

**A REVIEW OF VAIKRAT SHABDA VRANA AS GAS GANGRENE IN SUSHRUTA SAMHITA****Dr. Mukesh Gupta\*<sup>1</sup>, Prof. Mahesh Dixit<sup>1</sup>, Prof. Hari Mohan Meena<sup>3</sup> and Dr. Namo Narayan Meena<sup>4</sup>**<sup>1</sup>PG Scholar, PG Dept. Of Shalya Tantra; M.M.M. Govt. Ayurved College, Udaipur.<sup>2</sup>Principal and H.O.D; PG Dept. Of Shalya Tantra; M.M.M. Govt. Ayurved College, Udaipur.<sup>3</sup>Professor; PG Dept. Of Shalya Tantra; M.M.M. Govt. Ayurved College, Udaipur.<sup>4</sup>Associate Professor; PG Dept. Of Shalya Tantra; M.M.M. Govt. Ayurveda College, Udaipur.**\*Corresponding Author: Dr. Mukesh Gupta**

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**ABSTRACT**

Gas gangrene is a rapid spreading infective type of gangrene of the muscles characterized by collection of gas in the muscles and subcutaneous tissue. Gas gangrene is caused by clostridial infection (*Clostridium perfringens*/*Clostridium welchii*) due to the fact that it is also called as "clostridial myonecrosis." Sushruta samhita is one of the three major classical Ayurvedic texts (Brihatrayee) and it belongs to the surgical school founded by Acharya Dhanvantari. The present article deals with the reference of gas gangrene like condition in the sushruta samhita. There is a reference regarding Shabda vikrati vrana which are characterized by gas and crepitations and considered as fatal in Sushruta samhita, Sutra sthana, 28th chapter named "vipareetaavipareeta vrana vigyaneeyam." The wounds which make harsh, groaning, and sparkling sounds; those located in skin and muscle emit air with sound are fatal. Gas and crepitations were considered as fatal signs in vaikrat shabda vrana according to Sushruta. The earliest record of gas gangrene and its fatal outcome is found in Sushruta samhita.

**KEYWORDS:** Ayurveda, *Clostridium perfringens*, *Clostridium welchii*, Gas gangrene, Sushruta samhita, vaikrat shabda vrana.**INTRODUCTION**

Sushruta samhita is one of the three major classical Ayurvedic texts (Brihatrayee) and it belongs to the chief treatise of its surgical school, i.e. "Dhanvantara sampradaaya" founded by "Acharya Dhanvantari." The presently available version of Sushruta samhita has evolved through multiple transformations and redactions by many scholars time to time over several 100 years. The Sushruta samhita is claimed to be a work of 10-7th century BC. However, according to historians, the presently available redacted Sushruta samhita is not older than 1st century AD.<sup>[1]</sup> The Sushruta samhita describes in detail the surgical care of patients. Surgically treatable diseases were identified and indications/contraindications of surgery were described. Designing of a wide range of surgical instruments and their appropriate use is the highlight of Sushruta samhita. Sushruta samhita explains different types of wounds and their management in an elaborated way. Surgical incisions, their alignment, suturing, and dressing are well described.<sup>[1]</sup> The present article deals with the reference in Sushruta samhita's vaikrat shabda vrana which is similar to gas gangrene.

**Gas Gangrene**

Gas gangrene is a rapid spreading infective type of gangrene of the muscles characterized by collection of gas in the muscles and subcutaneous tissue. Gas gangrene is caused by clostridial infection (*Clostridium perfringens*/*Clostridium welchii*) due to the fact that it is also called as "clostridial myonecrosis." Gas gangrene develops in wounds where there is extensive laceration or devitalization of muscle tissue with gross contamination of the wound either by soil or any other foreign bodies. In such type of wounds, the above organisms (usually multiply in anaerobic conditions) are able to multiply and produce toxins.<sup>[2]</sup>

**Reference of Gas Gangrene In Sushruta Samhita**

There is a reference regarding Vaikrat Shabda vrana which are characterized by gas and crepitations and considered as fatal in Sushruta samhita, sutra sthaana, 28th chapter (vipareetaavipareeta vrana vigyaneeyam); this condition resembles with "gas gangrene."

“Kshvedanti ghrughuraayante jvalanteeva cha ye vranaah Tvak maamsasthashcha pavanam sa shabdham visrujanti ye.”<sup>[3]</sup>

Those wounds should also be discarded which make rattling sounds or crepitations, which are characterized by extreme burning sensations as also those which confined to the skin and muscles produce gas with sound.<sup>[4]</sup> The wounds which make harsh, groaning, and sparkling sounds; those located in skin and muscle, emit air with sound and those not arisen on vital spot are extremely painful should not be taken up.<sup>[5]</sup>

### Kshvedanti

According to Dalhana (commentator of Sushruta samhita), “Kshvedanti” means “producing a sound like khat khat.”<sup>[3]</sup> Kshvedana also means “hissing” sound.<sup>[6]</sup> The wounds which make kshvedana are considered as fatal. These sounds are nothing but the crepitations due to the presence of gas in the wound. In gas gangrene, the muscles gradually undergo various stages of degeneration and lose their contractility, normal healthy color, and characterized by crepitations due to the presence of gas bubbles. The gas is chiefly hydrogen and odorless in the beginning; but soon, it becomes fetid due to the production of sulfurated hydrogen (H<sub>2</sub>S), ammonia, and volatile gases by the action of proteolytic group of organisms.<sup>[2]</sup>

### Ghurghuraayante

“Ghurghuraayante” means the one which is producing whistling sounds.<sup>[7]</sup> According to Dalhana, “Ghurghuraayante” means panting/gasping-like sounds.<sup>[3]</sup> Such types of sounds are due to the presence of gas in wounds (in gas gangrene). These sounds are often palpable and sometimes audible with a stethoscope.<sup>[2]</sup>

### Jvalanteeva

According to Dalhana, the word “jvalanteeva” denotes the burnt or black color of wound.<sup>[3]</sup> Clostridial infection produces a foul smelling necrosis of the muscle which becomes from dull red to green and ultimately black in appearance. Ultimately, the muscle in gas gangrene becomes black due to the action of sulfurated hydrogen on iron liberated from broken down muscle hemoglobin.<sup>[2]</sup>

### Tvak Maamsastha

It means the wounds which are located at the level of skin, subcutaneous tissue, and muscle. In gas gangrene also, skin, subcutaneous tissue, and muscles are involved. The crepitus is always present due to the presence of gas in the muscle and subcutaneous tissue in gas gangrene.<sup>[2]</sup>

### Pavanam Sa Shabdham Visrujanti

“Pavanam sa shabdham visrujanti” means wounds emitting air with sounds. Emitting air with sound is abnormal in case of wounds located in skin and muscles, whereas it is normal in those located in viscera.<sup>[3]</sup>

### Management and Prognosis

According to Sushruta wounds which make sounds are fatal; ultimately leads to death, not treatable and physician should not attempt to treat such type of wounds to protect his reputation and also the reputation of scriptures. Patients, whose ulcers do not heal in spite of proper treatment from the very beginning, should be discarded by the wise physician who desires to preserve his reputation.<sup>[8]</sup> Wounds which make sounds are considered as “Arishta” (signs of imminent death).

Gas gangrene carries a considerable mortality rate. Treatment consists wound excision/debridement, administration of high-dose penicillin, passive immunization by intramuscular injection of antigas gangrene serum, amputation, and hyperbaric oxygenation.<sup>[2]</sup> Acharya Sushruta has considered gas producing wounds as fatal; lack of powerful antibiotics, immunization, and novel therapies such as hyperbaric oxygenation therapy during the period of Acharya Sushruta may be the reason for making this condition fatal.

### CONCLUSION

Gas and crepitations were considered as fatal signs in vaikrat shabda vrana according to Acharya Sushruta. The earliest record of gas gangrene and its fatal outcome is found in Sushruta samhita.

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