

# Suicidal Obsession in a Case of Pediatric Acute Neuropsychiatric Syndrome

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## Abstract

*Post infectious neuropsychiatric problems have been frequently reported in last century. A variety of neuropsychiatric symptoms like anxiety disorders, mood features with co-existing obsessive compulsive symptoms and/ or tics have been reported with pediatric autoimmune neuropsychiatric disorder associate with streptococcus (PANDAS). We discuss a case of a young girl who developed obsessive suicidal ideation following acute throat infection. Association of Group A, beta hemolytic streptococcus (GABHS) with her symptoms was not proved and hence the newer versions- Pediatric Autoimmune Neuropsychiatric Syndrome (PANS), which is a broader entity was considered. PANS is postulated to be much broader than PANDAS, including in its rubric, not only disorders potentially associated with a preceding infection but also those without an apparent environmental precipitant or immune dysfunction. Management of suicidal ideation in children requires assessment and treatment by team of mental health professionals, which implies liaison with specialized mental health care services. However, sudden onset of suicidal ideation may suggest a non-psychiatric etiology. Considering the public health importance of suicide in pediatric age group we suggest considering PANS as differential diagnosis for an acutely suicidal children.*

**Keywords:** *Suicidal obsession, Group A beta hemolytic streptococci, Pediatric acute onset neuropsychiatric syndrome associated with streptococci, Pediatric acute onset neuropsychiatric syndrome*

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## Introduction

Neuropsychiatric symptoms produced by autoimmune mechanisms have been known for more than a century. One of the various manifestations of Rheumatic fever- which is an aberrant immune response to Group A beta hemolytic streptococcus (GABHS)- is Sydenham's chorea. Behavioral manifestations in Sydenham's chorea were first noted by Osler (1894) and subsequently, Freeman et al., reported obsessive compulsive symptoms and tics to be the most common psychological symptom to be associated with Sydenham's chorea.<sup>1</sup> Allen et al., observed that a subgroup of patients did not develop the expected choreoid movements of Sydenham's chorea but developed obsessive compulsive symptoms and/ or tics following acute infection.<sup>2</sup> This subgroup, initially referred to as PITANDs (pediatric, infection triggered, autoimmune neuropsychiatric disorder) was later operationally defined by Swedo et al., and rechristened as Pediatric Autoimmune Neuropsychiatric Disorder

Associated with Streptococcus (PANDAS) with an emphasis on establishing the occurrence of these symptoms with Streptococcal infections (Table 1).<sup>2,3</sup>

A variety of neuropsychiatric symptoms like anxiety disorders (separation anxiety), mood features (mood lability, irritability), biological disturbances (anorexia, narcolepsy, insomnia), motor hyperactivity (attention deficit hyperactivity disorder), deteriorating school performance, personality changes, deterioration in handwriting, bed-time rituals, oppositional behaviors, with co-existing obsessive compulsive symptoms and/ or tics have been reported with PANDAS.<sup>3</sup> In this current case report we discuss a case of a young girl who developed obsessive suicidal ideation following acute throat infection.

## Case Report

A 9 year old girl presented to us with abrupt onset of restlessness and pacing around the house, muttering behavior, decreased sleep and

repeatedly expressing 'I have to die' for the last 3 days. She offered no reason to commit suicide but said that the thought kept coming in her mind. She believed her thought to be her own and that she was not able to get away from it. She appeared preoccupied in her thoughts, would delay in giving response to anything asked and looked perplexed. She had once made an attempt to reach the water-tank of her house and also had made a noose of her mother's duppata. On both occasions she was incidentally discovered doing so by family members. She did not want to attend school and was no longer interested in studying or playing with her friends. No significant psychological or social stressor at home or at school was found. Two weeks earlier patient had developed fever with sore-throat for which she was prescribed azithromycin for three days and she improved within a week. No past history or family history of similar symptoms was reported. Developmental assessment revealed no delay in milestones and academic performance was above average. Patient has easy going premorbid temperament. Physical examination did not reflect any abnormality. Mental status examination revealed impaired attention and concentration, increased psychomotor activity, delayed speech responses, irritable mood, obsessive suicidal ideas and absent insight into illness. Laboratory evaluations like hematogram, serum electrolytes, renal and hepatic functions were within normal limits with the exception of raised erythrocyte sedimentation rate. Computerized tomography (with contrast) of head did not show any abnormality. Throat swab culture was negative and anti-streptococcal antibody titer was not elevated.

## Discussion

Obsession- defined as recurrent and intrusive thoughts, ideas, images, or impulses that cause marked anxiety and distress, when seen in children may not be recognized by them as excessive or unreasonable.<sup>4</sup> In absence of insight into their obsession, children can contemplate acting on their thought, in this case attempting suicide. The fact that the patient reported her thought to be ego-dystonic, intrusive and recurrent confirms that her suicidal ideation was obsessive. Since the patient had abrupt onset of behavioral problems and history of recent throat infection, a post-infectious phenomenon was suspected.

Movement disorders accompanied by behavioral changes are also seen in acute

disseminated encephalomyelitis. Psychological symptoms include emotional lability, inappropriate laughter, separation anxiety and hyper somnolence while dystonia is the most common movement disorder.<sup>5</sup> Patients show antibodies to human striatal proteins along with raised ASO titers suggesting a role of GABHS. Similarly, basal ganglia encephalitis, suspected to be due to antibodies to human dopamine receptor following GABHS infection, has recently been identified with a spectrum of motor, psychiatric and autonomic symptoms.<sup>6</sup> In our case the absence of movement disorders and autonomic symptoms and the presence of obsession made the possibility of PANDAS more likely.

Most researchers have reported intrusive thought and contamination fears as the most common obsessive compulsive symptoms in PANDAS. However, suicidal ideation, gestures and intent has been reported by very few. In their report on 47 patients with pediatric acute onset neuropsychiatric syndrome patients, Frankovich et al., noted suicidality in 40% of cases although suicidal intent was reported by only one patient.<sup>7</sup> They also reported impulsive dangerous behavior (60%), homicidal ideation (19%) and life threatening violence (14%) in their sample. It is unclear from their report if those having suicidal ideation had obsessive ideation.

The criteria for PANDAS, requires that association only with streptococcal infection be demonstrated either by positive throat swab and/or rising anti streptococcal antibody titer (Table 1).<sup>3</sup> This association is also required for subsequent exacerbations. Considering the high prevalence of GABHS infection in childhood (both symptomatic and asymptomatic), this relationship is difficult to establish and leads to mis-diagnosis and missed diagnosis.<sup>8</sup> Besides, antibody titers for GABHS do not correlate with onset, progression and severity of PANDAS.<sup>9</sup> A study done by Swedo et al (2015) to evaluate the validity of PANDAS criteria, the authors compared clinical characteristics of PANDAS patients identified in two community practices with a sample of children meeting full research criteria for PANDAS.<sup>10</sup> It was found in study that 22% of the community cases failed to meet PANDAS criteria because of absence of GABHS infections. In our case too, we could not fulfil the said criteria.

Apart from *Streptococcus pyogenes*, studies have also implicated variety of micro-organism

like varicella, Epstein barr virus, influenza virus and Mycoplasma pneumonia to be associated with post infectious neuropsychiatric symptoms.<sup>11</sup> The stringent criteria for diagnosis of PANDAS were hence modified and a newer diagnostic entity made - Pediatric Acute-onset Neuropsychiatric Syndrome (PANS),<sup>12</sup> criteria for which are fulfilled in this case. PANS is postulated to be much broader than PANDAS and PITANDS, including in its rubric, not only disorders potentially associated with a preceding infection but also those without an apparent environmental precipitant or immune dysfunction (Table 1).

Some studies have compared the phenomenological differences in children with pediatric obsessive compulsive disorder (OCD) and obsessive compulsive symptoms of PANDAS. Bernstein et al., reported symptoms like separation anxiety, urinary urgency, oppositional defiant behavior, mood swings, inattention, hyperactivity, impulsivity, deterioration in handwriting and decline in school performance are more likely to occur in PANDAS.<sup>13</sup> Murphy et al., did not find any such difference in his sample of 109 children and reported that history of tonsillectomy/adenoidectomy and response to antibiotic therapy were more likely in PANDAS. Clumsiness was reported to be more like in PANDAS in this study.<sup>14</sup> In view of limited studies, a definitive phenomenological feature for PANDAS is unlikely although some authors feel that more attention should be given to fine motor skills and school performance.<sup>15</sup>

As with the clinical features, pathophysiological underpinning of PANDAS is also unclear. Suspected mechanism in pathogenesis involves cortico-subcortical disruption due to basal ganglia dysfunction as a consequence of autoimmune process consisting of antibodies or immune cells cross reacting between neural cells and GABHS (molecular mimicry).<sup>15</sup> Unfortunately, neural surface mimicking antigen and specific serum antibodies still remain elusive. Magnetic resonance imaging has revealed enlargement of caudate, putamen and globus pallidus during early part of illness.<sup>16</sup>

Clomipramine and some Selective Serotonin Reuptake Inhibitors (SSRIs) have been approved by the US-FDA for child and adolescent OCD and may be effective in treatment of PANDAS<sup>15</sup> but no specific guidelines for OCD in PANS are available. SSRIs by virtue of suppression of

gamma-interferon synthesis may have an added anti-inflammatory benefit.<sup>17</sup> Earlier studies postulated a role of penicillin in treatment and for prophylaxis of subsequent exacerbations of PANDAS which did were not seen in a randomized control trial.<sup>18</sup> Immunomodulation-based on presumed etiology, can be considered in cases that are refractory to clomipramine/ SSRIs.<sup>19</sup> Plasma exchange and intravenous immunoglobulin's have shown to reduce symptoms and sustain remission for up to 1 year in one study.<sup>20</sup> In our patient, we initiated treatment with Escitalopram at a dose of 5 mg and escalated to 10 mg at 1 week. Patient showed good response by day 10 with anxiety, hyperactivity and sleep symptoms being first to respond followed by improvement in obsessive symptoms. Patient returned to school by 2 weeks and has maintained remission for past 4 months.

Suicidal ideation in the age group of 5-15 years can arise due to various social, psychological and familial factors. Management of suicidal ideation in children requires assessment and treatment by team of mental health professionals, which implies liaison with specialized mental health care services. However, sudden onset of suicidal ideation may suggest a non-psychiatric etiology. Intentional self-harm (Suicide) ranks among top 10 cause of death in urban India for the age group of 5-15 years.<sup>21</sup> Considering the public health importance of suicide in pediatric age group we suggest considering PANS as differential diagnosis for an acutely suicidal children.

**Table 1: Diagnostic criteria of PANDAS and PANS****Pediatric Autoimmune Neuropsychiatric Disorders Associate with Streptococci- PANDAS**

1. Presence of OCD and/ or tic disorder  
The patient must meet lifetime diagnostics criteria for OCD or a tic disorder
2. Pediatric onset  
Symptoms of the disorder first become evident between 3 years of age and the beginning of puberty
3. Episodic course of symptom severity  
Clinical course is characterized by the abrupt onset of symptoms or by dramatic symptom exacerbation. Symptoms usually decrease significantly between episodes and occasionally resolve completely between exacerbation
4. Associated with Streptococcal infection  
Symptom exacerbations must be temporarily related to streptococcal infection, i.e., associated with positive throat culture and/ or rising anti-streptococcal titers.
5. Association with neurological abnormalities  
During symptom exacerbations, patients will have abnormal results on neurological examination. Motoric hyperactivity and adventitious movements are particularly common

**Pediatric Autoimmune Neuropsychiatric Syndrome- PANS**

1. Abrupt, dramatic onset of obsessive-compulsive disorder or severe restriction of food intake
2. Concurrent presence of additional neuropsychiatric symptoms, with similarly severe and acute onset, from at least two of the following seven categories:
  - a. Anxiety
  - b. Emotional lability and/or depression
  - c. Irritability, aggression and/or severely oppositional behaviors
  - d. Behavioral (developmental) regression
  - e. Deterioration in school performance
  - f. Sensory or motor abnormalities
  - g. Somatic signs and symptoms, including sleep disturbances, enuresis or urinary frequency
3. Symptoms are not better explained by a known neurologic or medical disorder, such as Sydenham chorea, systemic lupus erythematosus, Tourette disorder or others.

**References**

1. Freeman JM, Aron AM, Collard JE, Mackar MC. The emotional correlates of Sydenham's chorea. *Pediatrics* 1965;35:42-9.
2. Allen AJ, Leonard HL, Swedo SE. Case study: a new infection-triggered, autoimmune subtype of pediatric OCD and Tourette's syndrome. *J Am Acad Child Adolesc Psychiatry* 1995;34:307-11.
3. Swedo SE, Leonard HL, Garvey M, Mittleman B, Allen AJ, Perlmutter S et al. Pediatric autoimmune neuropsychiatric disorders associate with streptococcal infections: clinical description of the first 50 cases. *Am J Psychiatry* 1998;155:264-71.
4. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental illness- 5<sup>th</sup> Edition*. American Psychiatric Publishing; Washington: 2013.
5. Dale RC, Church AJ, Cardoso F, Goddard E, Cox TC, Chong WK et al. Poststreptococcal acute disseminated encephalomyelitis with basal ganglia involvement and auto-reactive antibasal ganglia antibodies. *Ann Neurol* 2001;50:588-595.
6. Dale RC, Merheb V, Pillai S, Wang D, Cantrill L, Murphy TK et al. Antibodies to surface dopamine-2 receptor in autoimmune movement and psychiatric disorders. *Brain* 2012;135:3453-68.
7. Frankovich J, Thienemann M, Pearlstein J, Crable A, Brown K, Chang K. Multidisciplinary clinic dedicated to treat youth with pediatric acute-onset neuropsychiatric syndrome: Presenting characteristics of the first 47 consecutive patients. *J Child Adolesc Psychopharmacology* 2015;25:38-47.
8. Gabby V, Coffey BJ, Babb JS, Meyer L, Wachtel C, Anam S, Rabinovitz B. Pediatric autoimmune neuropsychiatric disorders associated with streptococcus. Comparison of diagnosis and treatment in the community and at a specialty clinic. *Pediatrics* 2008;122:273-8.
9. Moretti G, Pasquini M, Mandarelli G, Tarsitani L, Biondi M. What every psychiatrist should know about PANDAS: a review. *Clin Pract Epidemiol Ment Health* 2008;21;4:13.
10. Swedo SE, Seidlitz J, Kovacevic M, Latimer ME, Hommer R, Lougee L, Grant P. Clinical presentation of Pediatric autoimmune neuropsychiatric disorders associated with streptococcus in research and community settings. *J Child Adolesc Psychopharmacology* 2015;25:26-30.
11. Kurlan R, Kaplan EL: The pediatric autoimmune neuropsychiatric disorders associated with streptococcal infection (PANDAS). Etiology for Tics and Obsessive-compulsive symptoms: hypothesis or entity? Practical consideration for clinician. *Pediatrics* 2004;113:883-6.

12. Swedo SE, Leckman JF, Rose NR. From research subgroup to clinical syndrome: Modifying the PANDAS criteria to describe PANS (Paediatric Acute-onset Neuropsychiatric Syndrome). *Paediatr Therapeut* 2012; 2:2 d.o.i. <http://dx.doi.org/10.4172/2161-0665.1000113>.
13. Bernstein GA, Victor AM, Pipal AJ, Williams KA. Comparison of clinical characteristics of pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections and childhood obsessive-compulsive disorder. *J Child Adolesc Psychopharmacol* 2010;20:333–40.
14. Murphy TK, Storch EA, Lewin AB, Edge PJ, Goodman WK. Clinical factors associated with pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections. *J Pediatr* 2012;160:314–9.
15. Macerollo A, Martino D. Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections (PANDAS): An Evolving Concept. *Tremor Other Hyperkinet Mov (N Y)* 2013;25;3.
16. Giedd JN, Rapoport JL, Garvey MA, Perlmutter S, Swedo SE. MRI assessment of children with obsessive-compulsive disorder or tics associated with streptococcal infection. *Am J Psychiatry* 2000;157:281–3.
17. Murphy TK, Kurlan R, Leckman J. The immunobiology of Tourette's disorder, pediatric autoimmune neuropsychiatric disorders associated with Streptococcus, and related disorders: a way forward. *J Child Adolesc Psychopharmacol* 2010;20:317–31.
18. Garvey MA, Perlmutter SJ, Allen AJ, et al. A pilot study of penicillin prophylaxis for neuropsychiatric exacerbations triggered by streptococcal infections. *Biol Psychiatry* 1999;45:1564–71.
19. Swedo SE, Grant PJ. Annotation: PANDAS: a model for human autoimmune disease. *J Child Psychol Psychiatry* 2005;46:227–34.
20. Perlmutter SJ, Leitman SF, Garvey MA, Hamburger S, Feldman E, Leonard HL, Swedo SE. Therapeutic plasma exchange and intravenous immunoglobulin for obsessive-compulsive disorder and tic disorders in childhood. *Lancet* 1999;354:1153–8.
21. Ministry of Health and Family Welfare. Report on cause of death in India 2001-2003. Available from: URL: [http://www.cghr.org/wordpress/wp-content/uploads/Causes\\_of\\_death\\_2001-03.pdf](http://www.cghr.org/wordpress/wp-content/uploads/Causes_of_death_2001-03.pdf). Accessed Feb 16, 2016.