Obesity: The Octopus in the Room

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Introduction

The octopus, an eight-legged invertebrate, is known for its unique biology, as well as its intelligence. Famed for its mystique and mysteriousness, the octopus is an emblem of the wonders of nature. Octopuses can bite humans, can secrete fatal neurotoxins (tetrodotoxin), and are a cannibalistic species. While they are a benthic species, living in deep seas,[1] their imagery abounds in multiple places.

Table-1: The octagon of obesity.

Pathophysiologic viewpoint	Salutogenic view point
THE BIOMEDICAL QUADRUPLE	
• Endocrine dysfunction	• Endocrine optimization
• Extraneous limitation e.g, medical disease	• Elimination of limitations, e.g., medical musculoskeletal
• 'Estate 'or inherited disease	• Early identification of syndromic obesity
• Endocrine disruptor drugs; iatrogenic obesity	• Ensuring rational use of drugs known to increase weight
THE PSYCHOSOCIAL QUADRUPLE	
• Environmental factors, e.g., pollution	• Environmental planning and pollution mitigation
• Emotional ill health	• Enhancement of emotional/mental health
• Educational shortcomings; health illiteracy	• Education, including health literacy
• Economic and commercial determinants	• Economic optimization and health friendly policies

Complex Causation

Obesity, in many ways, is similar to the octopus. The ominous octet of obesity refers to the eight endocrine glands associated with its pathophysiology.[2] Just as the octopus has eight tentacles, the octagonal model of obesity describes a major octagon (Table 1), with each angle home to a smaller octagon, that lists eight relevant factors. Thus, the pathophysiology of obesity seems as challenging and complex as the anatomy of the cephalad.

Chaotic Clinical Picture

Similarly, the fighting and self-destructive nature of the animal[3] finds reflection in the natural history of obesity, which leads to premature cardiovascular disease, along with other complications, which we list as the Ten Ms (Table 2). Some octopus species are neurotoxic. In the same vein, persons with obesity experience high rates of premature mortality, dur to cerebrovascular and cardiovascular disease.[4]

Table-2: The Ten Ms of obesity.

Domain	Examples
• Metabolic	• Diabetes, cardiovascular disease
• Musculoskeletal	• Osteoarthritis
• Medical	• Hypertension, gallstones, obstructive sleep apnoea
• Miasmic	• Susceptibility to infections
• Mood related	• Depression
• Mitogenic	• Cancer uterus
• Menstrual/maternal	• Subfertility, polycystic ovary syndrome
• Masculine	• Hypogonadism
• Mirror-related	• Aesthetic issues, acanthosis nigricans
• Monetary	• Health expenditure

Challenging Control

The creature has a strong neurohormonal system, which adapts to changing life phases such as mating and egg laying.[3] The octopus, however, seems unable to tolerate stress, and exhibits frightening behaviour after reproduction. It is not possible to increase its lifespan beyond the time required for mating and egg laying. This reflects in obesity, where the metabolic set point hinders efforts to reduce weight beyond a particular threshold.[5]

Octopuses are difficult to tame, and octopus aquaculture is an extremely challenging vocation.[1] In spite of sustained efforts, effective obesity management continues to elude us, as does efficient octopus farming.

Creative Conditioning

There is a positive side to this imagery, however. The octopus' body composition is 95% protein, and it hardly has any fat.[6] This makes it a symbol of optimism for persons living with obesity, who can benefit from a high protein diet. The animal's "intelligent" limbs suggests that obesity can be overcome by a combination of preventive and therapeutic interventions, introduced at the clinical as well as community levels. Its ability to survive in deep frigid waters inspires us to fight against obesity, with optimism and hope.

Clear-Cut Challenge

The obesity epidemic shows no signs of abating, and is expected to worsen over the coming years. Obesity, therefore, is the octopus in the room, which cannot be wished away. We can learn a lot from this majestic creature, however.

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Convincing Course

The first step, perhaps, would be to view complex obesity pathophysiology not as a multipronged challenge, but as a multifaceted opportunity. Instead of speaking of the ominous octet, we should highlight the 'octagon of opportunities' that is present in obesity (Table 1). The next step would be to craft a person-specific treatment approach based on the individual's unique causative factors, clinical features, and complaints.[7] His or her complications, comorbid conditions and concomitant medications should also be taken into account while planning management strategy.[8] The person's core issues, concerns and culinary habits must also be considered (Table 2).

Confident Conclusion

The octopus is a semelparous species, and has a short life span. With newer drugs available for weight management, we hope that the days of refractory and resistant obesity will soon be numbered. Till then, however, the octopus in the room is here to stay. We can choose our response: fright, flight, or fight!

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