

# Tourette syndrome

**Tourette Syndrome** (also known as **Gilles de la Tourette syndrome, TS, GTS**) is a congenital neuropsychiatric disorder characterized by movement and sound tics.<sup>[1]</sup> The syndrome begins to manifest itself during childhood or adolescence. Tics are often accompanied by a change in behaviour (ADHD, uncontrollable impulsiveness, obsessive compulsive disorder).<sup>[2]</sup>

## Etiology and epidemiology

The etiology of TS has not yet been fully elucidated. Several candidate genes have been identified that can significantly influence the development of TS, but in many cases it is not possible to identify the exact genetic etiology<sup>[3]</sup>. In addition to genetic factors, environmental factors also contribute to the development of the disease. Infections and autoimmune diseases can influence the course of the disease. TS may flare up following post-streptococcal autoimmune processes.<sup>[1]</sup>

The disease occurs more often in men than in women in a ratio of 3:1. The average age of onset of symptoms is 7 years. It is relatively common in the population, occurring in up to 1 % of the population. In the US, tics and obsessive compulsive behaviour are reported to occur in up to 3% of all children and in up to 25% of children attending special schools.<sup>[2]</sup>

## Pathogenesis

Hyperactivity of the dopaminergic system resulting from an increased density of receptors and an increased content presynaptic dopamine in the striatum was found in TS.<sup>[4]</sup>

## Clinical picture

The first difficulties appear at a younger school age.

- **Movement tics** are mainly manifested in the face (blinking), on the head (twitches), neck and usually also on the upper limbs, less often on the lower limbs and trunk.
- **Sound tics** usually occur secondary to movement tics. Most often it is "clearing the cough".
- **Coprolalia** occurs in half of the patients. Interestingly, the frequency of this symptom is dependent on the environment. It appears very often in the USA, in Denmark in a quarter of cases and in Japan only in 4% of cases.
- **Behavioral disorders** such as **ADHD, OCD** or **impulse control disorders** also appear within the syndrome. Impulsivity disorders are manifested, for example, by the inability to suppress anger, sexual aggression, or other antisocial and violent tendencies. Patients may have a tendency to self-harm.<sup>[2]</sup> A more frequent occurrence of migraines and sleep disorders is described in the syndrome.<sup>[1]</sup>



Children displaying Tourette's tics

## Prognosis

TS manifestations are strongest around eleven years of age. About a third of patients in adolescence or young adulthood achieve near-complete or complete remission. A third will improve significantly in both frequency and severity of tic symptoms. The last third is burdened by symptoms of TS even during adulthood.<sup>[2]</sup> The quality of the social background has a significant influence on the development of the disease. A patient whose disease was not recognized in childhood, was not understood and supported, but on the contrary punished, usually has more severe manifestations of the disease, not only in childhood, but also in adulthood.<sup>[1]</sup>

## Diagnosis

The diagnosis is based on anamnesis and clinical manifestations. For TS, the symptoms appear before the age of 21 and the tics appear chronically for more than one year (sequentially multiple movement and one or more vocal tics). DNA analysis will probably be the basic auxiliary method in the future.<sup>[2]</sup>

## Differential diagnosis

If symptoms included in TS occur in the disease, but the diagnosis of TS is ruled out, we speak of so-called tourettism.<sup>[5]</sup>

**Transient tic disorder** is the most common and mildest idiopathic tic disorder in childhood. The main difference from TS is the duration of up to one year and spontaneous remission.<sup>[2]</sup>

**Chronic movement or sound tic disorder** is characterised by a single unchanging movement or sound tic. For children and adults.<sup>[2]</sup>

**Chronic multiple tic disorders** is characterised by multiple tics either movement-only or sound-only.<sup>[2]</sup>

**Other:** In the differential diagnosis, we can include dystonia, chorea, genetic disorders causing tics or other stereotypical disorders such as developmental disorders, autistic disorders, Huntington's chorea, neuroacantocytosis, Hallervorden-Spatz syndrome, Duchenne muscular dystrophy, Wilson's disease, tuberous sclerosis, Lesch-Nyhan syndrome. Acquired causes can include drug tics, head trauma, encephalitis, stroke, carbon monoxide poisoning.<sup>[1]</sup>

## Treatment

In mild cases of TS, where patients are managing their school and social roles, do not need treatment. The most important part of the treatment is educating the patient, his family and those closest to him about the nature of the disease, the possibilities and side effects of the treatment. Special attention should be paid to instructing the school team, ensuring relaxation and psychological well-being of the patient during his stay at school. Pharmacotherapy aims to reduce tics to a tolerable level. The drug of choice is neuroleptics (**tiapride**, **risperidone**, **pimozide**, if the effect is insufficient, it is possible to use typical neuroleptic – **haloperidol**). In ADHD **clonidine** is used, in more severe cases **methylphenidate**. For OCD, **SSRI** antidepressants work well. The risk-benefit ratio for the patient must always be considered.<sup>[2]</sup>

## Social consequences of TS disease

Movement and sound tics combined with the behavioural disturbances can cause a number of social difficulties for TS patients. A good example would be young patients at school who are considered naughty (ADHD, OCD, tics). They may have trouble writing because of tics and poor motor coordination. Uneducated teachers or even parents can punish such a patient for their actions and thus make their condition even worse. Such a sick person may end up in a special school, even though his intellectual potential may be very good. Experience from the USA shows, that with adequate access, the vast majority of TS patients complete secondary education and 90% of them either continue further education or get a job.<sup>[2]</sup>

## Links

### Related articles

- Tics
- ADHD
- OCD

### External links

- Wikipedia – Tourette syndrome ([https://en.wikipedia.org/wiki/Tourette\\_syndrome](https://en.wikipedia.org/wiki/Tourette_syndrome))
- Vizita 5. díl – Tourettův syndrom (<http://tv.nova.cz>),
- Tourettův syndrom (video na YouTube s anglickými titulky) (<http://https://www.youtube.com/watch?v=1w8IPOgFxt4&list=PLY33uf2n4e6MR8ub54LJQ6ggPpIKIxy3-&index=3>)

### Reference

- [1] ([https://en.wikipedia.org/wiki/Tourette\\_syndrome](https://en.wikipedia.org/wiki/Tourette_syndrome)) MANSKE, Magnus. *Wikipedia* [online]. The last revision 20.9.2011, [cit. 2011-11-13]. <[https://en.wikipedia.org/wiki/Tourette\\_syndrome](https://en.wikipedia.org/wiki/Tourette_syndrome)>.
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