A CRITICAL REVIEW ON KLOMA AND SUPRARENAL GLAND
[SPECIFICALLY CORTEX AND ALDOSTERONE].

Yogesh A Dahegaonkar,¹* Minakshi A Bagal.²

1. M.D. (Ayurved), Associate professor & H.O.D. Dept of Agadtantra, Smt Vimladevi Ayurved Medical College Wandhari, Chandrapur, MS, India.
2. M.D. (Ayurved), Assistant professor, Dept of Rachana Sharira, Smt Vimladevi Ayurved Medical College Wandhari, Chandrapur, MS, India.

Received on: 25/02/2020; Revised on: 19/03/2020; Accepted on: 21/03/2020

ABSTRACT
Kloma is an organ described in Ayurveda texts viz. Charak Samhita, Sushrut Samhita, Bhel Samhita, AshtangHridaya Samhita, but still it is difficult to properly define it in the human body. Many authors have described Kloma as Trachea [Gananath Sen], Gall bladder [Hari Prapanna Sharma], Lungs & Brain [Vaidyak Shabdasindhu]. Anatomically also in Sushrut samhita Kloma is a singular organ. But, due to its typical feature of causing thirst and death by dehydration we thought to compare it with Suprarenal gland as it is nearer to spleen and liver and by their position is present just below the heart. Also, they are two in number and for that Gananath sen reference was considered who said that Kloma should be on both sides as well as lungs should be on both sides. Further the major similarity is between physiological working of Kloma and Suprarenal gland. When there is defect in Kloma the symptom- Pipaasa [thirst] and Death is seen in a patient, while loss of cortex of Suprarenal gland leads to loss of Aldosterone which in turn leads to severe dehydration, thirst and death.

Keywords: Kloma, Aldosterone, Suprarenal Gland, Thirst, Death, Dehydration.

1. INTRODUCTION
Ayurveda as a medical discipline has mentioned many aspects of the human body in detail. All organs, parts of the body are fully described anatomically, physiologically, pathologically and clinically. These descriptions are in a very scientific and precise manner. Now here it seems that these matters are the figment of one’s imagination. So, when something mentioned in the Ayurveda texts becomes difficult to understand or grasp and limits the knowledge of an Ayurveda physician, then it is a dishonour to our science as well as to the patient- because to treat a patient and cure him/her of diseases is the main motto of our science and controversial topics like Kloma need to be fully understood so that treating their diseases properly becomes mandatory. Thus, in order to shine some light on this topic in view of modern physiological knowledge becomes important. This article is a small step in this direction.

2. MATERIAL AND METHODS
Three major Samhitas- Charak Samhita, Sushrut Samhita and Ashtang Hriday Samhita were utilized along with basic modern and Ayurveda physiology books for the above article. The findings are given in present article.

3. RESULTS AND DISCUSSION
Kloma¹ is a subject of thrill as an organ described in Ayurveda. Anatomically its position is difficult to specify, but physiologically it seems similar to Suprarenal gland in the sense that – a cardinal sign – Trishna [Thirst] is relat-
ed to it. Its failure to perform- results in the symptom of Trishna, while failure of Suprarenal cortex to secrete Aldosterone results in the loss of Na+ and Water through urine that causes the sensation of excessive thirst due to loss of excess water from the body due to excess micturition of watery urine. Kloma has been mentioned in Koshthangas given by Charak. Charak has mentioned 15 koshthangas and Kloma is one of them. Sushrut has mentioned the position of Kloma in context with that of Hridaya [heart]. Dalhana also aired similar views like Sushrut. Gananath Sen described other Pathas, oriterations/ or other readings of Sushruth.

Now if we consider the explanation of Gananath Sen, then kloma is present on both the sides- i.e. Dakshin [right] and vaama [left]. But further Gananath Sen has said that Kloma should be trachea in this sense. But trachea is present superiorly and posteriorly to the heart. Thus, a question arises here? If we compare the position of Spleen anatomically- Spleen is related superiorly to Diaphragm and left pleura of the left lung. Thus, on the left side below the heart is the left Lung and the spleen. Over to the right side is Liver. Now on both the sides Kidney has relations with both Liver and Spleen, and surprisingly Supra-renal gland is also related to them.

Physiologically Suprarenal gland- cortex part is involved in secretion of Mineralocorticoids and Glucocorticoids. The zona glomerulosa layer of the cortex is responsible for formation and secretion of Aldosterone. The secretion of aldosterone is controlled by Angiotensin II and potassium. In case there is total loss of aldosterone secretion death may occur within 3 days to 2 weeks unless aldosterone is injected intravenously. This mainly occurs due to loss of Na+ and water rapidly from the body, while K+ concentration rises rapidly. This leads to lesser cardiac output and further circulatory shock ultimately causing death. Thus, aldosterone is responsible in maintaining cardiac output by controlling the levels of electrolytes. It acts on the distal renal tubules of the nephron and causes reabsorption of sodium and excretion of potassium. It directly does not help in absorption of water but water is absorbed along with sodium. Loss of aldosterone secretion leads to loss of sodium from our body and in turn water is also lost. Such excess loss leads to dehydration, cramps, thirst, etc.

In Ayurveda Kloma and Talu [Palate] are the roots of U dakavaha srotas. Also, it has been said that if there is injury to U dakavaha srotas the person develops excessive thirst and death. This is quite similar to loss of aldosterone too. From the above article along with all the literary evidences some light can be thrown on the controversial topic of Kloma. The best reference is regarding death of an individual which is quite similar to that given in modern physiology textbooks. In Ayurveda Sadyo Maran [sudden death] constitutes death within 3 days to 15 days. In modern physiology books it is given that if Aldosterone loss is not corrected then the patient dies within 3 days to 2 weeks [14 days]. This just can’t be a coincidence but is the effort of observations by physicians. Thus, it can be summarized that Kloma and Suprarenal gland share something in common and the above article is a path in the above direction to clear longstanding misconceptions regarding Kloma.

4. CONCLUSION
It can be said that Kloma and Suprarenal gland have similarity as injury to both of them can result in disastrous condition to the human body. This topic should be discussed more importantly so that once and for all the controversies are cleared with sound logic and scientific observation.

REFERENCES
2. Shastri Ambikadutta Editor. (Reprint ed.) Ayurved Tatva Sandipika Hindi Commen-


Cite this article as:

Source of Support: Nil; Conflict of Interest: None declared.