Endocrinology and "Humpty-Dumpty"

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Abstract

Nursery rhymes represent the simplest and most innocent form of performance art. 'Humpty-Dumpty' is a popular character of a nursery rhyme. This character denotes a humanized egg. In medicine, the term 'Humpty-Dumpty syndrome' has been used in many specialities. In neurology, "Humpty-Dumpty" syndrome is used to denote prosopagnosia and in rehabilitation medicine and psychiatry it is used to denote failure of a patient to recover from the psychological trauma of a stressful event in childhood. We believe that the character of "Humpty-Dumpty" potentially represents a patient with Cushing syndrome. In this article we have elaborated the scientific reasons for the same.

Keywords: Cushing syndrome, dementia, Humpty-Dumpty

Introduction

"Narrative medicine" is a branch of medicine that deals with narrative competence. Narrative competence is defined by Rita Charon as, "the ability to acknowledge, absorb, interpret, and act on the stories and plights of others".[1] Though primarily defined to improve the doctor-patient relationship, we believe that a "good story" or a narration is also a powerful and effective way of learning medicine.

It is well known, that "stories" and "art" help a person remember better compared to plain text. The famous idiom, "A picture is worth a thousand words" has stood the test of time. We have modified this adage to say, "A story is worth a thousand pages of a text".

In our previous article on "Endocrinology and art" we had discussed that the great mythical character of "Kumbhakarna" suffered from a possible disorder of the hypothalamus. We carefully and scientifically dissected the story behind the character to generate a possible endocrine explanation to explain his malady.[2]

In this article, we have attempted to explain a well-known endocrine disorder with a famous nursery rhyme very popular amongst the children. Our proposition has great potential to be used as a "memory tool" for medical students and students of biology.

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Our theory is that we believe that "Humpty-Dumpty" suffered from Cushing syndrome. In this article, we will explain the reasons for the same.

The Origins of Humpty-Dumpty

Nursery rhymes represent the simplest and most innocent form of performance art. It involves creative writing, singing, and acting. Nursey rhymes as an art form is simplified so that a child in kindergarten can understand and learn using the rhymes. "Humpty-Dumpty" is a very popular nursery rhyme. The exact origin of the character of Humpty-Dumpty is not well known but it is very popular as a character in nursery rhyme which reads as follows

Humpty Dumpty sat on a wall,

Humpty Dumpty had a great fall.

All the king's horses and all the king's men

Couldn't put Humpty together again.

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The word "Humpty-Dumpty" first appears in the 17th century to signify a type of alcoholic drink.[3] Since the word has evolved to signify a person in general and then a person in specific.

Some people believe that it is not a mere rhyme but a riddle. The solution to the riddle is that the character in question signifies an "egg". Some historians have even suggested that "Humpty-Dumpty" was a snide reference to the monarch Richard III of England.[3]

Humpty-Dumpty also appears as an important character in the novellas "Through the Looking-Glass", and "What Alice Found There" by Lewis Carroll which were sequels to the famous "Alice in Wonderland". In these stories, Humpty-Dumpty is shown to be an eccentric character with a tendency to "forget things". Characteristically, the character could not remember the faces of people, a condition known as "prosopagnosia".[4]

Illustrators over the years have shown a picture of a "humanized egg" to demonstrate Humpty-Dumpty. The character is shown to have a large face, almost no visible neck and thin and stick-like limbs. The illustration most likely comes from the work of John Tenniel who drew the character for the first time for Lewis-Carroll's book.[3] Some others have shown him to be a short and obese person with a "moon-like face" [Figure 1].

Humpty-Dumpty and Cushing Syndrome

Cushing syndrome is a well-known endocrine condition secondary to glucocorticoid excess. We believe "Humpty-Dumpty" is a good character illustration to demonstrate the signs and symptoms of Cushing syndrome. Since the exact origin of this rhyme is not well known, it is possible that the later day illustrators probably modeled Humpty on a patient suffering from an undiagnosed Cushing syndrome.

One of the characteristic features of Cushing syndrome is the redistribution of body fat. There is excess fat being deposited in the temporal region leading to moon-like face, in the cervical region, leading to what is known as the "buffalo hump" and in the abdominal region leading to an increase waist circumference. On the other hand, there is loss of muscle mass from the peripheries leading to what is known as "stick-like" arms and legs.[5] Humpty-Dumpty has a redistribution of fat as we would expect from a patient with Cushing syndrome. He has a moon-like face and central obesity combined with "stick-like" arms and legs.

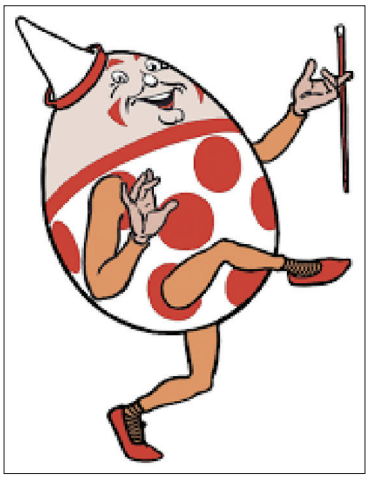

Figure 1: An artist's impression of Humpty Dumpty showing 'moon-like face', facial plethora, central obesity and 'stick-like legs' (thin extremities) illustrating the clinical features of Cushing syndrome

Facial plethora is an important sign of Cushing syndrome. Facial plethora was well described in the original work of Harvey Cushing when he first described this syndrome in his patient Minnie G.[6] Several illustrations have shown Humpty-Dumpty to have a facial plethora reminiscent of Cushing syndrome. Interestingly, Humpty is also shown in several pictures to have striae (stretch-marks) which resemble the classical striae seen in Cushing syndrome.

The additional hint about the disease comes from Humpty's fall. It is well known that patients with Cushing syndrome have proximal muscle weakness. Humpty falling inadvertently from a height is surely ominous of possible proximal muscle weakness.[7]

The next hint comes from what happens to Humpty after his fall. To fall from a relatively low height and develop a fracture suggests a possible "low bone mass" or osteoporosis characteristically seen in Cushing syndrome.[8] "All the king's horses and all the king's men, could not put Humpty together again". This line suggests a possible non-union of the fracture. Non-union is well known to occur in osteoporosis and this gives the possible hint that Humpty suffered from osteoporosis secondary to Cushing syndrome.

Neuropsychiatric manifestations are also common in Cushing syndrome. Though the original rhyme does not allude to it, the characterization of Humpty by Lewis Carroll gives out several hints about the same. Dementia is also seen in Cushing and it is very clear that Carroll's character suffered from an early-onset dementia.[9]

Alternative Theories to the Maladies of Humpty-Dumpty

Though we have given adequate evidence to support our argument that Humpty-Dumpty suffered from Cushing syndrome, one could argue several other theories to explain the diseases from which Humpty suffered.

The simplest explanation could be that Humpty-Dumpty was a young alcoholic individual who fell from the wall in an intoxicated state. Alcoholism is also well known to cause facial plethora as it was observed in Humpty-Dumpty and also leads to reduced reflexes leading to increased risk of a fall. Chronic alcoholism is a risk factor for chronic liver disease. Decompensated chronic liver disease can lead to ascites with thinning of arms and legs leading to the appearance as seen in

Humpty-Dumpty. Since the Humpty-Dumpty was originally a term for an alcoholic drink found in medieval England, the use of the term to describe an alcoholic person is highly likely. Alcoholism can also lead to dementia which was seen in the later versions of the character.

Several theories have also suggested that Humpty-Dumpty referred to Richard III of England. Richard III suffered from spinal deformities. Richard III was described as having "*little of stature, ill-featured of limbs, crook-backed. hard-favoured of visage*"[10] However, no other clinical features suggest that Richard III suffered from Cushing syndrome. If Humpty was a reference to Richard III, it could happen that the later day illustrators missed this point and gave a completely different characterization to Humpty. James Erekson argues that the illustrators over the years have done us a disservice by creating an image of Humpty-Dumpty which may or may not be historically accurate. The image of Humpty-Dumpty as an egg is just one interpretation of the riddle but not the ONLY interpretation of the same.[3]

The term "Humpty-Dumpty syndrome" has been used in many other specialties of medicine. In neurology, this term is used to describe "prosopagnosia", i.e., inability to recognize familiar faces.[11] This is in reference to Lewis Caroll's character of Humpty. The term is also used in rehabilitation medicine to describe the failure of a patient to recover from the psychological trauma of a stressful event in childhood.[12] Amongst other sciences, the concept of Humpty-Dumpty has been correlated with the Second law of thermodynamics. This law states that the entropy only tends to increase over a period of time. The shattering of Humpty-Dumpty, just like entropy in the universe cannot be brought back to a state of low entropy again.[13]

Conclusions

To conclude, we believe that the character of Humpty-Dumpty can serve as a useful illustration to teach medical students about Cushing syndrome. Some of the key clinical features of Cushing syndrome-like facial mooning, facial plethora, stretch marks, proximal muscle weakness, low bone mass/osteoporosis and early-onset dementia are important features of Cushing syndrome which can be learned from the example of Humpty-Dumpty.

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Conflicts of interest

There are no conflicts of interest.

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