ABSTRACT:-
Ayurveda consider that the body is controlled by three fundamental factors called *tridosha*. They are the pillar of the body. They all in equilibrium perform their normal functions by which the body is sustained free from diseases. Any disturbance to their balance state leads to disease. Among these three *dosha*, *vata* has very much significance. It plays a key role behind maintenance of body in normal healthy state. *Vata* is strongest of all *dosha* and it causes large number of diseases if get vitiated.

*Avarana* is one of the least understood concepts among the basic mechanism of ayurvedic fundamentals. *Avaran* plays an important part in understanding the *samprapti* of many diseases. In any type of *avarna* there are two components one is *Avrutt dosha*, the *dosha* whose function get affected by obstruction or covering and the second component is the *Avarak* which causing *avarana* of peculiar *dosha*. Acharyas have explained many *avarana* and its sign and symptoms will give clue to the diagnosis of *avarana*. The increased sign and symptoms will suggest the *avaraka* and decreased sign and symptoms suggest *avarutta*. Once the diagnosis confirmed then the treatment can be initiated. This study aims to observe correlation between *lakshanani of raktavrita vata* and *Cellulitis*. It can be concluded that the most of symptoms of *cellulitis* are found similar to *raktavrita vata*.

KEYWORDS :- Avarak, Avarana, Avarutta, Cellulitis, Raktavrita vata.

INTRODUCTION:-
Ayurveda considered three *dosha* and *saptadhatu* to be fundamental of the human body. Among them three *dosha* are interdependent, synergetic in action and unable to work without each other. In all the three *dosha*, *vata* is unique *dosha* as it differs from other *dosha* many ways, *pitta* and *kapha* are pangu and *vata* regulates their functions¹. Acharya Sushruta has mentioned three pathological conditions of *vata* viz. *Kevela Vata*, *Dosha yukta Vata* and...
Avrita Vata\[ii\]. Kevala vata\[iii\] refers to dosha asamashrishta i.e. pathological state of vata without association of other dosha. Doshayukta vata\[iv\] refers to the association with other dosha. It is pathological state of vata due to the association of pitta or kapha or both. The clinical manifestation of associate dosha as anubandha may be there. The third one is Avrita vata. Avarana is one of the basic fundamental concepts of Ayurveda.

Gati is the unique feature of vata. When its gati is disturbed due to avarana, then its vitiation occurs. The avarana of vata can be caused by the dosha, dhatu, mala, anna and ama. In avarana there are two major factors i.e. avaraka and avrita. The increased sign and symptoms indicate avaraka and the decreased sign and symptoms suggest avrita. The accumulation of avaraka can occur only when the patients indulge in the causative factors of that particular avaraka. There will be no history of specific etiological factors of vata though resulting in condition is vata disorders. Based on this, it can be inferred that here vata disorders are produced without indulging in its own etiological factor. This has been central idea of avrita vata.

Concept of avarana is another but unique method of explaining samprapti of disease. However, it is not very popular and not routinely followed for vyadhidnyan and vyadhi-chikitsa. Comparative study of avarana is essential for better insight of concept of avarana.

The avarana on vata dosha by rakta dhatu is known as raktavrita vata. The clinical feature shows karma hani of vata and karma-vrudhi of rakta. This give rise to feature like sadaha, arti, twak-mamsataryo, saraga, shwayathu and mandala in raktavrita vata\[v\].

Cellulitis is non supplicative inflammation spreading along the subcutaneous tissue, connective tissue plane and across intercellular spaces. The clinical features of cellulitis are fever, localized heat, erythema, pain, swelling, blisters. Cellulitis is an entity having systemic and external origin. Systemic causes include Diabetes Mellitus, HIV, patient receiving chemotherapy and external causes include bites, cuts and trauma. The complications of Cellulitis include Necrotizing Fasciitis, sepsis and shock. The concept of avarana particularly raktavrita vata was studied theoretical and its correlation was observed with cellulitis. An attempt is made to observe correlation between lakshanani of Raktavrita vata and Cellulitis and to understand etio-pathogenesis of Cellulitis in terms of avarana.

AIM AND OBJECTIVES:

To study the correlation between lakshanani of Raktavrita vata and Cellulitis
To understand the etiological etio-pathogenesis of Cellulitis in terms of Raktavrita vata.

MATERIAL AND METHOD

As a conceptual study literature regarding the Avrita vata was reviewed from Ayurvedic classics.

Modern review of Cellulitis was taken for study from modern text books. Internet data and various research papers reviewed.

REVIEW OF LITERATURE

Avrita Vata :-
Term avarana refers to, to cover, to mask or to obstruct. Here gati is unique feature of vata; whenever its gati is disturbed due to avarana then its vitiation occur. This has been central idea of avrita vata.

Avarana of vata is a distinctive pathological condition, where obstruction to its gati occurs due to etiological factor other than own, leading to its vitiation and result into various types of avarana of vata. The Avarana of vata can be caused by the dosha, dhatu, mala, anna and ama. Even any of subtypes of vata may cause avarana of each other, which is termed as Anonya avarana.

Avruta - Avaraka - Avarana sankalpana :-
The substance, which obstructs the pathway of vata, is termed as avaraka. While, vata whose avarana occurs is termed as avrita or avrutha. According to Chakrapani, the excessively increased strong Avaraka suppresses the normal action of Avrita i.e. Vata. On the other hand, excessively increased Avaraka manifested its action. Avarana of Vata in the form of obstruction to the functional channel of Vata leading to its parakopa, hence at that stage its prakopa symptoms are also manifested depending upon its site of function involvedvi. It is well known that Pitta, Kapha, Dhatu and Mala are considered as Pangu (inactive) and Vata is the motive force behind their action. So, when they act as Avaraka, then they must be sufficiently strong to overpower as well as to obstruct the function and functional channel of Vatavii. Therefore, in the initial stage of the condition, as the Avaraka are strong and Vata is nearly in the normal sate, so in the beginning, there would be karma hani of Vata with karma vrudhi of Avarakaviii.

Thereafter, when obstruction is complete, it leads to prakopa of vata resulting in manifestations of vata vitiation symptoms as well as its disorder.ix

It is clear from the above that the Vata is initially in its normal state, but accumulation of Avaraka occurs.
The accumulation of Avaraka can occur only when the patients indulge in the causative factors of that particular Avaraka. Hence, it may be deduced that in the condition of Avarana of Vata there will be no history of specific etiological factors of Vata though resulting in condition is Vata disorders.

On other hand, the history of etiological factors of Avaraka will be available. Based on this, it can be inferred that here Vata disorders are produced without indulging in its own etiological factor.

Raktavahasrotas Dusti Hetu :-
Raktavahasrotas dusti hetu are mentioned in Charak viman sthana which occurs due to intake of vidahianna and pana (food which cause burning sensation and drinks), snigdha (oily), ushna (hot), drava (liquid) food consummation also excessive sevan of aatapa anila (exposure to sunlight air) all these factors leads to raktavaha srotasdusti. Also raka dushti hetu in vidhishonit adhaya can be consider as viprkrushta hetu for rakaavuruta vata

Symptoms complex in Avrita Vata

Often the symptoms manifested are comprised of disturbed function of, the obstructing factor as well as the obstructed vata. The symptoms produced are based on the principles of
Rupahani (Karma Hani), Rupa vruddhi (Karma vrudhī) and Rupantara (Anya Karma) and which depend upon the intensity of the obstruction i.e. partial or complete; functional or organic; acute or chronic; transient or persistent etc. For instance, less string obstruction of Vata will lead its provocation, whereas the very powerful obstruction may make it weak and likewise. The symptomatology of the avarana depends up on the place wherever dosha-dushya sammurchana has taken place. For instance, the symptom of shula of Avrita Vata may occur in different parts like head, ear, abdomen, back, depending upon the organ involved in the process of Avarana. Similarly clinical manifestations are primarily depend on the direction of movement of which is obstructed, anatomical limitation of particular dosha or sub type of Vata which is involved in pathogenesis, nature of obstruction i.e. dosha, dushya, mala etc. For example in Kaphavrita prana Vata, the prana seated in uttamanga and its direction of movement is towards the center i.e. Urah and Kantha and it govern the function like etc. The direction of movement of Prana Vata by Kapha in urdhva amashaya then it leads to the pathological state i.e. movement in opposite direction resulting in disorders of deglutination, spitting, sneezing, eructation, vomiting and Anorexia etc.

Classification of Avarana

The Avarana may be innumerable types\textsuperscript{xii}. However, 42 types of Avarana of Vata have been described in detail in the texts, which can be categorized under the following major division:

1) Murta Avarana- 22 types
   a) Doshavrita Vata-12
      1. Pittavrita Vata
      2. Kaphavrita Vata
      Mishravrita Vata-10
      When two or more factors are involved in the pathogenesis of Avarana, it is termed as Mishra Avarana. Here permutation and combinations of Pitta and Kapha and sub-type of vata result in innumerable numbers of pathogenesis of Avarana: Pittavrita prana, Kaphavrita prana, Pittavrita udana, Kaphavrita udana, Pittavrita vyana, Kaphavrita vyana, Pittavrita samana, Kaphavrita samana, Pittavrita apana and Kaphavrita apana.
   
   b) Dhatuvrita Vata- 7
      Tvakavrita Vata, Raktavrita Vata, Mamsavrita Vata, Medovrita Vata, Asthivrita Vata, Majjavrita Vata and Shukravrita Vata
   
   c) Malavrita Vata-2
      1. Mutravrita Vata
      2. Purishavrita Vata
   
   d) Others-2
      1. Annavrita Vata
      2. Sarvadhatuvrita Vata

2) Amurta Avarana- 20 types when the subtype of vata impedes the function of each other it may be termed as an amurta or anyonya avarana. It is of 20 types in which symptoms complex of twelve conditions are explained\textsuperscript{xiii}.

Murta Avarana- 22 types
   a) Doshavrita Vata-12
      Doshavrita Vata -2
      1. Pittavrita Vata
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      2. Purishavrita Vata
   
   d) Others-2
      1. Annavrita Vata
      2. Sarvadhatuvrita Vata
RAKTAVRITA VATA -

According to Avarana sankalpana, Rakta is Avaraka and Vata vayu gets Avrita i.e. here Avarana of Rakta (blood) formed on Vata vayu. So it is known as Raktavrita Vata. In this condition the vitiation of both Rakta and Vata occurs. The clinical features are due to prakopa of Rakta and karma hani of Vata dosha. If Vata gets occluded in the blood, there will be severe burning sensation in the area between the skin and the flesh and there will be edema with reddish tinge and rashes. According to Sushruta, the Raktavrita Vata is preceding stage of Mamsavrita Vata. This shows the involvement of succeeding dhatu i.e. Mamsa dhatu in Avarana. It is also known as Supta Vata.

Clinical features of Raktavrita Vata -

1. Daha -
   It is the one the important clinical feature, contributes in RaktavritaVata. It manifested to be inflamed or to be consumed by internal heat or grief suffer pain, be distressed.
2. Mandala -
   It manifested circular, round, disk shaped. It is anything round (in heat, also applied to anything triangular). It is sort of cutaneous eruption or leprosy or circular spot.
3. Raga -
   This is an important manifestation in this particular pathological condition. It resembles the act of coloring, red color or color due to inflammation.
4. Shwayathu -
   This is one of important clinical feature. It is synonym of shopha. It manifested that having intumescences, having swelling or morbid swelling.
5. Arti (Vedana) -

It is one important feature. It is mainly due to vitiation of the Vata. It resembles to the pain.

CELLULITIS

Cellulitis is a non suppurative inflammation spreading along subcutaneous tissue and connective place across intercellular space. Though various varieties of aerobic and non-aerobic bacteria produce cellulitis, mostly the causative organism is streptococcus pyogen and staphylococcus. Cellulitis is a transient inflammatory involvement of subcutaneous tissue and intercellular space. Cellulitis may be caused by indigenous flora colonizing the skin and appendages (e.g. S. Aureus and S. Pyogen) or by a wide variety of exogenous bacteria. Because of exogenous bacteria involved in cellulitis occupy unique nitches in nature; through history (including epidemiology data) provide important clues to etiology.

Etiological factors -

A variety of etiological factors or agents have been implicated in the causation of cellulitis are -

1. Predisposing factors: - Diabetes, Liver cirrhosis, Renal failure, HIV, Taenia pedis- extension infection of hair follicle
2. Diet and personal habit:-Poor nourishment, Poor personal hygiene.
3. Severe stress: - Factors like shock and anger due to Extensive burns ,Trauma .Surgery
4. Epidemiological factors: - Poor epidemiological hygiene, Slum area
5. Foreign body insertion: - Due to penetration of Insect bite , Dog bite, Needle ,Pin ,Intravenous catheter.
6. Surgical factors: - Surgical wound, Post-surgical wound
7. Wound / ulcers:-Wound and ulcers due to Trauma, Burn, Varicose vein ulcer, Diabetic foot / ulcer

**Risk factors**
Chemotherapy, Abuse to intravenous drugs, Alcoholism, Recurrence
It may occur with automatically abnormality that compromise the venous or lymphatic drainage.

**Complication**
Necrotizing Fascitis

**SITES FOR CELLULITIS:-**
Lower leg - more common, Pinna
Perianal - common in pediatric
May in normal skin

**CLINICAL FEATURES OF CELLULITIS -**
1. Redness of local skin
2. Swelling
3. Pain
4. Affected part is warm swollen
5. Varying degrees of fever

**PATHOGENESIS -**
Staphylococcal infection is most common infection of skin. These bacteria present all over skin of the body. Most staphylococcal infection caused due to staphylococcus aureus.
The infection begins, due to poor hygiene leads to lodgments of cocci in hair root and result in obstruction of sweat or sebaceous gland duct. This is known as folliculitis. Involvement of adjacent folliculitis creates larger lesion called furuncle. Further spread of infection horizontally under skin and subcutaneous tissue causes *cellulitis*.

**PATHOLOGICAL CHANGES -**

It is diffuse inflammatory, mainly of deep subcutaneous tissue and even muscle may be involved. Diffuse edema is feature and streptococci are present in large amount at speeding edge of the lesion. Pus, if present, is water and blood stained, possibly because of activity of streptokinase and desoxyribonucleas.
The pathological observation suggests that relatively low number of bacteria may cause *cellulitis* and that the expanding area of erythema within skin may be a direct effect of extra cellular toxins or of the soluble mediators of inflammation elicited by host.

**DISCUSSION:**
The literature study of *Cellulitis* is done under the concept of *Avrita vata*. The symptoms of *Cellulitis* are Redness of local skin, Swelling, Pain, Affected part is warm swollen, Varying degrees of fever, in some people discharge and itching on site are compared with symptoms of *Raktavrita Vata sadaha, arti, twak-mamsataryo, saraga, shwayathu* and *mandala*.
The most of symptoms of *Cellulitis* are found similar to *Raktavrita vata*.

<table>
<thead>
<tr>
<th>Clinical features of Cellulitis</th>
<th>Observed clinical features of Raktavrita Vata</th>
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<tbody>
<tr>
<td>Localized heat</td>
<td><em>Sthanika Daha</em></td>
</tr>
<tr>
<td>Pain</td>
<td><em>Arti (vedana)</em></td>
</tr>
<tr>
<td>Erythema</td>
<td><em>Raga</em></td>
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<tr>
<td>Swelling Fever</td>
<td><em>Shwayathu</em></td>
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<tr>
<td>Blister</td>
<td><em>Mandala</em></td>
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<td>Mandala</td>
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Out of Eight clinical features of Cellulitis; five clinical features of Raktavrita Vata were correlated (62.66%). These lakshanas can be compared with each other and hence there are similarities in clinical features of Cellulitis and Raktavrita Vata.

Samanya Samprapti of Raktavrita vata:
In avarana, generally the vitiation of vata is passive. When vitiated rakta dhatu obstructs the pathway of vata, avarana by Rakta dhatu happens. Normal state of vata gets vitiated as avarana of rakta progresses. The rakta dhatu obstructs the pathway of vata is called as avaraka and the dosha (vata in general or its components) affected by avarana is called as avrita vata. The Raktavrita vata is caused by the etiological factors for the vitiation of rakta dhatu. Etiological factors for the vitiation of vata (sva nidana) will be absent. In the process of avarana chala property of vata is diminished due to obstruction of rakta. Other properties are not involved in the process of obstruction. In avarana the gati of vata is obstructed partially or fully by rakta dhatu. Once gets obstructed the vata may simply get lodged there (baddha marg, margarodha), try to nullify the obstruction, may get covered by the obstructing substance (avrita), adopt an opposite direction (pratiloma) or alter the direction (viloma). The different terminologies have been used to denote avarana in different contexts according to the nature of avarana and the state of vata

| Discharge | -- |
| Itching   | -- |

and marga (passage).
In avarana of vata, swakarma vridhi (exaggerated activities) of avaraka (covering dosha) i.e. rakta dhatu is manifested. The avrita (i.e. vata) will show swakarma hani (diminished activity). This is the general feature of avarana. Here the excessively increased strong avaraka ( Rakta dhatu ) suppresses the normal action of avrita (i.e. vata). Therefore, when the obstruction is complete it may lead to the prakopa of vata resulting in the presentation of vata vitiated symptoms as well as its disorders. In case of Raktavrita vata, the rakta dhatu is important for treatment since vitiation of vata is passive. When avarana is removed vitiated vata gets pacified.

Following Samprapti Ghata may be consider in raktavrita vata
Hetu :- Raktavaha strotas dushti hetu.
Dosha :- Vata
Dushya :- Rakta
Strotodushthi :- Sanga and vimargagaman.
Avarak :- Rakta
Avrita :- Vata
Symptoms:- Sadaha, Arti, twak-mamsataryo, saraga, shwayathu and mandala.

CONCLUSION
Rakta avritta vata is a process of pathogenesis wherein raktavriddhi (quantitative increase of rakta) impedes the gati of vata. Hetu explained in vidhishoniya adhyaya which are responsible for quantitative increase of rakta dhatu impedes the gati of vata dosha hence normal parivahan is hampered and stagnation takes place leading to sanga this is the reason why in
raktaavritavata, raga yukta shotha, mandala, local daha and vedana have been explained. After studying and analyzing the results following conclusion were noted. This study helps in diagnosis of cellulitis with the help of basic Ayurvedic concepts and fundamental principles. The literature study of cellulitis is done under the concept of Avrita vata. The most of symptoms of cellulitis are found similar to raktavrita vata. So, theoretically Cellulitis can be compared with raktavrita vata. Aim of the present study “Study of correlation between Lakshanas of Raktaavritavata and Cellulitis” significantly validated.

REFERENCES:


The literary study of Raktavrita Vata w. s. r. to cellulites

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