Historical aphasia cases
“Tan-tan”, “Vot-vot”, and “Cré nom!”

Hélio A.G. Teive¹, Renato P. Munhoz², Paulo Caramelli³

ABSTRACT
We describe three cases of aphasia in patients who were internationally famous historical personalities, such as the case of Mr. Leborgne (“Tan”) published by Paul Broca in 1861, which became a reference for the study of aphasias. The other cases described here are those of the Russian revolutionary and politician Vladimir Ilyitch Ulianov (Lenin) (“Vot-vot”) and the French poet Charles Baudelaire (“Cré nom!”). Besides their historical relevance and the clinical picture of aphasia, these three cases share as a common feature the occurrence of speech automatisms or stereotypes.

Key words: aphasia, utterances, Broca, Lenin, Baudelaire.

Historical note

Aphasia can be defined as a loss or impairment of oral language abilities as a result of a brain dysfunction. Other related language disorders include alexia, agraphia, acalculia, apraxia and Gerstmann’s syndrome. There are several approaches to the assessment of patients with aphasia. One of the simplest, most practical and fastest is the Frenchay Aphasia Screening Test, published in 1987. Aphasias can in general be assessed as part of different syndromes, such as Broca’s aphasia, Wernicke’s aphasia, conduction aphasia and global aphasia, among others.

Broca’s aphasia, or expressive or motor aphasia, is the most widely known form of this disorder, characterized by nonfluent verbal expression in which a few words are produced with great effort. Patients with Broca’s aphasia produce several short phrases, often pronouncing a single word in-between pauses. Other characteristics of Broca’s aphasia are dysprosody and agrammatism with impaired reading comprehension; these are often accompanied by right hemiplegia and apraxia. Comprehension of spoken language is relatively spared, particularly to simple commands and routine conversation. From an anatomical perspective, Broca’s aphasia is related to lesions in the Broca’s area, located in the inferior frontal gyrus (pars opercularis and pars triangularis) of the left cerebral hemisphere, usually with extension to the adjacent subcortical white matter.

The second commonest type of aphasia is Wernicke’s aphasia, which dif-

¹MD, PhD, Associate Professor of Neurology, Head of the Neurology Service, Internal Medicine Department, Hospital de Clínicas, Federal University of Paraná, Curitiba PR, Brazil; ²MD, MSc, Neurologist, Neurology Service, Hospital de Clínicas, Federal University of Paraná, Curitiba PR, Brazil; ³MD, PhD, Associate Professor of Neurology, Department of Internal Medicine, Faculty of Medicine, Federal University of Minas Gerais, Belo Horizonte MG, Brazil.
fers from Broca’s aphasia in that the patient can speak fluently, articulating and producing grammatical structures normally, but with abnormal content, meaningless words, paraphasias and frequent neologisms. Patients with Wernicke’s aphasia have great difficulty understanding spoken language and have lesions in the temporal lobe of the dominant cerebral hemisphere.

Another form of aphasia is known as global aphasia, which involves different types of language impairment: nonfluent spontaneous speech and impaired auditory comprehension, repetition, naming, reading and writing. This form of aphasia is accompanied by right hemiparesis or hemiplegia, sensory deficits and hemianopsia. Lesions associated with the development of global aphasia usually occur in the frontal and parietotemporal regions of the left cerebral hemisphere.

The first case reports and studies of aphasia were carried out in France in the 19th century by Paul Broca, a famous French surgeon who was also an anatomist and anthropologist, in his seminal work on aphasia.

The aim of this article is to describe three cases of aphasia studied in internationally famous historical personalities, one of which is the case of the patient “Leborgne” (“Tan”) published by Paul Broca in 1861, which became a reference for the study of aphasias and was subsequently the subject of considerable controversy. The other cases described are those of Vladimir Ilyich Ulyanov (Lenin) and Charles Baudelaire.

Paul Broca and the famous patient “Tan”

In 1861 in Paris, France, Paul Pierre Broca (Fig 1) published a report in the Bulletin de la Société Anthropologique of a case of aphasia associated with a lesion in the left frontal lobe that at the time he called aphemia. The patient, Mr. Leborgne, was a 51 year-old man with a previous history of aphasia and right hemiplegia who presented with a clinical picture of gangrene of the right lower limb and subsequently went into a coma and died. Broca performed an autopsy and found destructive lesions in the second and third frontal convolutions of the left cerebral hemisphere, the inferior margins of the Sylvian fissure, the insula and the adjacent part of the striatum, confirming his ideas about the location of language. Broca’s phrase “We speak with our left hemisphere” became famous. The specific frontal lobe region was later defined as Broca’s area, and the aphasia was given the name Broca’s aphasia by Trousseau.

The patient, Mr. Leborgne, became known as “Tan” because of the expressive aphasia he suffered from, as a result of which he could only keep repeating “Tan tan”. This was described in the case report written by Broca in 1861 and published by Dronkers et al. in 2007: “He could no longer produce but a single syllable, which he usually repeated twice in succession; regardless of the question asked him, he always responded ‘tan, tan’, combined with varied expressive gestures. This is why, throughout the hospital, he is known only by the name Tan.”

After its publication, this famous case gave rise to countless controversies, including the assessment by Pierre Marie, who examined Tan’s brain and disagreed about the anatomical location of the lesion, and the contradictory positions of Paul Broca and Hughlings Jackson.

Finally, neuroimaging studies of Tan’s brain (initially using computed tomography) carried out by Castaigne et al. in 1980 and Signoret et al. in 1984 confirmed that the damage was in Broca’s area as well as in the insula. However, the study of Tan’s brain using MRI by Dronkers et al. published in 2007 showed that the lesion was larger than Broca had previously reported.

In 2000, Selnes and Hillis revised the diagnosis of the patient Tan, who had been described by Paul Broca as a characteristic example of motor, or Broca’s, aphasia, and suggested that Tan should have been classified as having global aphasia because of his frequent stereotypical utterances. Indeed, various studies have associated the presence of stereotypical utterances in patients with global aphasia.

**Lenin’s aphasia - “Vot-vot”**

Vladimir Ilyitch Ulyanov, who was better known as Lenin (Fig 2), was one of the founders of the Bolshevik (communist) party in Russia and the intellectual leader of the October Revolution. After the revolution, he became head of the Soviet state.

Lenin died in 1924 at the age of 54 after suffering a series of ischemic strokes brought about by severe atherosclerotic disease of a familial nature.

Lenin’s cerebrovascular disease started to manifest itself when he was 52 years old in the form of various transient ischemic attacks with sensory deficits in the right side of the body, particularly affecting the hand and sometimes accompanied by language impairment. There is evidence that the signs and symptoms of a stroke, such as loss of consciousness, right hemiparesis/hemiplegia and aphasia, occurred in 1922 and 1923.

There are reports that the head of the medical service at the Kremlin, Dr. Khodorovsky, discovered manuscripts written by Professor Kramer, the neurologist who treated Lenin. In these, he relates Lenin’s disease to severe atherosclerotic changes in the cerebral blood vessels.

In March 1923, according to information from Professor Kramer’s diary, Lenin presented with a clinical picture of aphasia, when he “tried to say something but only emitted incomprehensible sounds”, or even “appeared to be completely conscious but was suffering from complete motor aphasia”. There are reports that at that time...
Lenin nearly always responded to questions by saying “Vot-vot”\(^{14,15}\).

Lenin's famous biographer, Dmitri Volgokonov, using secret Soviet archives, reports that Lenin started to use the expression “vot-vot” to voice agreement, an objection, a complaint or disagreement or even to invite or keep up a conversation. Because of this, Lenin's wife, Mrs. Krupskaya, started to use exercises based on cards with the letters of the alphabet so that Lenin could say some words, such as “congress”, “people” or “revolution”. This could indicate that Lenin's understanding was relatively spared and that his oral expression was severely impaired, suggesting that he was suffering from Broca's aphasia\(^{14}\). Another possibility is that he had global aphasia, similar to that of Paul Broca's patient, Mr. Leborgne.

Subsequent neurological assessments carried out by Hentschel, Nonne, Foerster, Kozhevnikov, Yelistratov and Kramer when Lenin's clinical condition worsened (probably as the result of other ischemic events) indicated that he ended up developing Wernicke's aphasia\(^{14,17}\).

After various episodes of stroke, Lenin's clinical picture worsened and he began to suffer from repeated focal motor seizures, status epilepticus and respiratory infection, progressing to death\(^{14,16}\).

During the period when Lenin presented with cerebrovascular disease, he was seen by a total of 26 doctors, including neurologists and psychiatrists, such as the famous professors of Neurology Rossolimo, Strümpell and Bekhterev\(^{14,15,17}\).

Lenin's ischemic cerebrovascular disease was confirmed in his autopsy, which revealed the presence of multiple cerebral infarcts and signs of diffuse atherosclerosis classified as extremely severe. The autopsy report includes the following description: “sclerosis of blood vessels in Vladimir Ilyitch was so advanced that the vessels were calcified...the walls of the vessels were so thick and the vessels so narrow that not even a strand of hair could pass through the lumen...”\(^{14,15,18}\).

Oscar Voigt and his wife Cécile, neuroanatomists from Germany, were invited to set up a brain bank in Moscow and later carried out studies of the cytoarchitecture of Lenin's brain, which were published in 1929\(^{19}\).

**Baudelaire's aphasia “Cré nom!”**

The French poet Charles-Pierre Baudelaire (Fig 3), considered one of the most important in the 19th century, became world famous because of the many great works of poetry he wrote, particularly the poem “Les Fleurs du Mal”, published in 1855\(^{20,21}\).

Essentially, he represents what can be defined as the cursed poet, who lives a dissolute, bohemian life, uses drugs, frequents prostitutes and immerses himself in a world of libertinage. The great writer Victor Hugo considered Charles Baudelaire's literary work to be of high quality and called it “un frisson noveau”\(^{20}\).

Charles Baudelaire's biographical data reveal that he contracted various venereal diseases, including syphilis, which progressed to a neurological form (probably meningovascular) with the development of cerebrovascular disease\(^{20}\).

There are reports that since 1866 Charles Baudelaire presented on various occasions with a clinical picture of stroke with motor deficit and later developed right hemiplegia and aphasia\(^{10,21}\).

One of the most important characteristics of Baudelaire's aphasia, which was first noticed when he was sent by his family to a convent in Brussels, Belgium, for clinical treatment and follow-up, was that when asked about different things, he would always reply with the expression “Non, non, cré nom, nom!” or even more often “Cré nom, cré nom!” This expression is in fact an abbreviated
form of the expression “Sacré nom de Dieu”, which at that time was considered blasphemous, similar to “Goddamn” nowadays20,21.

The expression “Sacré nom de Dieu” was highlighted in the case of the Marchioness of Dampierre, who suffered from Tourette’s syndrome and developed coprolalia. Charcot mentioned having met the marchioness in public and heard her using the expression “Sacré nom de Dieu”, together with other obscenities uttered involuntarily22.

According to scientific data in the literature, Baudelaire’s aphasia may have been expressive aphasia (Broca’s aphasia), characterized by difficulty with expression, single utterances and preserved understanding. However, a more detailed analysis of the clinical picture, as Dieguez and Bogousslavsky suggest, would indicate that he may also have suffered from global aphasia20.

**Final comments**

Besides their historical relevance and the clinical picture of aphasia, the three cases presented here share as a common feature the occurrence of speech automatisms or stereotypes. This linguistic symptom affects up to 20% of patients with chronic aphasia, being defined as recurring consonant-vowel syllable represent a variety of global aphasia, with fluent output and relative preservation of prosody. Code23 proposed a distinction between two types of recurring utterances, namely, real word recurrent utterances and non-meaningful recurrent utterances. The latter are the type of utterances presented by the three cases discussed here, especially by Leborgne and Lenin. From an anatomical point of view, non-meaningful recurrent utterances may be related to a severe impairment of the phonological system in the left hemisphere and, also to some degree, to the participation of intact systems of the right hemisphere21,24.

Speech automatisms have been scarcely studied in the scientific literature. Hence, we hope that the gathering of these three important historical cases in the present article may represent a contribution to shed more light on a frequent and intriguing linguistic and neurological symptom.

**REFERENCES**