

Kumbhakarna: Did he suffer from the disorder of the hypothalamus?

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ABSTRACT

Kumbhakarna was brother of the evil *Raavana* in the mythological tale of *Ramayana*. According to the legend, *Kumbhakarna* had an insatiable appetite and thirst and used to sleep for great lengths of time. He also had an uncontrollable temper, which was feared by many. It is our assessment that *Kumbhakarna* possibly suffered from hypothalamic obesity. Hypothalamic obesity can be defined as significant polyphagia and weight gain that occurs because of structural or functional involvement of the ventromedial nucleus of the hypothalamus bilaterally. The characteristic features are obesity associated with polyphagia. Somnolence is present in 40% of cases. Sham rage is a characteristic behavioral abnormality seen in these patients. All these symptoms are described in the mythological text while describing *Kumbhakarna*. The episodic nature of *Kumbhakarna*'s symptoms can also be explained by another hypothalamic syndrome called Klein–Levine syndrome. This syndrome is characterized by periodic episodes of somnolence, hyperphagia and hypersexuality along with other behavioral and cognitive difficulties.

Key words: Hypothalamic obesity, Klein–Levine syndrome, *Kumbhakarna*, *Ramayana*, somnolence

Art has been a part of medical education in many countries. Arts and humanities not only broaden the perspective of a medical student but also descriptions and pictures of art forms in literature, sculpture and performance often help the student navigate through the complex maze of medical learning. A survey conducted amongst medical students in Netherlands concluded that medical students often felt that arts teaching enriched the medical curriculum.^[1] We report a story from the Indian mythology, which helped us learn a complex endocrinal condition.

The story of *Kumbhakarna* is an important part of *Ramayana*. *Kumbhakarna* was brother of evil *Raavana*. It is said that *Kumbhakarna* was a devotee of Lord Brahma and

was granted a boon by the Lord. The “Devas” however feared that if *Kumbhakarna* was given unlimited power then *Raavana* would use it to destroy the Devas and their abode. Hence, they took the help of Goddess *Saraswati*. It is said that the Goddess made sure that when *Kumbhakarna* asks for his wishes his “tongue would be tied”. Hence, when *Kumbhakarna* asked for “Indrasaana” (the home of Lord Indra), Brahma heard it as “Nidrasaana” (Bed for sleeping) and when he asked for “Nirdevatvam” (destruction of Devas), it was misheard as “Nidravatvam” or sleep. As a result, *Kumbhakarna* was said to sleep for unusually long periods of time and would be difficult to wake up. When he would wake up, he would have an insatiable appetite and would eat whatever in sight. Eventually, he would be fatigued again and would go back to sleep. He was also described to be overweight and possess a terrible rage, which many people feared.

Hypothalamic obesity can be defined as significant polyphagia and weight gain that occurs because of structural or functional involvement of Ventromedial nucleus of the hypothalamus (VMN) bilaterally.^[2] The involvement of

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VMN can be because of tumor (e.g.: Craniopharyngioma), inflammatory conditions (e.g.: Tuberculosis or Sarcoidosis), Neurosurgery, Head injury, Radiotherapy, Aneurysm or Genetic conditions (e.g.: Prader Willi syndrome).^[3]

Hypothalamic obesity presents with hyperphagia and obesity associated with (1) constellation of pressure symptoms in form of headache, vomiting or raised intracranial tension (2) endocrinal features such as impaired reproductive functions, diabetes insipidus and impaired growth and (3) neurological features like Somnolence, behavioral changes and seizures. Somnolence is present in 40% of patients with hypothalamic obesity. Behavioral abnormalities include antisocial behavior, emotional lability and sham rage.^[4] Patients may have lower basal metabolic rate and associated growth hormone, gonadotropins and thyroid hormone dysfunctions are not uncommon.^[5]

Correlating the scientific literature and the mythological story of *Kumbhakarna* we have come to a conclusion that *Kumbhakarna* was possibly suffering from hypothalamic obesity. The presence of hyperphagia and obesity are obvious pointers to the same. A previous publication describes him as possibly suffering from Hypothyroidism and sleep apnea.^[6] We believe hypothyroidism alone cannot explain his predicament since hypothyroidism is associated with obesity with normal or reduced appetite, however, the legend of *Kumbhakarna* describes him as having an insatiable appetite. The presence of Sham rage in hypothalamic obesity also fits with the description of *Kumbhakarna*. At one point in Valmiki's Ramayana *Kumbhakarna* is described to have drunk two thousand pitchers of water after being woken up from his slumber and summoned by his brother. Polydipsia is a well-known feature of diabetes insipidus, which in turn is a part of hypothalamic obesity and is reported in around 30% of patients.^[4] The fatigue of *Kumbhakarna* can be attributed to his low metabolic rate and lack of growth hormone, thyroid hormone and gonadotropins.

Another hypothalamic disorder Klein–Levin syndrome also has certain features, which resemble the story of *Kumbhakarna*. Klein–Levin syndrome is a rare disorder of adolescents, which is associated with periodic episodes of somnolence, hyperphagia and hypersexuality along with other behavioral and cognitive difficulties. The etiology of this syndrome is not well defined but often precipitated following trivial infection like flu or head trauma. The episodic nature of *Kumbhakarna's* sleep fits conveniently into the episodic nature of this syndrome where the

episodes have been reported to last from 2 to 80 days. Another feature from the mythology, which fits into the description is the inability to articulate what he wanted to say to Lord Brahma. Abnormal speech is reported in 2/3rd of cases of Klein–Levin syndrome.^[7]

Treatment of hypothalamic obesity is difficult. Lifestyle measures have shown little benefit. Anecdotal reports and small studies have shown the use of octreotide, dextroamphetamine, liothyronine and dioxide + metformin. Bariatric surgery has also been used successfully in hypothalamic obesity.^[3,8]

Use of amphetamine, a CNS stimulant has been deemed to be effective in 70% and 40% cases of Klein–Levin syndrome during the episodes. Mood stabilizers like Lithium have been found to reduce the frequency and prolong the duration between the episodes.^[7]

In conclusion, disorder of the hypothalamus like hypothalamic obesity or could very well explain some of the symptoms that *Kumbhakarna* suffered from correlating the complex hypothalamic disorders with a popular story from *Ramayana* proved to be an excellent and fruitful way of teaching and learning.

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