

## Case Report

### Successful treatment of a PTSD patient with psychosis and dissociative identity disorder using cervical sympathetic block: A Case Report

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## Abstract

The objective of this report is to highlight the effective use of cervical sympathetic block (CSB) in treating a patient diagnosed with post-traumatic stress disorder (PTSD), dissociative identity disorder (DID), and psychosis (PSY), while also discussing possible mechanisms of action that could explain these findings. Previous studies have demonstrated successful treatment of psychosis and PTSD using CSB, but there have been no reported cases of its application for DID. Over a three-year period, the patient and her husband noted significant improvements after she received three CSB treatments. Specific improvements included a marked reduction in PTSD symptoms, psychotic episodes, and dissociative behaviors. The frequency and intensity of hallucinations decreased significantly. Furthermore, the number of distinct personalities the patient exhibited dropped from a baseline of 10 to 15 down to just 3 to 5 by the time of reporting. Notably, her dominant personality shifted from one she referred to as "Monster" to "Matriarch," a personality she described as calm, content, less reactive, and nurturing. In conclusion, CSB is a minimally invasive procedure with an excellent safety profile that may offer sustained relief for patients experiencing symptoms of PTSD, psychosis, and dissociative identity disorder. This procedure could provide significant benefits for individuals who are resistant to conventional treatments, and further studies are recommended to explore its efficacy.

## Introduction

Post-traumatic stress disorder (PTSD), dissociative identity disorder (DID), and psychosis (PSY) are complex psychiatric conditions that often occur together, especially in individuals who have experienced severe early-life trauma. PTSD is characterized by intense, intrusive recollections of traumatic events, which can manifest as nightmares or daytime flashbacks [1].

Individuals with PTSD may also experience emotional numbing, withdrawal, and symptoms of hyperarousal, such as insomnia, irritability, and difficulty concentrating [1]. DID, a trauma-related dissociative disorder, is defined by the presence of two or more distinct identity states and significant memory disruptions. It is most commonly associated with chronic and repetitive childhood trauma and frequently co-occurs with PTSD and psychotic symptoms [2]. In many cases, dissociation plays a key role in linking trauma exposure to the development of hallucinations and delusional thinking [3]. Dissociative flashbacks and amnesia can mimic or co-exist with psychosis, creating diagnostic challenges. Recent research suggests that dissociation plays a mediating role in the relationship between trauma and psychosis, indicating that these conditions exist on a continuum rather than as distinct categories [3]. Specifically, hallucinations and paranoid ideation may arise not only from psychotic disorders but also as consequences of trauma-induced dissociative processes [3]. Significant trauma is a common factor in PTSD, Dissociative Identity Disorder (DID), and psychosis, suggesting that similar neurological mechanisms may underlie these disorders. One common mechanism is the overactivation of the sympathetic nervous system. The effectiveness of sympathetic blockade for treating PTSD and schizophrenia has been demonstrated, support-

ing this idea.

A systematic review published in 2017, which included 32 studies, found that SGB offers significant potential benefits for PTSD patients [4]. Furthermore, a 2020 multisite, sham-controlled randomized trial conducted with 113 active-duty service members experiencing PTSD symptoms also supported the effectiveness of SGB [5]. Additionally, previous reports have indicated that SGB successfully eliminated hallucinations in a patient with schizophrenia [6].

## Case Report

The CSB procedures were conducted following the standard Stella protocol detailed in a prior publication [7]. All three CSBs were done in the same Stella facility. The psychiatric assessment was based on a 1-hour-long telephone interview with the patient and her husband, conducted three years after the first CSB procedure.

The patient is a 35-year-old woman who was interviewed three years after starting her original CSB treatment. She has a long-standing history of dissociative identity disorder, post-traumatic stress disorder, and chronic psychosis. The patient experienced severe childhood trauma, including mental and physical abuse from her mother, as well as witnessing her mother's violent behavior and her father's death. She began hearing voices at the age of eight, and these experiences have continued into adulthood.

In the years preceding her treatment with CSB, the patient reported experiencing auditory hallucinations as frequently as 20 to 100 times per day. These included multiple voices that filled her with paranoia and self-

doubt, often triggering emotional outbursts, memory lapses, and aggressive behavior. She experienced 2 to 3 major psychotic events per year, which involved delusions of abandonment and rejection.

In addition to psychosis, the patient also reports having DID, identifying 10 to 15 distinct personalities prior to CSB treatment, with five being dominant. Her primary identity during this time was referred to as "Monster," characterized by verbal aggression and violent threats. She noted frequent involuntary personality switches in response to various triggers. Over the past 10 years, her pharmacologic regimen has varied; however, for the past three years, she has been consistently taking Lunesta, prazosin, guanfacine, olanzapine, and Vraylar. While she stated that the medications reduced her agitation, they did not eliminate the auditory hallucinations.

For 2 to 6 months after her first CSB treatment, she reported immediate and dramatic improvement in her symptoms. The voices in her head disappeared, and she described her mental state as peaceful, stating, "It was like the TV was finally turned off." The second CSB treatment was less dramatic but still effective, with benefits lasting approximately 6 to 8 months. The third SGB provided relief for about 6 to 9 months.

Following the series of CSB treatments, the patient reported a marked reduction in both psychotic symptoms and dissociative behaviors. Hallucinations decreased significantly in frequency and intensity. She indicated that while 3 to 5 personalities still existed, compared to the 10 to 15 prior to treatment, only 2 to 3 remained strongly active. Her dominant personality shifted from "Monster" to "Matriarch," whom she described as calm, content, less reactive, and maternal. Although some regression may have occurred following each procedure, the overall trajectory of her condition remained significantly improved.

For the past 3 months, her physician has been working to taper her medication doses. The patient expressed gratitude for the intervention, stating she was "a wreck" prior to the CSB and credited the treatment, in combination with her medication regimen, for helping her regain stability and remain with her family. She mentioned, "I wouldn't be with my family if I didn't get the shots," and believed she would likely be homeless or hospitalized without the treatment.

## DISCUSSION

As discussed above, it is likely that post-traumatic stress disorder (PTSD), dissociative identity disorder (DID), and psychosis are influenced, at least in part, by the sympathetic nervous system. Previous reports indicate that PTSD is associated with elevated levels of catecholamines, particularly norepinephrine (NE) [8]. In patients with schizophrenia, increased levels of NE are observed during episodes characterized by positive symptoms, which include hallucinations, delusions, and agitation [9]. Indirect NE agonists, such as yohimbine, have been found to exacerbate the positive symptoms of schizophrenia, while functional NE antagonists, such as clonidine, are effective in inhibiting these symptoms [10].

Interestingly, a case report detailing a 36-year-old woman with both PTSD and DID showed that treating her PTSD through prolonged exposure, alongside Eye Movement Desensitization and Reprocessing (EMDR) therapy, exercise, and psychoeducation, significantly improved her DID symptoms [11]. Although a clear pathophysiological cause for DID has not been identified, the strong connection between PTSD and DID suggests that increased levels of NE may partially contribute to the symptoms of DID.

Given this information, it can be predicted that a treatment modality focusing on modulating norepinephrine (NE) levels could effectively address the conditions. In particular, the Stellate Ganglion Block (SGB) procedure, which involves anesthetizing the C6 sympathetic ganglion, along with a newer technique known as the Cervical Sympathetic Block (CSB)—per-

formed at the C3 and C6 ganglions—has been shown to be an effective treatment for PTSD. The proposed mechanism of action is believed to involve the reduction of NE [8].

## CONCLUSION

In conclusion, CSB is a minimally invasive procedure with an excellent safety profile that may provide sustained relief for patients experiencing symptoms of PTSD, psychosis, and dissociative identity disorder. The procedure may offer significant benefits for those who are resistant to current interventions, and further studies are recommended.

## Declarations Prior presentations

None.

## Clinical trial registration

Not applicable.

## Institutional animal care and use Committee (IA-CUC)

Not applicable.

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## Competing interests

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## Individual author contribution statement

EL analyzed the data and drafted the original manuscript. SR collected patient data and wrote the case report section, in addition to contributing to the discussion section. KM edited the manuscript, while KD reviewed and edited the final version, providing a psychiatric perspective. All authors reviewed and approved the final manuscript.

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