DORSAL COLUMN

Grey Matter

Hughlings Jackson on joking

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Keywords: history of neurology; clinical neurophysiology; clinical practice; neuropsychology; neurological examination

Introduction

The Anglo-Irish writer Spike Milligan is said to have written the world’s funniest joke. With apologies to Monty Python’s Joke Brigade, it goes as follows:

‘Two hunters are out in the woods when one of them collapses. He doesn’t seem to be breathing and his eyes are glazed. The other hunter whips out his phone and calls the emergency services. He gasps, “My friend is dead! What can I do?” The operator says “Calm down. I can help. First, let’s make sure he’s dead.” There is a silence, then a gun shot is heard. Back on the phone, the guy says “OK, now what?”’

Humour is ubiquitous. It serves the goals of amusement, entertainment, release and escape. Its cognitive and therapeutic uses are well-known; for instance, children who listen to a humorous recording do better on tests of creativity. It encourages the neurological pastime of subdivision and classification so that we distinguish such categories as punning, semantic jokes, irony, wit, sarcasm, cartoons and slapstick. Humourous tasks lend themselves to physiological study, which show that it takes ~250 ms to ‘get’ a joke.

Insightful diagnosticians realize that brain disease affects the ability to get a joke so that some patients don’t understand our witticisms. Of course, neurologists examine the workings of the nervous system in everyday life, especially life away from the hospital. In a world of near-continuous incongruity we hear and see comedians, journalists and political figures making all manner of jokes, some of which are deliberate. When we hear these pronouncements we ask ourselves the usual neurological questions: where in the brain does joking happen? How, exactly, does joking work? Why do we smile or laugh at all?

John Hughlings Jackson (1835–1911) articulated a number of neurological ideas that neurologists now use regularly (Hughlings Jackson, 1884; Temkin, 1971; York and Steinberg, 2011). As a prominent London physician and a seminal practitioner of scientific neurology, he promoted the new specialty personally and in the pages of globally circulated periodicals. His many students and friends knew him to be witty and self-deprecating, particularly enjoying stories in which he was the butt of the joke. After being elected president of the Medical Society of London in 1887 at the height of his career, he devoted his presidential address to the topic of the psychology of joking. *The Lancet* and the *British Medical Journal* published his remarks under his byline in the same month, and his remarks appear in the *Proceedings of the Medical Society of London* the following year (Hughlings Jackson, 1887a, b, 1888; York and Steinberg, 2006).

Hughlings Jackson on joking

Hughlings Jackson ascended the Medical Society podium on 17 October 1887, at age 52. After a few introductory remarks, he said that, ‘In spite of Dr. Johnson’s well-known dictum, we should not despise punning’ (Box 1A). Rather, he inclined toward Sydney Smith’s observation that punning is the foundation of all wit. Poking fun at Scotland in ways that might now be thought incorrect, he disagreed with the jocular Englishman Smith’s jibe that it requires a surgical operation to get a joke into a Scotsman’s head.
realistic appreciation of simple things does not necessarily situations. He cautioned scientists to understand that a mourless people also are deficient in scientific thinking plishment. In a more general comment he said that hu- mind, and lacks the mental subtlety that leads to accom- bishment. Quoting Herbert Spencer, he said that punning has a playful intent, it must have an aesthetic component. Quoting his colleague William Gowers (later Sir William) illustrated this plea with a series of jokes, like making a ring by starting with a hole and placing material around it. Quoting his colleague William Gowers (later Sir William) on definite vertigo, he remarked that most people thought that the accompanying nausea meant the problem originates in the stomach rather than the ear. He finished his address with more jokes, some of which sound off-key to modern ears. For instance he tells the story of an Irishman who presents a cheque and, when asked for identification, produces a photograph of himself. He did not include any more formal conclusions.

Commentary: The neurology of joking then and now

Joking in Jacksonian neurology

Hughlings Jackson used the opportunity of a major medical address, published in two medical weeklies and in the
proceedings of a prominent London medical society, to do three things: to subject joking to scientific analysis, to point out that joking was essential in the practice of neurology and medicine, and to tell jokes from the podium. In doing so he invited succeeding generations of neurologists to consider his concepts of cerebral localization through the lens of joking. He made sure to mention the contributions of his friends and colleagues David Ferrier and William Gowers. Aware that his audience might not be familiar with his neurological conceptions, he noted that the function of the nervous system lent itself to then-current evolutionary analysis, explicitly mentioning both Charles Darwin and Herbert Spencer.

In the Jacksonian conception of neurophysiology, the nervous system is an exclusively sensorimotor machine arrayed in a three-level hierarchy governed by the evolutionary principles of weighted ordinal representation (Hughlings Jackson, 1884; Temkin, 1971; York and Steinberg, 2011). As the historians Robert J. Richards and Robert Young have shown, Hughlings Jackson derived his evolutionary principles from the work of Herbert Spencer applying the contemporaneous idea that higher levels evolved from lower levels. To Hughlings Jackson the symptoms of neurological disease are dual, with negative symptoms due to destruction of tissue in the higher level and positive symptoms arising from the emergence of previously inhibited lower-level function. Higher-level function is more complex, autonomous and interconnected than lower-level function. He asserted that the mind has the same structure, but the brain and mind are not causally connected, a principle that he termed the Doctrine of Concomitance (Hughlings Jackson, 1884). Harrington, C.U.M. Smith and Jacyna have analysed these physiological ideas in their work.

The nervous system responds to double simultaneous stimulation in any sensory system by producing two separate responses, which may be incoherent in some way. The nervous system unifies the double sensory stimulation by localizing it in the body in a process of somatotopic representation, the conception that different parts of the body have different anatomic representations in the nervous system. Astute neurologists can use a knowledge of these anatomic representations to localize pathology at the bedside.

Joking illustrates the same thing in the mind. In Jacksonian psychology, the mind has also three evolutionary levels connected by Spencerian evolutionary principles. In this system higher levels produce more numerous, complex, voluntary and interconnected function than lower levels (Hughlings Jackson, 1884; Swash, 1989). Punning, which involves using deliberately contradictory mental images, is evidence for something like somatotopic representation in the mind. That is, ‘getting’ a pun requires two distinct mental spaces, though the nature of the spaces and their separation are vaguely defined. Nonetheless, neurologists accept Hughlings Jackson’s claim that double mental stimulation underlies joking. They agree that a deficiency of humour is a bad sign in patient and doctor because it ignores an important aesthetic aspect of medicine. Practicing neurology is much easier on everyone if both patient and doctor see the humour in a situation, no matter how dire.

Sigmund Freud, as a trained neurologist, accepted Hughlings Jackson’s evolutionary neurology and applied it to his revolutionary psychodynamic theories. In his last purely neurological work, on aphasia, he cited Hughlings Jackson’s work in his theory of repression involving the emergence of previously-inhibited psychological functions. He repeatedly referred to the emergence of repressed mental states in his psychoanalytic work. In his 1905 book on joking and in a 1928 article on humour, Freud characterized jokes as a method for the conscious to put into words the ideas that society has suppressed. According to Freud, the superego allows the ego to make jokes depending on the nature, and the strength, of the superego’s control of the ego.

John Hughlings Jackson’s humourous personality

Commentators like to caricature Hughlings Jackson as shy, withdrawn, half-deaf, socially retiring and humourless. His colleague Charles Mercier, in an affectionate recollection published 3 months after Hughlings Jackson’s death, quoted the late president of the Royal College of Physicians, Sir Andrew Clark, to the effect that neither Jonathan Hutchinson nor John Hughlings Jackson had a sense of humour. Macdonald Critchley mentions Hughlings Jackson’s reserve, loneliness and social withdrawal. However, in his prime Hughlings Jackson was engaged with the medical, scientific and political trends of his time. As a prominent member of the London medical establishment with rooms in fashionable Marylebone, he was a recognized leader of scientific neurology. In addition to being president of the Medical Society of London, he was president of the Clinical Society, the Physiological Society and the Ophthalmological Society of the United Kingdom. In 1895 he was elected the first president of the Neurological Society of London by acclamation. Hence we can say that while in his prime, he was well-known and active, involved in an essential way in the life of the city.

Furthermore, his intimates unanimously attest to Hughlings Jackson’s well-formed sense of humour. His lifelong friend Jonathan Hutchinson, later Sir Jonathan, said that Hughlings Jackson loved a joke especially when he was the subject of it. Hutchinson tells the story that Hughlings Jackson failed to find clonus in a patient that was the subject of it. Hutchinson tells the story that Hughlings Jackson never able to suppress a laugh when he told this story. His crony Dr Thomas Buzzard says that his sense of humour was of the keenest, though it was
hidden in public by his grave demeanor. The two of them had the insight to appreciate the humour in neurology, Buzzard writing that ‘...his innate drollery, finding vent in the most amusing and fanciful ideas, contributed in no small degree to make him a delightful companion.’ (Buzzard, 1911).

From about 1865 to 1905 he traveled by horse-drawn carriage from his home in Manchester Square to the London Hospital in the East End of London and to the National Hospital in Bloomsbury. He also made house calls throughout London. Every day he visited Buzzard’s house for lunch, where Buzzard’s son (and later student, colleague, knight and baronet) E. F. Buzzard knew him when the younger Buzzard and his sister were growing up. Hughlings Jackson often traveled in a landau with the two children beside him. E. F. Buzzard confirms Hughlings Jackson’s keen wit, and says that Hughlings Jackson’s comments on joking not only show how his mind worked but also set the foundation of modern neurological thought.

His student, colleague and biographer James Taylor also remarked on his address on joking and tells of his sly, ‘pawky’ sense of humour. Taylor says that, with a twinkle in his eye, he would quietly admonish each new house officer to never say anything that contradicted Jacksonian theories. He was amazed and discomfited when a particularly obedient houseman followed this diktat compulsively.

Hutchinson remarks on another aspect of his joking personality. He had the habit of blaming misfortunes on the ‘Evil One’ whom he called Mr. Harris. He would often say that Mr Harris had hidden his glasses or stopped his carriage. This showed his wit, as Mr Harris was the imaginary husband of the imaginary Mrs Harris whom Sarah Gamp invoked to pay her compliments in Charles Dickens’s novel Martin Chuzzlewit. It is not a coincidence that Dickens was another of Hughlings Jackson’s favourite authors (Hutchinson, 1911).

Joking as an aesthetic act

Hughlings Jackson invoked Spencerian evolutionary theory to claim that joking proves that people have more mental capacity than they need to survive. They use this excess mental capacity to think about the greater things in life. He further commented that science demands a sense of humour because scientific progress depends on seeing complex connections and proving relationships where none was anticipated. As a scientific physician and a punster who developed many of the principles that govern bedside neurology, Hughlings Jackson showed that the practice of medicine is, or can be, an aesthetic act.

Hughlings Jackson’s conception that joking uses the part of the mind that is unnecessary for mere survival, that mental ‘playing’ enables aesthetic endeavours, forms the basis of a modern field of study called neuro-aesthetics. Using techniques of neural imaging, investigators ask experimental subjects to perform ostensibly aesthetic tasks while encased in MRI or PET scanners and then map the locations in the brain that are activated or inhibited. For example, subjects look at paintings or listen to music while scientists examine brain activation patterns. Unfortunately Jacksonian neurology argues that such experiments can only determine sensorimotor concomitants of mental experience; any other interpretation violates conservation laws. These experiments can show that jokes stimulate various brain areas, including limbic areas, but can’t explain why they are funny. When faced with a patient who lacks a sense of humour, the neurologist might derive useful information about the patient but cannot therefore localize pathology in the nervous system.

In addition, the Jacksonian assertion that surplus mind allows joking does not necessarily assist the diagnostic neurologist in assessing its moral dimension, if any. Hughlings Jackson told jokes from the podium at the Medical Society of London that might now be considered incorrect or unfunny, even immoral. Some assert that finding racist or sexist jokes funny is inherently immoral, that such jokes are not funny even if told by people of the same race or gender. Jacksonian neurologists might object that highly moral audiences find incorrect jokes funny despite their transgressive nature, perhaps even because of it. Indeed, the success of some modern-day comedians depends on their telling forbidden jokes. Ethical rules and neuro-aesthetic laws may help psychologists to understand some aspects of joking, but they are not especially helpful at the bedside.

Humour promotes scientific thinking because mental diplopa, in Jacksonian terms, enhances an appreciation of conflicting connections that might be overlooked otherwise. Neuroscientific creativity depends on resolving seemingly contradictory facts or processes which then become amenable to experimental validation. The social aspect of humour allows the neuroscientist to put aside inhibitions and biases, leading to novel interpretations of neurological function. Jacksonian neurologists can’t ignore the aesthetic element of scientific creativity, in which a new concept appears because of its beauty or elegance.

The neurology of joking in modern medicine

It is not quite true to say that hospitals are happy places, but laughter can be heard in the halls of the world’s greatest neurological institutions. Neurologists see many incongruities in the practice of medicine, and a Jacksonian surplus of mind present in those neurologists make these events seem particularly humorous. It is sometimes said that patients with certain illnesses render them unable to understand and appreciate joking, and that this observation is both consistent and clinically useful. Unfortunately, the social and cultural component of joking makes it difficult
for practical neurologists to find jokes that all normal subjects think are funny. Things that make educated Western men laugh might be unfunny, or even incomprehensible, to an Asian woman or a Middle Eastern child. This fact tests both the humour and the cultural awareness of the examiner, though many neurologists manage to be able to test a patient’s sense of humour by a process of trial and error. A widely used technique involves asking the patient to tell the funniest joke they’ve ever heard, which has the dual benefit of testing the patient’s humour and adding another socially-tested joke to the examiner’s repertoire. A good collection of jokes from many cultures is a clinically useful tool for bedside neurologists.

The recent advent of powerful imaging techniques allows investigators to use tasks involving joking to locate activation or inhibition in discrete parts of the brain. These techniques allow the separation of cognitive, affective and volitional motor aspects of humour using non-verbal cartoons. Jokes that we think are funny activate different parts of the brain than those that don’t strike us in that way. We can identify separate elements of humour, with different aspects of laughter and joking activating different parts of the brain.

These studies imply that patients with frontal lobe pathology have impaired senses of humour; the non-dominant frontal lobe is said to be especially important. The temporal-parietal junction, which allows for perception, is also central in humour processing. Those with more general pathology may also have impaired appreciation of jokes, though this is less certain. Sarcasm is not joking, and patients with frontotemporal dementia and motor neuron disease have an impaired ability to appreciate sarcastic remarks. The ability of these patients to understand jokes has not been tested. Patients with Gilles de la Tourette’s syndrome have impaired appreciation of ironic or slapstick humour. Similarly, those with autism and Asperger’s syndrome perform poorly in tests of humour appreciation. Patients with schizophrenia have difficulty understanding humorous cartoons.

Neurologists often examine patients with pathological affect, especially of the pseudobulbar variety. Strong laughter can elicit a cataplectic attack and can herald the onset of an epileptic seizure in so-called gelastic epilepsy. Much more rarely fou rire prodromique, a prodrome of crazy laughter first described by Féré in 1903, can herald the development of a frontal stroke. Even rarer is witzelsucht, the making of puns and jokes at inappropriate times, which can follow putaminal haemorrhage or accompany the development of frontotemporal dementia.

Physicians have been exposed to the comic elements of the human condition since the time of the Egyptians and Babylonians, and humour has been a part of neurology since Hughlings Jackson made it an example of scientific thinking. Expressions of humour enlivens interactions with patients, colleagues and students; they emphasize the physician’s human qualities as well as the power of his or her neurological thinking. Neurologists since Hughlings Jackson have appreciated the amusing features of the practice, notwithstanding its tragic elements, and use the wit they acquire with experience to diagnose neurological problems and to reassure their patients. As Hughlings Jackson said, a defect of humour is a bad sign in doctors and patients, which accounts for the sound of laughter that prevails in neurological departments around the world. The elimination of humour from the practice of neurology would make it simultaneously less useful diagnostically and less enjoyable.

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