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Reviews

Early Illustrations of Geste Antagoniste in Cervical and Generalized Dystonia

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Abstract

Background: Geste antagoniste, or sensory trick, is a voluntary maneuver that temporarily reduces the severity of dystonic postures or movements. We present a historical review of early reports and illustrations of geste antagoniste.

Results: In 1894, Brissaud described this phenomenon in Paris in patients with torticollis. He noted that a violent muscular contraction could be reversed by a minor voluntary action. He considered the improvement obtained by what he called “simple mannerisms, childish behaviour or fake pathological movements” was proof of the psychogenic origin of what he named mental torticollis. This concept was supported by photographic illustrations of the patients. The term geste antagoniste was used by Brissaud’s pupils, Meige and Feindel, in their 1902 monograph on movement disorders. Other reports and illustrations of this sign were published in Europe between 1894 and 1906. Although not mentioned explicitly, geste antagoniste was also illustrated in a case report of generalized dystonia in Oppenheim’s 1911 seminal description of dystonia musculorum deformans in Berlin.

Discussion: Brissaud-Meige’s misinterpretation of the geste antagoniste unfortunately anchored the psychogenic origin of dystonia for decades. In New York, Herz brought dystonia back into the realm of organic neurology in 1944. Thereafter, it was given prominence by other authors, notably Fahn and Marsden in the 1970–1980s. Nowadays, neurologists routinely investigate for geste antagoniste when a dystonic syndrome is suspected, because it provides a further argument in favor of dystonia. The term alleviating maneuver was proposed in 2014 to replace sensory trick or geste antagoniste. This major sign is now part of the motor phenomenology of the 2013 Movement Disorder Society’s classification of dystonia.

Keywords: History, dystonia, torticollis, geste antagoniste, sensory trick, alleviating maneuver, Brissaud, Meige

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Introduction

Although the term dystonia was coined for the first time a century ago by Hermann Oppenheim in Berlin (1858–1919),¹ its definition has been the subject of extensive debate and change between then and the present day. According to a recent consensus meeting of the Movement Disorder Society,² dystonia is defined today as “a movement disorder characterized by sustained or intermittent muscle contractions causing abnormal, often repetitive, movements or postures, or both; dystonic movements are typically patterned,

twisting, and may be tremulous: dystonia is often initiated or worsened by voluntary action and associated with overflow muscle activation”.

Although the geste antagoniste, also known as sensory trick, is a major and frequently observed sign in dystonic patients, it does not yet feature in the definition of dystonia. Geste antagoniste is a voluntary manoeuvre that temporarily reduces the severity of dystonic postures or movements. It is a classic feature of cervical and focal dystonia, but may also be seen in more generalized dystonia. It is more frequent in primary than in secondary dystonia.^{3–10}

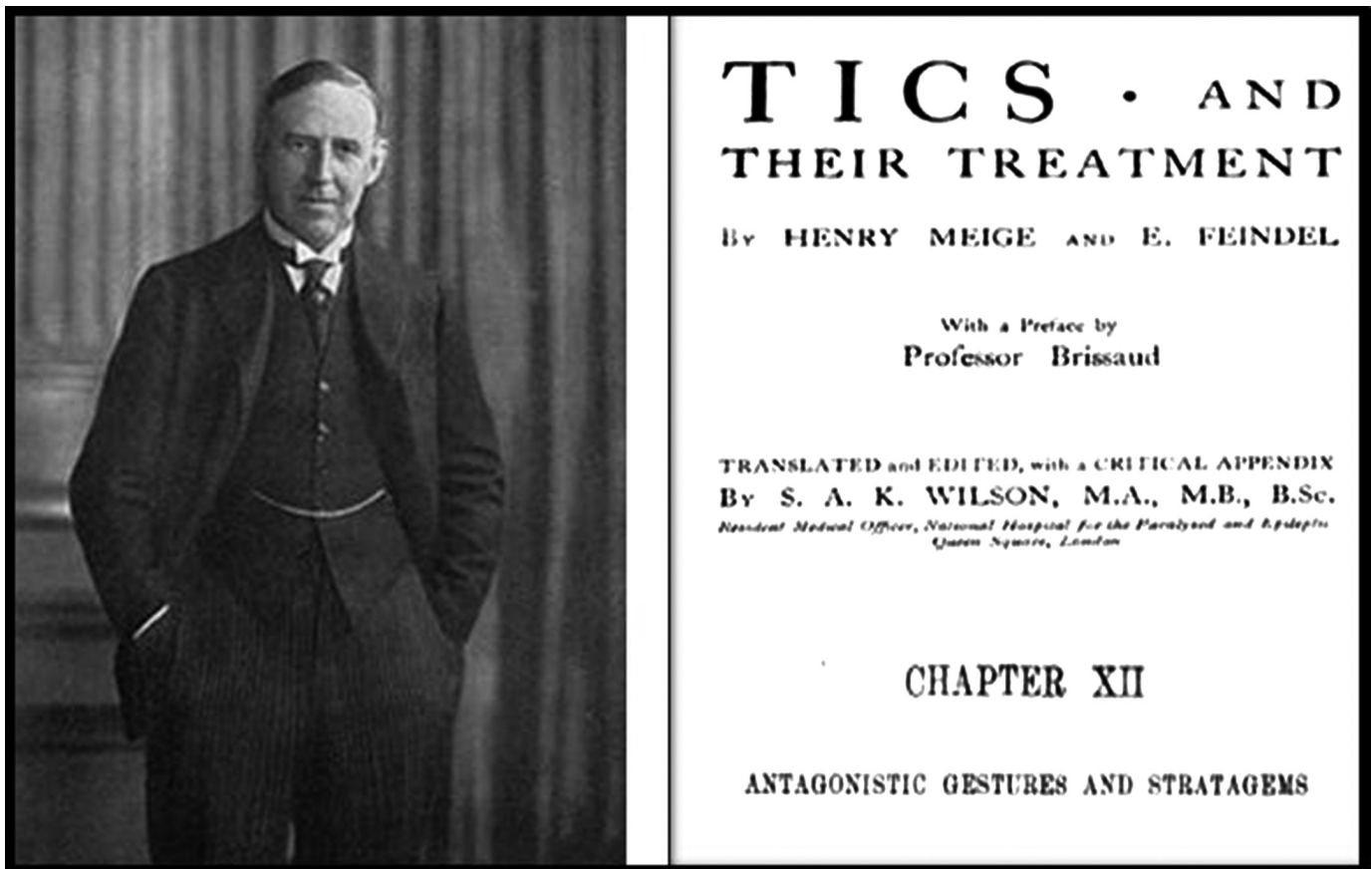


Figure 1. Photographic Portrait of Kinnier Wilson (left), Title Page of Wilson's Translation of Meige and Feindel 1902 Book on Tics (top right), and Title of Chapter 12 on Geste Antagoniste (bottom right).

Until recently, only a few specialists knew the origin of the term geste antagoniste. Several years ago, we published an article on the history of the geste antagoniste in cervical dystonia.¹¹ This article coincided with a recent renewal of interest in geste antagoniste and sensory trick and the proposition of a new denomination: alleviating maneuver.^{12–14}

The aim of the current article is to expand on our previous work by providing a more complete historical review. In addition to the original reports on the geste antagoniste by the French neurologist Edouard Brissaud (1852–1909) in 1894,¹⁵ and his pupils Henry Meige (1866–1940), and Louis Clément Feindel (1862–1930) in 1902,¹⁶ we present other contemporary works from the late nineteenth and early twentieth centuries on this subject. We also take this unique opportunity to display most of the photographic illustrations from the literature on the subject from this pivotal 1894–1910s period, even though the maneuvers observed in the pictures are not always explicitly mentioned in the texts. Our review focuses on the geste antagoniste in torticollis and generalized dystonia, and leaves aside other focal or task-specific dystonias.

Methods

We studied a large number of major original publications and reviews on the geste antagoniste and torticollis, spasms or dystonia,

and other general neurological textbooks from the late nineteenth and the early twentieth centuries. These were mainly in English, German, and French, as these were the main languages used in medicine across European countries and many other parts of the world at that time. Particularly worthy of mention are the most important original publications or old reviews made on the topic by Brissaud,¹⁵ Meige and Feindel,¹⁶ Armin Steyerthal in Halle, Germany,¹⁷ and René Cruchet (1875–1959) in Bordeaux, France.¹⁸ These were extensively cited in the 1930s to 1940s in a German review,¹⁹ and in the classic master book on neurology by the British neurologist Samuel Alexander Kinnier Wilson (1878–1937) (Figure 1)²⁰ as well as in more recent reviews.^{21,22} We devoted particular attention to publications featuring photographic illustrations of the geste antagoniste in dystonic patients. We also used the PubMed database by entering the terms geste antagoniste, sensory trick, torticollis, and dystonia.

Results and discussion

Our essay is presented in four parts: 1) preliminary reports on the geste antagoniste in torticollis prior to Brissaud's 1894 lesson; 2) the seminal description of the geste antagoniste and mental torticollis by Brissaud in 1894 and subsequent reports; 3) Meige and Feindel's 1902 book, proposition of the term geste antagoniste and its international

recognition; 4) early reports and photographs of the geste antagoniste in more generalized spasms and dystonia.

Part I: Preliminary reports on geste antagoniste in torticollis prior to Brissaud's 1894 lesson

From a historical point of view, torticollis was the first dystonic movement to be identified and described by a number of authors between the sixteenth and the nineteenth centuries.¹¹ An extensive review of the subject was published at the turn of the twentieth century in Germany by Steyerthal,¹⁷ and in France by Cruchet.¹⁸ The exhaustive treatise on the subject written by Cruchet, one of the first neurologists from the Bordeaux school, was commented on in detail the same year by Wilson²³ in a book review in *Brain*. Wilson's interest was linked to his close connections with French neurology.²⁴ According to these reviews, the French term torticollis appears to have been first proposed in the mid-sixteenth century by François Rabelais (1494–1553) in his book *Pantagruel*: “afin qu'il ne fust torty colly” (in order to prevent him from any twisting of his neck). The term torticollis was first used to describe patients in the seventeenth and eighteenth centuries by Paul Scarron (1610–1660), a French poet. A number of medical doctors subsequently employed the term, notably the Swiss Felix Plater (1536–1614), the Dutchman Nicolaas Tulp or Tulpius (1593–1674), and the German Georg Friedrich von Jäger (1714–1787).^{11,17,18,22} Jäger's thesis, entitled “Caput obstipum affectum rariorem in libris et praxi” and written in Latin, was published in Tübingen in 1737. The Latin term caput obstipum was used to refer to torticollis in all medical publications in Latin during the sixteenth to eighteenth centuries (Figure 2). Jäger provided a detailed description of torticollis. As outlined by Cruchet, Jäger noted that some patients were unable to move their head without help from their hand; as soon as this help was removed the head instantly reverted to its initial abnormal position. This could well be the very first description of the geste antagoniste; however, no specific term was proposed.^{11,17,18}

During the nineteenth century, several great pioneers in neurology, including Charles Bell (1774–1842) in Britain, Moritz Heinrich Romberg (1795–1873) and Wilhelm Heinrich Erb (1840–1921) in Germany, and Guillaume Benjamin Amand Duchenne (1806–1875) in France, further described torticollis as outlined below.^{25–28} Other terms used at that time were wry-neck in English and Nackenmuskelkrämpfe in German.

Bell presented several patients with spasmodic torticollis in his book on the human nervous system published in the 1830s.²⁵ Of these patients, Case LXXIX presumably presents a geste antagoniste: “When fatigued, he rises and stands in his present position, with his head and left shoulder resting against the wall”, Bell wrote of his patient. However, no illustration is available. In Paris, Duchenne noticed the positive effect of a voluntary contraction of all of the neck muscles in a case of spasmodic torticollis.²⁸ In Germany, first Romberg then Erb believed that torticollis resulted from an organic spasm of the Willis accessory nerve muscles (Accessoriuskrampf).²⁷ Interestingly, Erb showed that it could be improved by applying

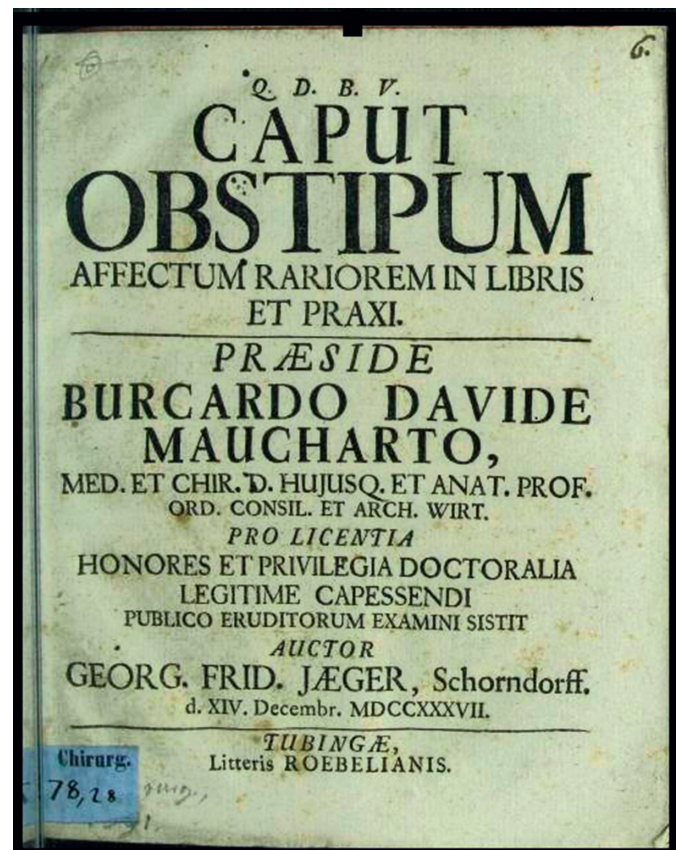


Figure 2. Title Page of Jäger's Thesis.

pressure to certain specific trigeminal nerve-innervated points (Druckpunkte).

Part 2: Seminal description of geste antagoniste and mental torticollis by Brissaud in 1894 and subsequent reports

Brissaud, a pupil of Jean-Martin Charcot (1825–1893), made an important new step in the description of torticollis in Paris in 1894

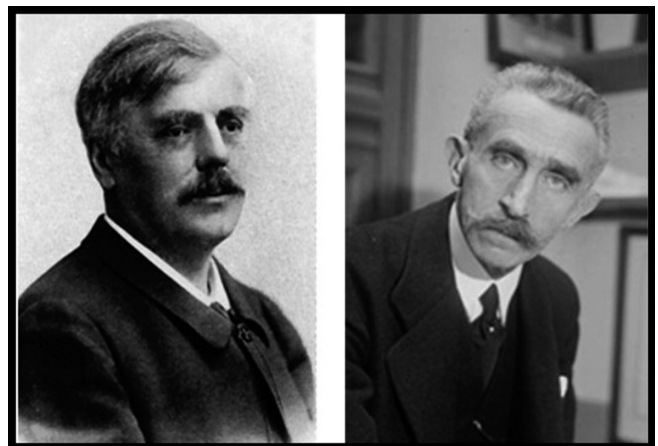


Figure 3. Photographic Portrait of Brissaud (left) and Meige (right).



Figure 4. Photographic Illustration of the Seven Cases Presented by Brissaud in His 1894 Lesson. On the far right is a patient who tries to reduce torticollis by resting his head against a pillow or against the wall.

(Figure 3).¹⁵ Brissaud described seven patients suffering from torticollis in his 24th lesson on tics and spasms¹⁵ in 1894. He identified a key new sign that he termed as “a simple mannerism, or childish behaviour, or pathological fake”. He went on to describe this peculiar phenomenon as “a violent muscular contraction reversed by a minor reaction”. Importantly, Brissaud provided photographs of his patients. In our recent article,¹¹ we showed a photographical illustration of this peculiar phenomenon in one such patient who was able to suppress the torticollis by applying the second finger of her left hand to her chin. In the current work, Figure 4 shows pictures of this patient (on the upper left) and of six others, all of whom present different aspects of Brissaud’s sign. In one patient (the one on the far right in Figure 4) reminiscent of Bell’s case cited above, Brissaud points out another interesting feature:¹⁵ the patient’s torticollis was relieved when he placed his head against a wall. Furthermore, alleviation of the cervical spasm could occur even before he placed his head against the wall, just as soon as he knew that his head was near the wall. This underlines the extent to which Brissaud’s understanding of the new sign he was describing was accurate and comprehensive. Such illustrations could still be used today when teaching this peculiar phenomenon in cervical dystonia. Brissaud believed that torticollis was non-organic, and his detailed description of the bizarre maneuvers he observed was considered as proof of the psychological origin of the disorder. In

order to substantiate this view and make it plain, he proposed the term mental torticollis.

A more detailed description of several patients with mental torticollis was made in a thesis inspired by Brissaud in the same year as his lesson.²⁹ Brissaud and his pupils Meige and Feindel subsequently reported other cases.^{30,31} Similar observations from several parts of Europe were reported in the following years.

In France, R. Pauly, a medical doctor from Lyon, presented a report on three patients with torticollis and Brissaud’s sign at the 1894 French medical congress in Lyon. His observations were published in the proceedings of the congress.³² Three years later,³³ one of these cases was described in greater detail by Pauly in a French medical journal. The picture of this patient shows a typical geste antagoniste, which is described by the author, who refers to Brissaud’s recent lesson (Figure 5).

In the English literature, the first report of a family with torticollis was published in 1896.³⁴ Interestingly, a photograph of the four patients is available and shows evident geste antagoniste in case 1 (Figure 5). However, the sign is not described in the paper and Brissaud’s lesson is not mentioned by the author.

At the turn of the nineteenth and twentieth centuries, more cases of torticollis were recognized. Illustrations of the phenomenon described by Brissaud, and referred to as Brissaud’s mental torticollis, appeared in international neurological journals. In an Italian medical journal of

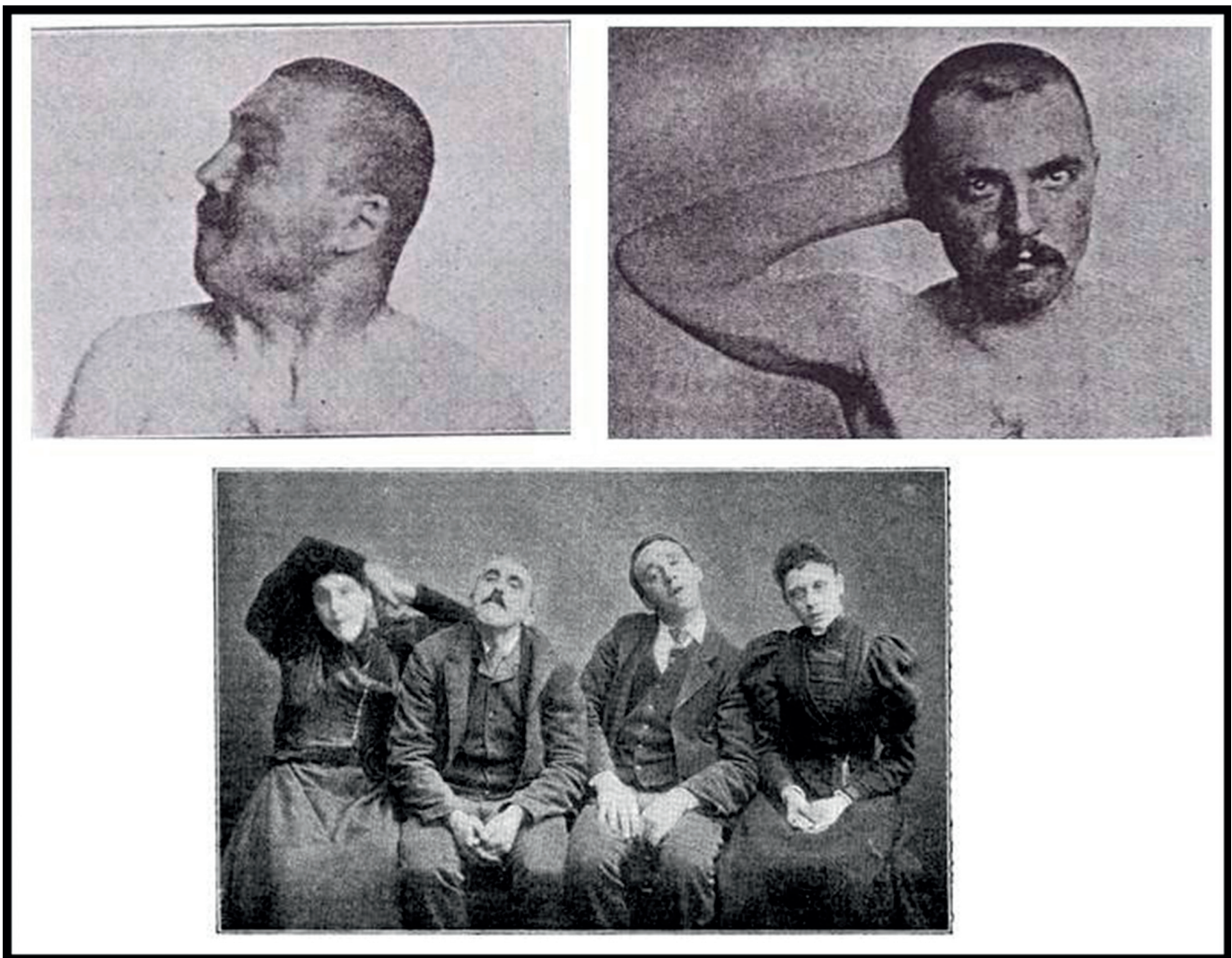


Figure 5. Photographic Illustration of Pauly's Patient (top) and of Thompson's Wry-neck Family (bottom) with Geste Antagoniste in Case 1 (first patient from the left).

1898, for instance, Sgobbo³⁵ from Naples described a woman showing all the features of mental torticollis, with the classic counteracting phenomenon (Figure 6). Sgobbo considered that his patient had "Brissaud's disease" (as quoted by the author) and, accordingly, that the cause of the disorder was psychological. Another important case of mental torticollis, accompanied by an extensive description of the abnormal counteracting gesture, was published in 1899 by Nogues and Sirol,³⁶ two physicians from Toulouse (Southern France). The patient suffered from torticollis and had a family history of stuttering. He notably exhibited two original features of Brissaud's phenomenon (Figure 7): firstly, temporary alleviation of cervical spasm could be induced not only by the patient himself, but also when someone else's finger was placed on the patient's face; secondly, the patient could counteract his torticollis by using a device derived from a "hard bridge pince-nez". Further descriptions of these features appeared subse-

quently in the literature, although much less frequently than accounts of the sensory gesture being performed by the patient himself.

Part 3: Meige and Feindel's 1902 book, *proposition of the term geste antagoniste and its international recognition*

In 1902, Meige (Figure 3) and Feindel, two of Brissaud's pupils, published a master book dedicated to tics and their treatments, which in fact constituted the first book on movement disorders.¹⁶ They further analyzed torticollis, especially mental torticollis, and wrote a special chapter on Brissaud's phenomenon, which they described more extensively and called "geste antagoniste efficace" (i.e. efficacious antagonistic gesture). In many patients with mental torticollis, "their inventive faculty leads them to adopt singular attitudes, to execute curious gestures, to utilize elaborate apparatus, always proceeding in a more or less childish manner" quoted Meige and Feindel. They

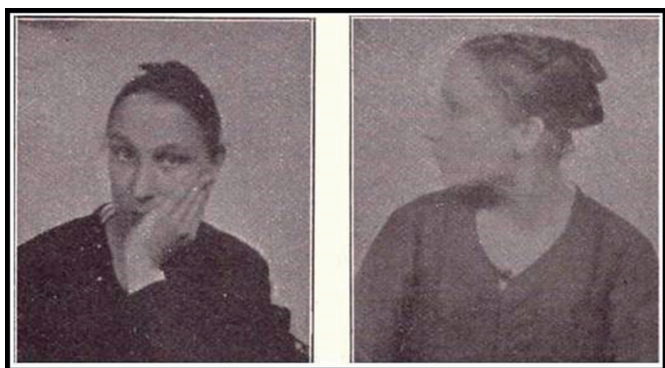


Figure 6. Photographic Illustration of Sgobbo's Patient.

developed on notes made previously by Brissaud about a patient: he (the patient) "directs his hand towards his left ear, but before he has actually touched it, his head turns spontaneously to the right. It would be difficult to find more conclusive evidence of the purely

psychological nature of such a corrective act." Meige and Feindel erroneously interpreted this as evidence of psychogenicity, but we now understand (and this has been proven with physiology) that this is a classic feature of torticollis.

Taken together, Meige and Feindel's observations reinforced the psychological origin of mental torticollis supported by their master Brissaud. Several reports from other European countries backed up this interpretation. In Germany, in 1904, Steyerthal and Solger³⁷ published the case of a family of one sister and two brothers, with photographic illustrations, and indicated that two of them presented with typical Brissaud's sign (Figure 8). In Budapest, in 1905, Jeno Kollarits³⁸ reported the cases of two patients with disabling torticollis accompanied by Brissaud's sign observed by his master, Erno Jendrassik (1858–1921). Kollarits added four patients of his own in the same publication and considered that at least two of these patients were "hysterical" as quoted by the author. Figure 9 shows illustrations of geste antagoniste in some of Jendrassik and Kollarits' patients. Finally, in his 1907 treatise on spasmodic torticollis, Cruchet described



Figure 7. Photographic Illustration of the Patient Described by Nogues and Sirol.

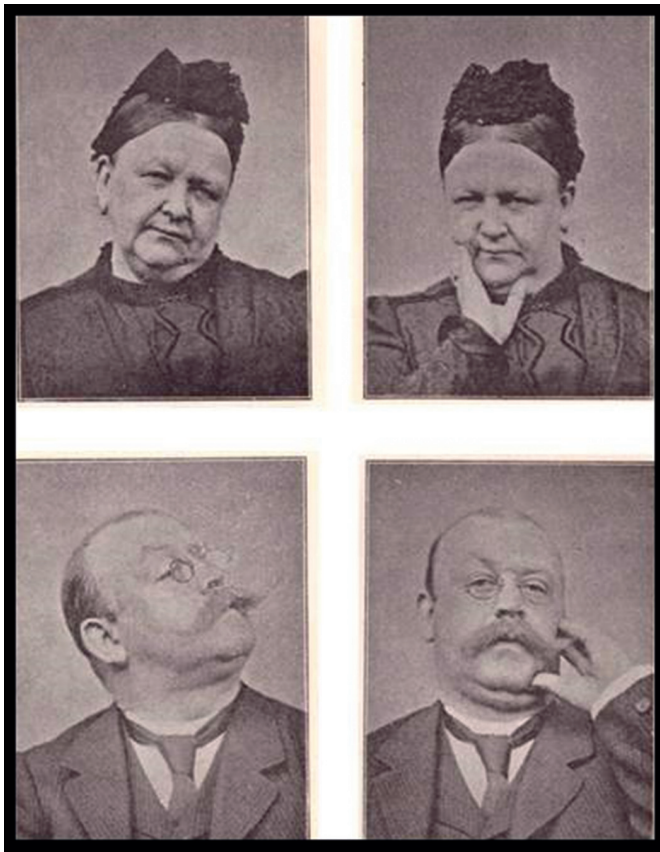


Figure 8. Photographic Illustration of Two of the Three Patients Described by Steyerthal and Solger.

a case, observed by his master Pitres, which displayed all the typical features of mental torticollis accompanied by a geste antagoniste.¹⁸ An excellent review and update of the subject was released much later.¹⁹

Brissaud's concept of mental torticollis and Meige and Feindel's term geste antagoniste were largely adopted in the international literature in the following years, owing to the translation of Meige's and Feindel's³⁹ book into German by O. Griefe in 1903, and into English a few years later by Wilson (Figure 1).⁴⁰ The sign became known and entered neurological textbooks thanks to the unsurpassed and masterly description of the geste antagoniste by Brissaud, Meige, and Feindel. Apart from the term geste antagoniste, other denominations were used during the twentieth century in different languages. French journals used in some instances the term geste conjuratoire, while English literature employed the terms geste antagonistique (which is an Anglicism), and later sensory trick, trick maneuvers, corrective gesture, and reverse sensory geste. In German publications it was referred to as antagonistische Bewegungen, Brissauds Handgriff, Kunstgriff, and Widerstandsphänomen.^{4,5,11,19,38,41–44}

To summarize, this review of the literature at the turn of the nineteenth and early twentieth centuries, on patients with torticollis and geste antagoniste documented by many photographic pictures, shows both skilled and yet sometimes incomplete or misinterpreted observations of this determining sign.

Part 4: Early reports and photographs of geste antagoniste in more generalized spasms and dystonia

Even though a geste antagoniste is typically seen in patients with torticollis, it has also been established that this sign may be present in other forms of dystonia, either focal or generalized. In this section, we would like to highlight early reports from the late nineteenth and the early twentieth centuries, before the term dystonia was brought into use in 1911, which describe more or less generalized spasms and show photographic illustrations of the geste antagoniste. Interestingly, it should be noted that although easily identifiable from the photographs in several of these articles, the geste antagoniste was not always mentioned by authors in their reports.

In an 1888 lesson on a patient with torticollis⁴⁵ in Paris, Charcot pointed out that the contraction of the neck muscles that, according to Erb, stemmed from cramping of the muscles innervated by the Willis accessory nerves, could extend from the neck muscles to the face or to an extremity. *A posteriori*, the patient in question probably suffered not only from torticollis but also from more generalized muscle spasms. On request, the patient was able to suppress his cervical spasm temporarily, albeit only for a very short time. However, this maneuver was not commented on by Charcot and no illustration was provided.

In 1901, Destarac, a physician from Toulouse, presented an important case report, which was later considered as a milestone in the history of dystonia.^{46–48} The patient, a 17-year-old female, had torticollis, tortipelvis, writer's cramp, and foot cramp. As specified by Destarac and shown in the photographic representation of the patient (Figure 10), the spasms were exacerbated by motor activity and improved when the patient placed her left hand on her chin, and her right hand on her right iliac crest, thus providing two consistent examples of a geste antagoniste.

Joseph Babinski (1857–1932) in Paris, in 1901, reported the case of a patient suffering from torticollis, with spasms extending to the left upper limb.⁴⁹ Babinski commented on his case, cited Destarac's publication, and opposed Brissaud's view of a non-organic disease. He hypothesized that his patient had a lesion involving the corticospinal tract. Interestingly, the counteracting gesture can easily be identified from the photograph of the patient, and is indeed depicted by Babinski (Figure 11).

In 1902, Pierre Marie (1853–1940) and Georges Guillain⁵⁰ (1876–1961), in Paris, described a patient presenting with torticollis associated with spasms of the upper limbs and a geste antagoniste.⁵⁰ Unfortunately, no photograph is available. The two authors stated that they did not believe that a psychological mechanism was involved, at least in this patient.

Another important article by Destarac,⁵¹ published in 1902, unfortunately attracted very little attention. In this paper, Destarac once again presented the case of the 17-year-old female he had already described in 1901⁴⁶ and, more importantly, added the case of a second, similar patient. There was nothing in this 29-year-old male's family history relating to generalized spasms. He first complained of writer's cramp between the ages of 12 and 15, then torticollis started at

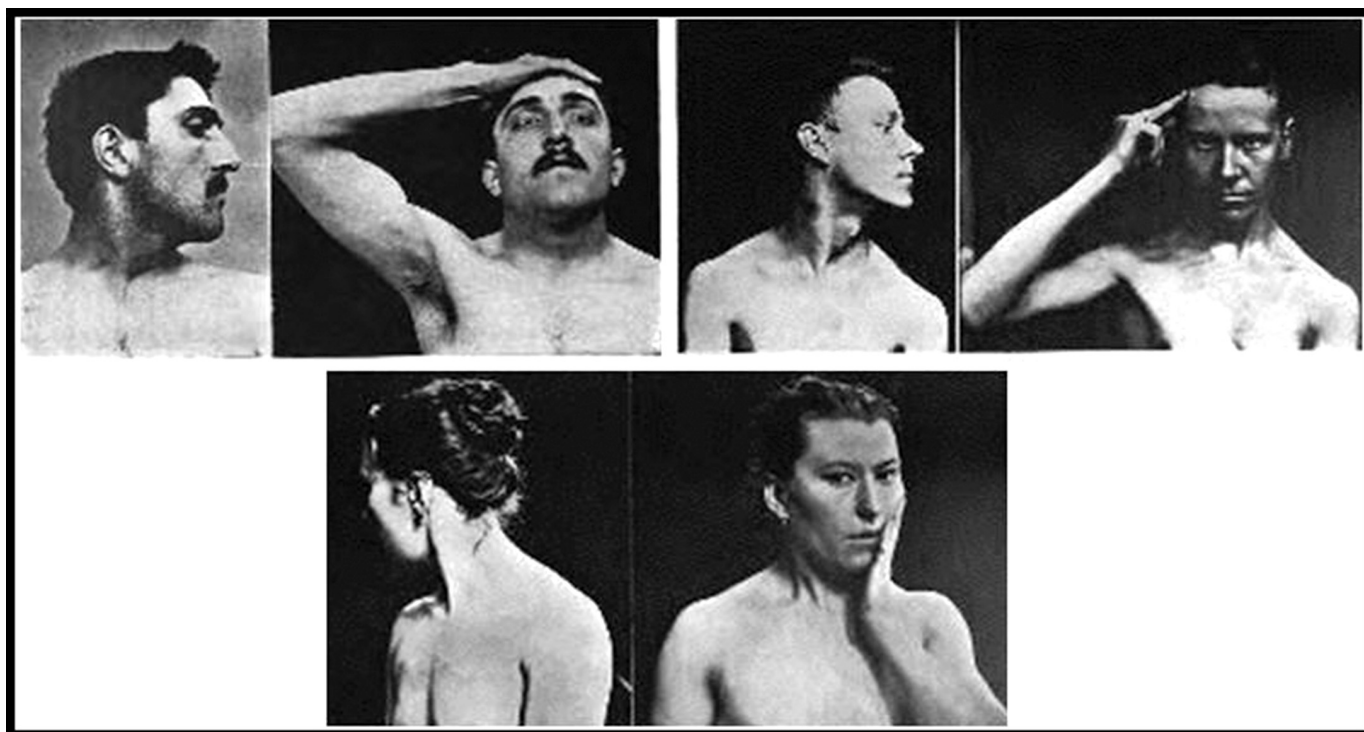


Figure 9. Photographic Illustration of the Two Cases by Jendrassik (top) and of Kollarits's Patients (bottom).

18. Muscle spasms of the lower limbs and progressive gait disturbances only appeared in the clinical picture after 20 years of age. Figure 10 shows the patient aged 29 when he was first seen by Destarac. The patient's gait was slow and impaired by abnormal movements of the

lower limbs and trunk lordosis, and resembled that of a Czech marionette according to Destarac. The movement disorder also affected the patient's face, especially during speech or limb movements. This patient undoubtedly suffered from more or less general-



Figure 10. Photographic Illustration of the Two Patients Described by Destarac in 1901 (left) and in 1902 (right).



Figure 11. Photographic Illustration of Babinski's Patient.

ized spasms with a clear geste antagoniste, as emphasized by the author. Destarac went on to discuss differential diagnoses of the two cases. He spoke first of Friedreich's ataxia and Pierre Marie's hereditary ataxia, but then favored a syndrome combining writer's cramp, torticollis, and functional spasms. The last term referred to earlier reports by Duchenne. Destarac also commented further on Brissaud's mental torticollis. However, contrary to his previous 1901 report, he expressed greater doubt concerning its psychological origin and was unable to exclude the possibility of pathological damage to the brain. More than a century later, this forgotten paper shows how close Destarac's views were to the concept of dystonia and torsion spasms.

A few years later, between 1908 and 1911, a major step was made with the description of torsion spasms and dystonia musculorum deformans. Although our historical review focuses on the geste antagoniste, a brief examination of this important breakthrough in the delineation of dystonia seems necessary. In 1908, in a German thesis inspired by his master Georg Theodor Ziehen (1862–1950), Schwalbe⁵² reported the case of a Jewish family (Lewin family) who suffered from a motor syndrome he called torsion neurosis. This work

was published again in 1911.⁵³ The same year, Oppenheim, in Berlin, described dystonia musculorum deformans (dysbasia lordotica).¹ This famous article was recently translated into English and further commented upon.⁵⁴ In his paper, Oppenheim provided a clinical description of four unrelated young Jewish patients with a slowly progressive movement disorder distinguishable from athetosis and "hysteria". Patients had lordosis and dromedary gait. Oppenheim proposed the term dystonia, since he noticed changes in muscle tone alternating between hypotonia (rest) and hypertonia (action), suggestive of a simultaneous contraction of the agonist and antagonist muscles. Oppenheim highlighted the absence of any anatomical brain lesion in this pathology. However, in contrast to Ziehen and Schwalbe's concept of neurosis, he considered that dysbasia lordotica was an organic disease. The same year, two young Jewish boys with progressive torsion spasms were described in Warsaw, Poland.⁵⁵ As we now know, these three 1911 cases of torsion neurosis, dysbasia lordotica, and torsion spasms would later come to be considered as the same disease, which is a more prevalent hereditary feature in the Ashkenazi Jewish population. We know now that this hereditary

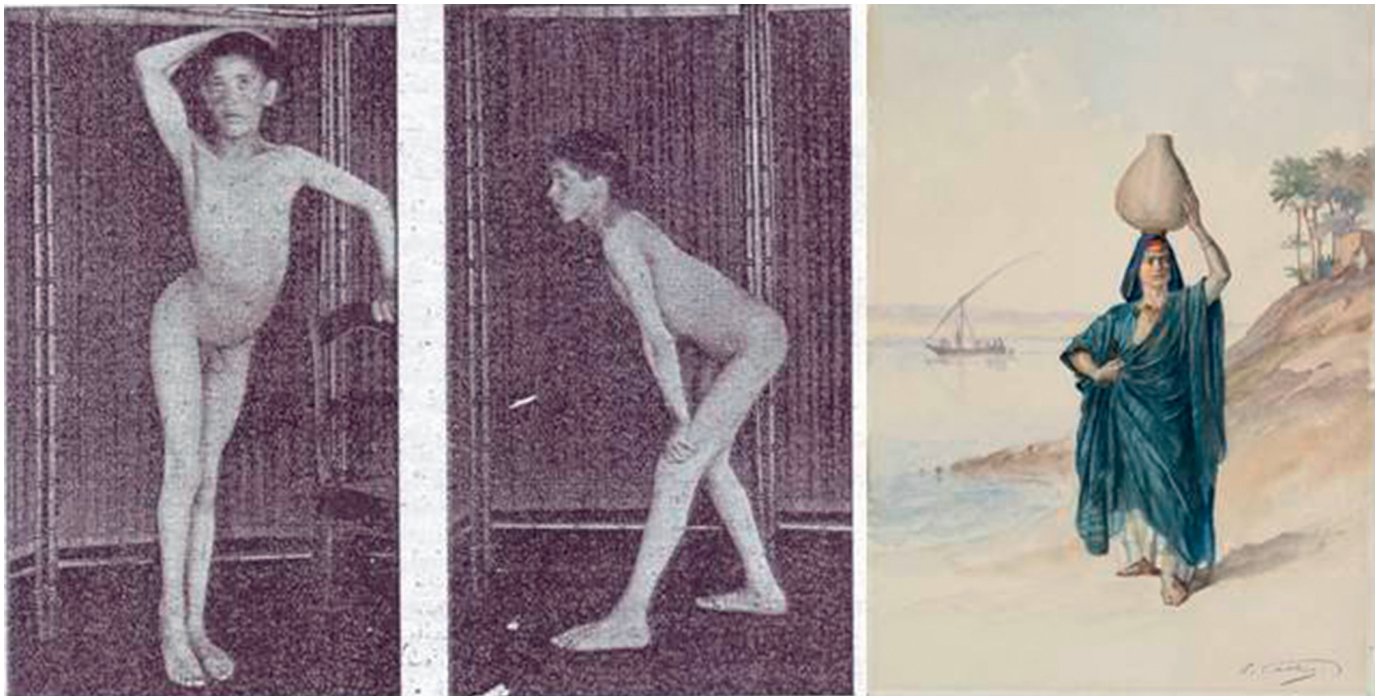


Figure 12. Photographic Illustration of One of Oppenheim's Patients with Dystonia Musculorum Deformans. The patient (left) displays the posture of a water carrier similar to that in a painting by Edouard Castres (1838–1902) called "Water Carrier on the Nile Riverside" (right).

feature is caused by mutations in one allele of *DYT1*, coding for the torsin A protein.

Out of all the photographic illustrations found in the three 1911 reports on torsion spasm and dystonia, only one patient, in Oppenheim's publication, *a posteriori* presented two types of geste antagoniste (Figure 12). However, although these features are discussed in the recent English translation of his paper, Oppenheim did not describe them.⁵⁴ One of the features to our opinion is similar to the water carrier gesture. The second feature, which is less effective, shows the patient fighting against the forced flexion of his trunk by placing his left hand on his left knee. Comparisons between the geste antagoniste in torticollis, as described by Brissaud and Meige (a gentle touch), and the one observed in more generalized dystonia raise specific points. While a sensory mechanism remains a possibility in the case of the geste antagoniste seen in generalized dystonia, the presence of a motor disorder should also be considered. When this is the case, a counteracting maneuver, sometimes called forcible trick or forcible maneuver, comes into play, as considerable pressure must be exerted to normalize abnormal posture by physically opposing overactive muscles.^{9,11,56} This also applies in some cases of cervical and other forms of dystonia, and explains why alleviating maneuver was recently proposed as the new terminology.^{12–14,44}

Further comments and conclusion

The present article provides an extensive review of historical descriptions of the geste antagoniste in torticollis and in more generalized dystonia and includes numerous photographic illustrations

of patients. This pivotal period in the delineation of geste antagoniste in dystonia occurred between the late nineteenth century and 1911 when the term dystonia was proposed by Oppenheim in his seminal article.

The impact of the description of geste antagoniste on the discussion about the possibility that dystonia is a non-organic motor disease have already been largely described.^{11,22,57} Our work is not primarily aimed at an in-depth discussion of this issue. However, we will recapitulate the main historical steps taken in the twentieth century. Brissaud and Meige's misinterpretation of the geste antagoniste unfortunately anchored the hypothesis of the psychogenic origin of dystonia. This opinion was reinforced in 1929 at the Paris International Congress on Torticollis, notably by August Wimmer (1872–1937) from Copenhagen. He considered that dystonia could not be produced without basal ganglia lesions and thus was a (psychiatric) syndrome rather than an organic disease.⁵⁸ Meige, however, questioned the concept of mental torticollis at the very same meeting.⁵⁹ His own beliefs on the subject had changed. Although he had learned from his teacher Brissaud that mental torticollis was of psychiatric origin, Meige elaborated the arguments that had made him change his mind. During the epidemic of Von Economo encephalitis, he had observed various associations of organic torticollis, writer's cramp, and spasme facial médian (later baptized Meige syndrome after him and also known as orofacial dystonia) as post-encephalitic neurologic complications. Given some of the common clinical features of these various focal signs, and based on the fact that they could not be differentiated from those seen in Oppenheim's dystonia musculorum deformans, Meige

introduced the concept of focal dystonia as part of the clinical spectrum of generalized dystonia. He considered that the basal ganglia involved in Von Economo encephalitis were also likely to be involved in the pathophysiology of (idiopathic) torticollis. Unfortunately, Meige's short, elegant, and well-argued intervention at this international convention was largely ignored, being outside of the mainstream contemporary neuropsychiatric reasoning. Ernst Herz, in 1944 in New York, brought dystonia back into the realm of neurology; it was thereafter given prominence by other authors.^{47,57,60–63} In the 1970–1980s, Charles David Marsden (1938–1998), in London, definitively established the organic nature of dystonia.^{63–65}

More recently, another argument reinforced the significance of the organic nature of the geste antagoniste: this sign is typically absent in patients with psychogenic dystonia and is a confirmatory clue that usually suggests the organic origin of dystonia, although there are some exceptions.^{66,67}

Our historical review shows that on a number of occasions the geste antagoniste sign appeared clearly in photographs but was not described or identified by the authors. By showing these illustrations we demonstrate that full recognition of a new sign and of its interpretation takes time and that historical reviews may provide new comments on old articles even more than a century later.

Today, all neurologists look for a geste antagoniste or sensory trick when a dystonic syndrome is suspected. As already stressed above, alleviating maneuver^{12–14} was proposed in 2014 as the new denomination of this sign, which is now accepted as part of the official diagnostic criteria of (organic) dystonia.³

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