those of moderate diarrhoea.

To diagnose the Dosha dominance, 2 features were finalized for each Dosha. Each feature was observed in view of the other and thus the Dosha dominance was diagnosed. The dominance of Vata, Pitta and Kapha was present in 78%, 25%, and 37.50% cases respectively.

The patients were divided in 2 groups, A and B. which were randomized. They were treated on an indoor basis at M. A. Podar hospital, Worli, Bombay. The patients were administered capsules of identical nature in the dosage of 2 capsules 3 times a day, along with non-boiled tap water. The diet consisted of buttermilk and rice only. Routine diet could not be prescribed as many of the patients had anorexia and could not be expected to eat the routine diet. The capsules administered to patients of Group contained 500 mg of zingiber officinale per capsule whereas those administered to Group B contained 500 mg of Glaxos - D (placebo). Zingiber officinale was supplied as dry powder of rhizomes which was purchased from Jadavji Lallubhai & Co. and was used within a period of 6 months.

No antiamebic, antibiotics, or binding mixture was given concurrently. Intravenous fluids, in the form of 5% Glucose saline, were administered to 5 patients according to their requirements (Group A-2, Group B - 3 patients. Mean 1000 ml. per patient).

The patients were examined every day for the assessment of the Severity Index. The drop in the Severity Index was subjected to statistical analysis. The idea of culture of stool, being inconclusive and lengthy, was dropped after the reports in a few initial patients.

The trial was conducted for a period of 4 days (maximum 7 days). 5 patients (Group A = 3, Group B = 2) required treatment for 5 days, 2 patients for 6 days (1 of each group) and 1 patient (of group B) for 7 days.

Side effects, if any, were recorded.

OBSERVATIONS

Aetiology

The patients that could be obtained for this trial were mostly uneducated and belonging to a lower socio-economic group. Hence the patients were usually unable to give a correct detailed history although many questions were asked to them. The relevant factors that may have played a role in the causation of their diarrhoea in initial 16 patients are given below. More trials involving large number of patients may elicit the significance of some other literary references about aetiology of diarrhoea.

1. Age Group:
 - a. 16 - 20 years = 4 patients
 - b. 21 - 30 years = 8 patients
 - c. 31- 40 years = 3 patients

- d. Above 40 years = 1 patient
 - e. Average age of patients - 26 years 2 months
- 2. Sex:
 - a. Male - 10 = 62.5 %
 - b. Female - 6 = 37.5 %
- 3. Caste: Muslim - 4 = 25 %
- 4. Income groups: Only 2 patients belonged to middle class. All other patients (87.5 %) were of a low-income group.
- 5. Residence: Excepting 2 middle class patients, all other patients (87.5 %) were inhabitants of slum areas. Worli Koliwada, B.D.D. Chawls, Siddharthnagar, etc. are the slum areas surrounding M.A. Podar hospital. The environment at these areas is very congested, filthy, and unhygienic. The sanitary conditions in these areas are extremely poor.
- 6. Time of occurrence: All patients were treated during the month of July to December. The initial months were raining. The month of October was extremely humid which later on changed towards cold climate by the month of December.
- 7. Water Intake: The source of water was municipal. The exact nature of storage vessels could not be known. One patient informed that he has got a big earthen-pot (Ranjan) in which water is stored. He was storing water in this pot since last 20 years.
- 8. Dietetic causes: Immediate previous diet - This consisted of non-vegetarian food (Bambal, mutton or Fish) in 11 cases (68.75%). Other patients had taken usual diets. Only 4 of the patients who had consumed non vegetarian food were habitual non vegetarians. The remaining 7 patients (43.75 %) had a change in diet from vegetarian to non-vegetarian food. 3 of the patients (18.75%) had consumed alcoholic beverages along with food. 4 patients (25%) were pure vegetarians, 9 patients (56.25%) were usually vegetarians eating nonvegetarian foods occasionally, and 3 patients (18.75%) were frequent non-vegetarians.
 3 patients (18.75%) were heavy tea drinkers (8-15 cup per day). 5 patients (31.25 %) used to consume alcohol or alcoholic beverages - 2 of them frequently and remaining 3 occasionally (½-4 times/month).
 Other findings - History of consuming stale food was obtained in 4 cases (25 %). 2 of these patients were house ladies who consumed foods prepared in the morning (but were not utilized) at dinner. A case of food poisoning involving 3 patients from the same family was obtained. They had consumed mutton which was prepared at the residence of a friend and was brought in an aluminum tiffin box to their home 6 hours after its preparation.
- 9. Sleep: Interesting findings could be made about the sleep during the trial.

Habitually enjoying noon-sleeps	7 patients - 43.75 %
Habitually sleeping late at night	2 patients - 12.5%
History of immediate sleep discrimination	7 patients - 43.75%

10. Psychological causes: These could not be elicited in spite of repeated attempts. The patients seemed to be reluctant to disclose their household matters at a general hospital. Some clue could be obtained in 5 cases. Two of the youths were unemployed and were in search of a job since a long time. One patient was studying for his examination. One lady was very anxious about the heavy burden of the household work on her head. The wife of a recently married husband had gone to the place of her father only 3 days before he suffered from diarrhoea.
11. Other causes: Two patients gave a history of passing worms although no ova could be detected at repeated standard stool examination.
12. Prakriti: Prakriti of all 24 patients was detected clinically as per routine methods. Thus, out of 24 patients, Vata, Pitta and Kapha was a Prakritik-Dosha (single or combined) in 17, 12 and 12 patients respectively. Thus 70.83% of the people with Vata-Prakriti (single or combined) suffered from Ajeerna janya Dravanalapravritti whereas 50% of people with other Prakriti suffered from the same disease. Out of the 17 patients with Vata-Prakriti (single or combined), 13 patients (76.47%) had Vataj Ateesar (5 single + 8 combined). As Compared with the incidence of Pittaja Ateesar in Pitta-Prakriti (33.33% - 4 out of 12) and Kaphaja Ateesar in Kapha-Prakriti (41.66% - 5 out of 12) this incident is fairly high. The above observations probably indicate that Ajeerna janya Ateesar is more common with people of Vata-Prakriti and in them Vata is the dominant dosha. Study with a greater number of patients is indicated.

Features of Ajeerna

These were examined in initial 16 patients. The features that were examined were malaise, anorexia, eructation, vomiting, vertigo, constipation, headache, and polydipsia (thirst). No other feature which could be attributed to Ajeerna was obtained.

Malaise is a vague feature and could not be perceived by any of the patients. Anorexia was complained by 68.75% patient. Eructation was a prominent feature and was of the nature of sour or bitter belching. In no case they smelled or tasted like the ingested food. Vomiting was observed in maximum number of patients. It was observed that patients get hospitalized only when vomiting or intense abdominal pain occurred. The number of vomits was as follows:

No vomiting	2 (12.5%) patients
One vomit	4 (25%) patients
Two vomits	8 (50%) patients
Three vomits	2 (12.5%) patients

Vertigo was usually slight and, in many cases, occurred after vomiting. Constipation, which may be prodromal diarrhoea, was present in 62.5% cases for 1-3 days. One patient complained of constipation for 6 days. In all cases, constipation was incomplete. Patients complained of inadequate evacuation of bowel with abdominal heaviness after defecation. In all cases bowels were opened daily. Headache, which was usually mild and in the form of heaviness in the head was many a times complained of. Only in one case, headache was severe and throbbing. Polydipsia (excessive thirst) could not be satisfactorily elicited in any of the patients although 31.25% patients complained of it.

Prodromal features of Ateesar

The features that were inquired in 16 patients were chest pain, malaise, indigestion, abdominal pain, flatulence and constipation. Two or more features could always be elicited in each case. No other feature was obtained which could be attributed to prodromal diarrhoea. 8 patients (50%) had consumed foods (usually unwholesome) at dinner and went to sleep to wake up in the morning because of an urge of diarrhoeic defaecation. Thus, the period of prodromal features in these cases lasted for hardly 12 hours.

Actual chest pain was never complained of - it was a sort of mild heaviness in the chest. Malaise could not be precisely described by any of the patients. Although the features of indigestion were separately enquired, every patient was asked whether he feels indigested. 56.25% patients complained of indigestion which they described in various ways such as flatulence, eructation, abdominal heaviness, less of appetite, constipation, inability to pass wind, excess passage of wind, borborygmi, etc. Abdominal pain was of a mild to moderate nature. Flatulence was complained of by maximum number of patients (81.25%). In one patient this was observed immediately after food. A patient complained of disturbed sleep due to flatulence. Constipation was present for 1-3 days. One patient complained of constipation for 6 days. In all cases, constipation was incomplete. Patients complained of inadequate evacuation of bowels with abdominal heaviness after defaecation. In all cases bowels were opened daily.

Severity of Ateesar

The 11 features of Ajeernajanya ateesar that were considered are: frequency of stools, consistency of faeces, mucus in faeces, blood in faeces, tenesmus, abdominal pain, tenderness,

anorexia, weakness, independent micturition, and stool examination for Aam. All of them were graded according to their severity. These grades were 0 (absent/normal), 1 (mild), 2 (moderate) and 3 (severe). The criteria for these gradations were finalized on going through a lot of modern and Ayurvedic references, after discussion with many Ayurvedic Clinicians and after observing these features in the pilot patients. It is to be noted that liquidity of faeces is the basic diagnostic feature of Ateesar. The following gradation does not show the importance of each feature. Clinical survey involving a large group of patients would indicate as to how much of importance should be given to each of these features.

In the initial study group of 16 patients, the severity of Ateesar was as under:

Severity	No. of Patients	Severity Index
Mild	5 (31.25%)	9 – 11
Moderate	11 (68.75%)	12 – 20

Predominance of Doshas

Although many features have been described of individual Doshas in Ayurvedic classicals, to be precise and definitive, only 2 features of each Doshik Ateesar were selected. These features were finalized after consultation with many Ayurvedic clinicians and observations in pilot cases. These features are given below:

Vata: 1. Abdominal pain – Grade 2 or more.

2. Abdominal tenderness – Grade 2 or more.

Pitta: 1. Pyrexia and burning sensation of eyes.

2. Blood in stools in one or other form in absence of any local pathology.

Preferably with burning sensation at anus.

Kapha: 1. Mucus in stool – Grade 2 or more.

2. Mucus in stools between Grades 1 and 2 associated with mild abdominal ache of grade 1 or -1.

The incidence of Doshik diarrhoeas is given in following table. The total percentage is more than 100 because of dominance of 2 doshas in 6 cases (37.5%). In all these combinations, Vata was a common factor. 10 cases (62.5%) showed a dominance of single Dosha. No case was obtained in which all 3 Doshas were combined.

Dosha	No. of Patients	Percentage
Vata	Single 6 + Combined 6 = 12	75.00 %
Pitta	Single 2 + Combined 2 = 4	25.00%
Kapha	Single 2 + Combined 4 = 6	37.50 %

The mean basal severity index in Group A was 13.25 which dropped down to 2.88 on the 4th day of treatment. That in Group B was 14.25 which dropped down to 3.00 on the 4th day of treatment. The percentage of the drop in the severity index was 78.30 in Group A and 78.96 in Group B. The difference in those two percentages (0.66) is statistically insignificant. Fig. 15.1 indicates the drop in severity index during the first 4 days of treatment.

Maximal basal Severity Index in Group A was 17 which dropped down to 8 on the 4th day. The percentage of drop was 52.94. Maximal basal Severity Index in Group B was 20 which dropped down to 6 on the 4th day. The percentage of drop was 80.00. Minimal basal severity index in Group A and B was 9 and 10 respectively which dropped down to 2 (77.77% drop) and 3 (70.00% drop) respectively on the 4th day.

Table No.15.1 shows percentage of drop in each of the features examined in both groups. This drop is also indicated in Fig. 15.2. The drop in patients of Group A was more than those of Group B in statistically significant quantities as regards frequency of stools (5), tenesmus (10), anorexia (43) and stool examination for Aam (16). The drop in patients of Group B was more in statistically significant quantities as regards consistency of faeces (7) and abdominal pain (11). As regards the other features, the difference in the percentage drops of the features in these two groups was statistically insignificant.

Effect of Zingiber officinale as compared with placebo in Individual Doshik diarrhoea is indicated in Table No. 15.2. Due to lack of patients in either of the groups, the difference in percentage drop could not be known in Vata-pittaja, Pittaja and Kaphaja diarrhoeas. In Vata-kaphaja diarrhoea, the difference in the percentage drop (3) was statistically insignificant. In cases of Vataja diarrhoea, the percentage of drop of severity was more (7) in patients treated with placebo (Group B).

No side effects, which could be attributed to the drug, were observed.

DISCUSSION

Ajeernajanya Dravamalapravrutti (diarrhoea due to indigestion) is a very common complaint of these days. Most of the diarrhoeas are mild and abate even without treatment unless the severity is high. The patient demands for some drug and hence a general practitioner is many a

times compelled to administer some drug. The initial stage of these diarrhoea is dominated by Aam. Upeksha is the best medicine at this stage as it allows the Aam to be expelled out of the body. As the Aam disappears, the patient gets relieved of his features. The importance of Upeksha was sufficiently evident during the present trial. Even with placebo, the percentage of drop in the severity index was 78.96 on the 4th day of treatment. More drop in severity of 2 features (i.e. consistency of faeces and abdominal pain) in the control cases may be explained in a similar manner. Hospitalization essentially provides adequate physical and mental rest to the patient which itself is known to be sufficient in relieving from diarrhoea. The appearance of capsules was quite attractive and may have caused a beneficial psychosomatic effect.

When Upeksha cannot be practiced, Aam pachan treatment is to be administered. Zinziber officinale has been described as Aam pachan in ayurvedic classicals (Chapter 14). This was confirmed in the present trial with serial stool examinations for Aam. The description of its uses in anorexia was also confirmed. The severity index employed during the present trial does not indicate the importance of individual features. It is obvious that frequency of stools is a very important feature in every Doshik diarrhoea and may be graded at higher figures. If this be done, the Grahi-nature (formation of 'formed' faeces) of Zinziber officinale may be confirmed. Zingiber officinale increases the digestive capacity and the absorption of water and thus acts as a Grahi-drug. The description of its Vata and Kapha antagonistic properties could not be confirmed during the trial.

तक्रं तु x x अतिसार x x हरं x x ॥ सु. सू. ४५/८४; च. सू. २७/२२९
तक्रं ग्राहि कषायाम्लं स्वादुपाकरसं लघु ॥
वीर्योष्णं दीपनं वृष्यं प्रीणनं वातनाशनम् ॥
ग्रहण्यादिमतां पथ्यं भवेत् संग्राहि लाघवात् ॥ x x ।
अम्लोष्णं दीपनं वृष्यं प्रीणनं वातनाशनम् ॥
x x । कफापहम् । भा. प्र. पू. खं. तक्रवर्ग ३-५, पृ. २३९

Buttermilk, which was allowed in diet along with rice in Laghu (light to digest), Ushna (hot), Deepan (increasing digestive capacity) and Grahi (solidifying -'forming' faeces) and hence is advised in diarrhoea. As mean drop in the severity index in both groups is very significant (A = 78.30%; B = 78.96%; Mean = 78.63%) it may be attributable to the action of buttermilk as described in Ayurvedic literature. Hence the utility of buttermilk in diarrhoea requires to be studied. Trials with patients on usual diet would remove an error, if any, due to the diet of buttermilk and rice. Trials with large sample size are indicated. These trials should also include a higher dosage schedule which may change the therapeutic response. More sophisticated

method may be required to see whether any of the constituents of *Zingiber officinale* (Chapter 14) have got any particular activity in this connection.

Buttermilk has been appraised by the classicals because it has got almost all the qualities which are essential to act against Agnimandya. During churning of the curd, a 'Kinwagni' is developed. This directly boosts up Agni. Buttermilk, when devoid of fatty portion (Sneha) is very easy to digest (Laghu). Its Amla-Rasa has equivalent qualities as those of Agni and hence the state of Agni is improved. Being slightly Kashaya (astringent), it is specifically beneficial in conditions like Ateesar. Buttermilk is supposed to maintain the Samhanan of Pureeshadharakala. Since it contains almost 98% of fluids, the losses of Abdhatu and Rasadhatu in Ateesar can be very well replenished by its usage. Buttermilk being derived from milk, the most potent tissue nourishing agent, acts in diverse ways to combat losses in Ateesar and thus helps in rectifying the factor of Vata-dushti. Hence buttermilk being definitely useful in management of Ateesar, its utility in these cases requires to be separately studied.

SUMMARY

Zingiber officinale was studied as an antidiarrhoeal agent in a double-blind trial constituting 16 patients (8 of each group). Diagnosis was done clinically. Assessment of severity and improvement was done by evaluating the 11 features as 0 = absent/normal, 1 = mild, 2 = moderate and 3 = severe. The total score was called as Severity Index. Basal Severity Index in group A (*Zingiber officinale*) and B (Placebo) was 13.25 and 14.25 which dropped down to 2.88 and 3.00 respectively on 4th day of treatment. The percentage of drop in severity index was 78.30 and 78.96 respectively. The difference is statistically insignificant. Anorexia, Aam - nature of stools, tenesmus and frequency of stool are the four features which improve better in statistically significant proportions in patients treated with *Zingiber officinale*. No significant difference was observed in cases of different doshik diarrhoeas of the two groups. No side effects were noted. Studies with larger sample size and with greater dose of the drug are required. The role of buttermilk and rice as a diet too requires to be studied.

This study being a drug trial, the criteria of selection and those of improvement were limited. Statistically insignificant drop in the severity index of patients of group A and B is possibly due to randomization of patients irrespective of any consideration to Agni and Prakruti of the patients as well as doshik predominance and Vikalpa-samprapti in individual patients. A consideration of these and such other subtler variations from patient to patient is the celebrated specialty of Ayurveda. The results could have been more encouraging and specific by adaptation of these dicta. Studies of these factors with larger sample sizes are indicated.

TABLE NO. 15.1**PERCENTAGE OF DROP IN THE SEVERITY OF FEATURES**

Feature	Group A			Group B			A-B
	Basal	Day 4	%drop	Basal	Day 4	%drop	
1. Frequency of stools	1.38	0.13	91	2.00	0.25	86	+5
2. Consistency of Faeces	1.75	0.38	79	1.75	0.25	86	-7
3. Mucus in faeces	0.88	0.00	100	0.38	0.00	100	0
4. Blood in faeces	-	-	-	0.13	0.00	100	
5. Tenesmus	0.63	0.00	100	1.25	0.13	90	+10
6. Abdominal pain	1.50	0.25	83	2.13	0.13	94	-11
7. Tenderness	1.83	0.50	73	1.75	0.50	71	+2
8. Anorexia	0.63	0.00	100	1.87	0.38	57	+43
9. Weakness	1.63	0.63	61	1.63	0.63	61	0
10. Independent micturition	1.00	0.00	100	0.50	0.00	100	0
11. Stool examination for Aam	2.00	0.88	56	1.88	0.75	40	+16
Total	13.25	2.88	78.30	14.25	3.00	78.96	-.66

TABLE NO. 15.2

PERCENTAGE DROP IN SEVERITY INDEX IN DOSHIK DIARRHOEA

Dominant Dosha	Patient No.	Group	Basal	Mean	Day 4	Mean	% Drop Round Fig.	A - B
VATA	6	A	11	13.3	2	4.3	68	-7
	9	A	17		8			
	14	A	12		4			
	1	B	13	13.3	4	3.3	75	
	9	B	11		4			
	13	B	16		2			
VATA KAPHA	11	A	20	15.3	4	3.3	78	+3
	15	A	13		3			
	16	A	13		3			
	8	B	16	16.0	4	4.0	75	

VATA, PITTA, KAPHA - Cannot be compared of lack of patients in either of the groups.

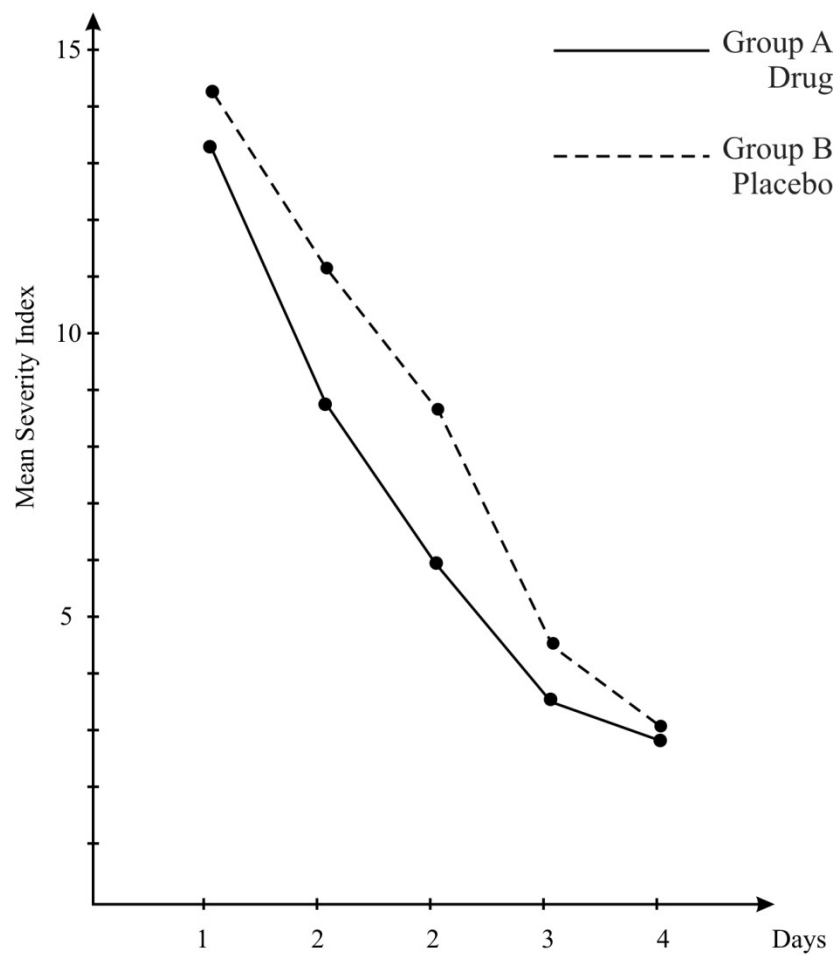
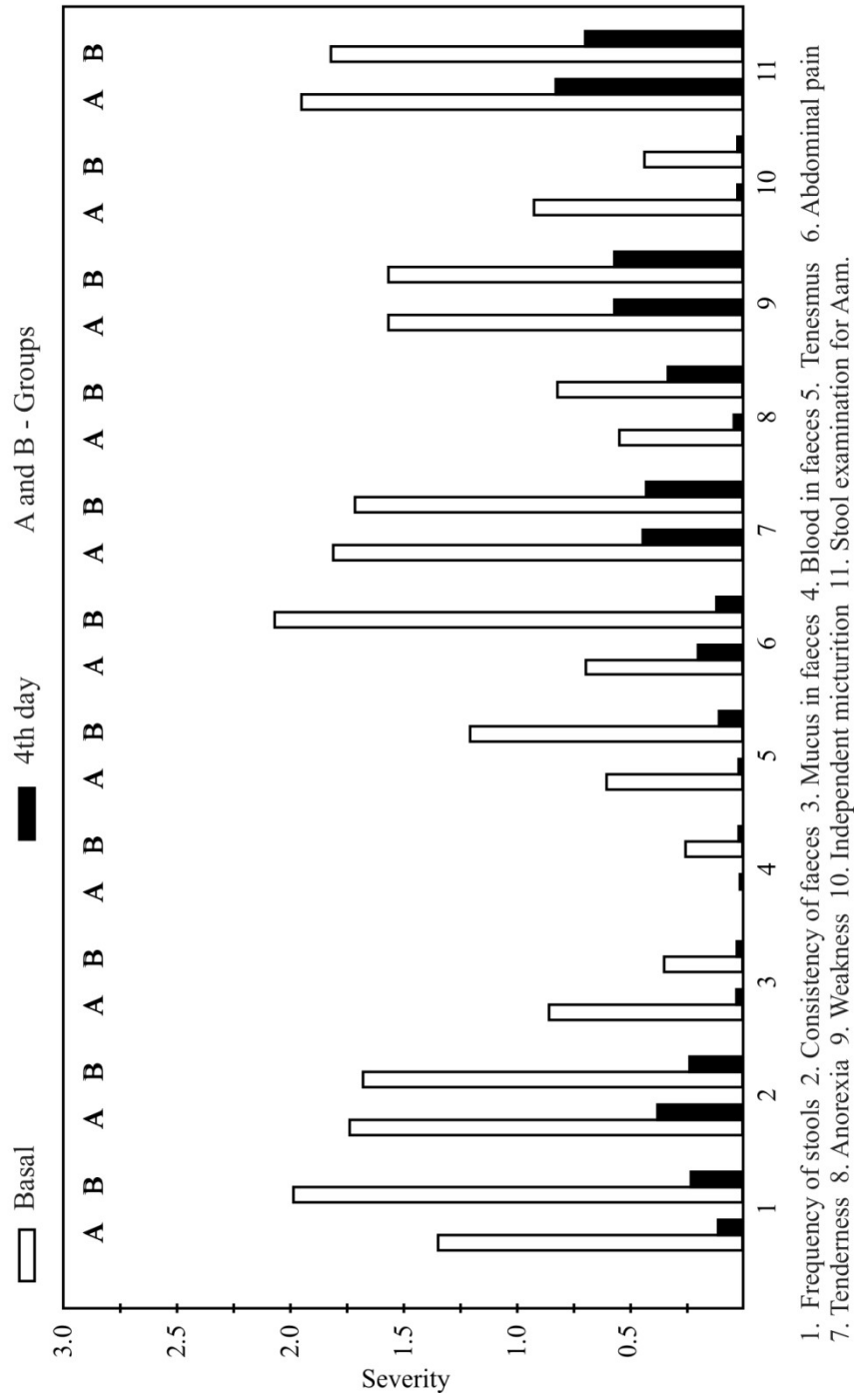


Fig. 15.1 Mean Severity Index during treatment

	Basal	4th day
Group A	13.25	2.88
Group B	14.25	3.00

Fig. 15.2 Effect of treatment (A- Drug, B - Placebo) on various features of Ajeemajanya Dravamalapravritti



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