

## DISSOCIATIVE CONVULSIONS AND FUGUE IN A PATIENT WITH AGENESIS OF CORPUS CALLOSUM: CASE REPORT

Tonći Mastelić, Tonka Borovina, Branimir Luketin, Marinela Krištić,  
Lea Kustura & Trpimir Glavina

*Clinic for Psychiatry, University Hospital Centre Split, Split, Croatia*

received: 22.4.2022;

revised: 1.6.2022;

accepted: 17.6.2022

\* \* \* \* \*

### INTRODUCTION

The aim of this study is to present the patient with agenesis of corpus callosum (AgCC) combined with fugue and dissociative convulsions. Fugue is characterized by wandering of a patient, usually with new identity and amnesia during that period (Erickson et al. 2014). Dissociative convulsions resemble epileptic seizures but have no EEG correlates (Anzellotti et al. 2020). The predisposition for their development is the agenesis of the corpus callosum and the traumatic experience (Anzellotti et al. 2020). AgCC is a congenital brain malformation involving the complete or partial absence of the largest interhemispheric pathway (Erickson et al. 2014). Callosal connections play an important role in verbal and visual learning and memory (Paul et al. 2016). People with AgCC find it more difficult to process complex information (Paul et al. 2016). Socially, they exhibit impaired comprehension of higher-order aspects of communication and interpersonal relations (Paul et al. 2016). The impossibility of processing and verbalizing emotions leads to the transfer of their communication to the body level (Anzellotti et al. 2020).

### CASE REPORT

In January 2020, a 31-year-old man came to emergency psychiatric admission of the Clinic of Psychiatry (University Hospital Centre of Split) with his mother because of more intensive dissociative convulsions and in a confused state with disorganized behaviour.

The patient has been in a long-term psychiatric treatment. He was treated in our Clinic in October 2016 and eight times in Psychiatric Hospital (PH) Vrapče. The previous discharge from our Clinic was in November 2019.

The patient lives with an overly protective mother. After his father's death, mental disorders began. Since 2014, he has been in treatment due to partial epileptic seizures of the sensorimotor type of Jackson on the right with a secondary generalization. The developmental agenesis of the corpus callosum was confirmed neuroradiologically (last MR performed on April 2, 2019). Dissociative convulsions were verified by EEG monitoring (2016). Psychological testing showed reduced cognitive functioning and reduced results of verbal and nonverbal communication.

After several months of treatment in PH Vrapče, dissociative convulsions recur daily, they occur suddenly and

with no clear reason, most often in the form of uncontrolled shaking of the head, or sometimes extremities, with preserved consciousness, for about 30 seconds. Mood swings are common, he is irritable and reactive. He experienced a drop in mood after losing social assistance money. That resulted in uncontrolled behaviour, anger, and hostility. He is occasionally confused, disoriented, cannot recognize his mother, and claims auditory hallucinations.

Upon admission to the hospital what stood out in his psychic status were psychomotor tension, depressed mood, less modulated affect, extensive and sticky thinking, cognitive reduction, and hypovigilance.

The patient was treated with the following therapy: oxcarbazepine (1200 mg/day), levetiracetam (1000 mg/day), clonazepam (4 mg/day), aripiprazole (20 mg/day), olanzapine (5 mg/day), fluvoxamine (100 mg/day), quetiapine (100 mg/day). The patient also received psychotherapeutic support and psychoeducation. After the first few days of treatment, the mental state stabilized, and no dissociative convulsions or fugues were observed.

Since then, the patient has been on regular outpatient check-ups, therapeutically cooperative and has not been rehospitalized.

### DISCUSSION

Dissociative convulsions and fugues are dissociative disorders. Dissociation is considered to be a defence mechanism that helps an individual in coping with traumatizing events (Anzellotti et al. 2020). Dissociative convulsions are characterized by paroxysmal motor, non-motor, or behavioural alterations that resemble epileptic seizures without EEG correlates (Anzellotti et al. 2020). Fugue is characterized by a loss of memory for important autobiographical information and apparently purposeful travel or bewildered wandering that is associated with amnesia during that period (APA 2013, Erickson et al. 2014). Our patient's symptoms began after his father's death. Such a traumatic experience has been described as a trigger for dissociative disorders (Kihlstrom 2005). Dissociative symptoms resolved within a few days after the patient's arrival to the hospital. The importance of the environment, especially close social ties, in supporting dissociative symptoms is well known (Jith & Narayanan 2017). The patient's mother is very protective, focused and concerned about his condition. This reduces the effectiveness

of the therapeutic intervention. The patient is also treated for epilepsy, which is a risk factor for the development of dissociative convulsions because of the predisposing biological mechanisms and because the experience of epileptic seizures may provide an opportunity for model learning (Anzellotti et al. 2020). The patient has AgCC which is associated with difficulty in verbalizing emotions. It is characteristic of dissociative disorders patients to show difficulty in expressing conflicts verbally and to sometimes express distress somatically (Anzellotti et al. 2020). All of the above supports the psychogenic aetiology of the disorders. That was confirmed by EEG monitoring for dissociative convulsions.

There are also arguments for organic aetiology of fugue. Organic fugues are rare. So far, they have been described in combination with migraine, temporal lobe epilepsy, carbon monoxide poisoning and post-concussion syndrome (Riether & Stoudemire 1988). Rare cases of organic fugue with frontal lobe epilepsy have also been described. It is the area of Jackson's sensorimotor epilepsy which could explain the fugue of our patient (Drislane 2003). To date, no patient with AgCC and fugue has been described in the literature. Fugue may be explained by the role of corpus callosum in memory, learning, and recollection. Persons with AgCC are likely to show memory impairment and to have difficulty on both immediate and delayed recall (Paul et al. 2016). A fugue is characterized by memory impairment for important autobiographical data and amnesia during that period.

In the treatment of dissociative disorders, the therapy of choice is psychotherapy (Anzellotti et al. 2020). Some studies favour psychodynamic therapies, while others prefer cognitive behavioural therapy. Group and family therapy also have a role in treatment. The research also emphasizes the importance of psychoeducation of patients and their families (LaFrance et al. 2013). Data on pharmacotherapy are very scarce (LaFrance et al. 2013). It is important to detect other psychiatric illnesses or underlying disorders, such as psychosis, depression, or anxiety disorder, and to adequately treat them (Anzellotti et al. 2020). The patient had psychotic symptoms for which olanzapine was administered. Adequate anxiolysis and mood stabilization are equally important. Therefore, aripiprazole, quetiapine and clonazepam were added (Šagud et al. 2011). Aripiprazole has also been shown to be useful in dissociative convulsions (Coppola et al. 2020). Due to the depressive syndrome, fluvoxamine was included. The patient was discharged in a significantly better mental state, without dissociative symptoms.

## CONCLUSION

Dissociative disorders are rare and it usually takes a long time to diagnose them. We have shown that they can

occur together and with organic impairment. So far, as we know, no case of agenesis of the corpus callosum with fugue has been described in the literature. Although organic fugues are rare, we explained why AgCC could cause fugue. We also presented our experience with psychopharmacotherapy of dissociative convulsions and fugue. Data on this are otherwise very scarce. Further research into therapeutic options, especially psychopharmacotherapy, is certainly needed.

**Acknowledgements:** None.

**Conflict of interest:** None to declare.

## Contribution of individual authors:

All authors were involved in each stage of the creation of this paper and all authors have read and approved the manuscript.

## References

1. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*. American Psychiatric Association, Arlington, VA, 2013
2. Anzellotti F, Dono F, Evangelista G, Di Pietro M, Carrarini C, Russo M et al.: *Psychogenic Non-epileptic Seizures and Pseudo-Refractory Epilepsy, a Management Challenge*. *Front Neurol* 2020; 11:461. doi: 10.3389/fneur.2020.00461
3. Coppola G, Pastorino GMG, Morcaldi L, D'Onofrio F & Operto FF: *Psychogenic Non-Epileptic Status as Refractory, Generalized Hypertonic Posturing: Report of Two Adolescents*. *Medicina (Kaunas)* 2020; 56:508. doi:10.3390/medicina56100508
4. Drislane FW: *Chapter 147 - Status Epilepticus*. Samuels MA & Feske SK (eds): *Office Practice of Neurology (Second Edition)*, 938-947. Churchill Livingstone, 2003
5. Erickson RL, Paul LK & Brown WS: *Verbal learning and memory in agenesis of the corpus callosum*. *Neuropsychologia* 2014; 60:121-30
6. Jith A & Narayanan D: *Dissociative Motor Disorder*. *Indian J Psychol Med* 2017; 39:99-101
7. Kihlstrom JF: *Dissociative disorders*. *Annu Rev Clin Psychol* 2005; 1:227-53
8. LaFrance WC Jr, Reuber M & Goldstein LH: *Management of psychogenic nonepileptic seizures*. *Epilepsia* 2013; 54:53-67
9. Paul LK, Erickson RL, Hartman JA & Brown WS: *Learning and memory in individuals with agenesis of the corpus callosum*. *Neuropsychologia* 2016; 86:183-92
10. Riether AM & Stoudemire A: *Psychogenic fugue states: a review*. *South Med J* 1988; 81:568-71
11. Šagud M, Mihaljević-Peješ A, Begić D, Vuksan-Ćusa B, Kramarić M, Živković M et al.: *Antipsychotics as antidepressants: what is the mechanism?* *Psychiatr Danub* 2011; 23:302-7

*Correspondence:*

Tonka Borovina, MD

Clinic for Psychiatry, University Hospital Centre Split  
Spinčićeva 1, 21 000 Split, Croatia

E-mail: tborovina@gmail.com