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Case Report of Premenstrual Dysphoric Disorder with a Brief Psychotic Episode

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Abstract

BACKGROUND: Premenstrual dysphoric disorder (PMDD) is often neglected because people see it as a normal condition due to hormonal changes in women's bodies. The prevalence of women experiencing PMDD is estimated to be around 3–9% in the population, and sometimes, this condition could be so severe that it negatively impacts the affected's life and family.

CASE PRESENTATION: A 15-year-old girl was brought by her parents to the department of psychiatry, general hospital of USU with an odds attitude. She repeatedly said "nenek, nek, nenek" and claimed that she saw her grandmother who was already dead for 5 years. Cooccurring with these symptoms, she has also had a terrible premenstrual syndrome since menarche. In her premenstrual days, she complains about her stomach cramps, tender breast, and back pain. In addition, she was reported to be uncontrollably angry and sad. These symptoms usually developed 2–3 days before menstruation and regressed without residues in menstruation days.

CONCLUSION: A 15 years old diagnosed with PMDD, which occurred since menarche. Brief psychotic episodes were found with every PMDD cycle in these 3 month. This brief psychotic episode is still under observation.

Introduction

The syndrome of premenstrual disorder was first described in the 1930s. There have been various psychological and physical symptoms of the premenstrual dysphoric disorder (PMDD). The hallmark of these symptoms occurs in the luteal phase of the menstrual cycle and is relieved by menstruation. There are approximately 50–80% of women who are struggling with some premenstrual symptoms that may vary from mild to severe, but the prevalence of the severe form of premenstrual syndrome, known as PMDD, ranges from 3% to 9% [1].

The characteristic of PMDD is defined by the cyclical distress or impairing affective symptoms in the 2 weeks before the onset of menses. These events are recurring and with full remission of symptoms in the week after menstruation. DSM-5 is categorizing PMDD as a mood disorder with symptoms of physical and vegetative contributions to the diagnosis, but at least in one cycle, there have to be emotional symptoms (Table 1) [2].

The diagnostic criteria for brief psychotic disorder remain the same: The symptoms persist for 1 month or less, and the person must fully recover after the psychosis ends. The criteria require the acute onset of at least one symptom: Delusions, hallucinations, or disorganized speech. The fourth possible symptoms are grossly disorganized or catatonic behavior remains, but it is not sufficient alone to make the diagnosis [3].

The prevalence of a brief episode in PMDD is still unknown. There are some studies which had linked PMDD with bipolar disorder (BD). The episode of psychotic symptoms is one feature of BD with manic and psychotic episode comorbidity. According to the study by Cirillo *et al*., BD was more frequently observed among the control group (without PMDD) compared to the group with PMDD (40% vs. 12%, respectively). Among patients with BD-II or cyclothymia, rather than than BD-I, it should be highlighted that PMDD is more frequent [4], [5], [6].

The prevalence of a brief psychotic episode in PMDD is still unknown. There are some studies that had linked PMDD with BD. The episode of psychotic symptoms is one feature of BD with manic and psychotic episode comorbidity [4].

In schizophrenia, two studies examined prospectively rated premenstrual symptoms. The first study, examining 39 women, found an increase in affective and somatic symptoms premenstrually using a retrospective method. Nevertheless, the analysis of the prospective ratings of PMDD and psychiatric comorbidity did not reveal a premenstrual phase relationship. The retrospective form was given twice a month during the luteal and follicular phases of the menstrual cycle. It is

Table 1: Diagnostic criteria of PMDD according to DSM-5 [5]

A. In the majority of menstrual cycles, at least five symptoms must be present in the final week before the onset of menses, start to improve within a few days after the onset of menses, and become minimal or absent in the week postmenses.
B. One (or more) of the following symptoms must be present:
1.Marked affective lability (e.g., mood swings; feeling suddenly sad or tearful, or increased sensitivity to rejection).
2.Marked irritability or anger or increased interpersonal conflicts.
3.Marked depressed mood, feelings of hopelessness, or self-deprecating thoughts.
4.Marked anxiety, tension, and/or feelings of being keyed up or on edge.
C. One (or more) of the following symptoms must additionally be present, to reach a total of five symptoms when combined with symptoms from Criterion B above.
1.Decreased interest in usual activities (e.g., work, school, friends, and hobbies).
2.Subjective difficulty in concentration.
3.Lethargy, easy fatigability, or marked lack of energy.
4.Marked change in appetite; overeating; or specific food cravings.
5.Hypersomnia or insomnia.
6.A sense of being overwhelmed or out of control.
7.Physical symptoms such as breast tenderness or swelling, joint or muscle pain, a sensation of "bloating," or weight gain. NOTE: *The symptoms in Criteria A-C must have been met for most menstrual cycles that occurred in the preceding year*.
D. The symptoms are associated with clinically significant distress or interference with work, school, usual social activities, or relationships with others (e.g., avoidance of social activities; decreased productivity; and efficiency at work, school, or home).
E. The disturbance is not merely an exacerbation of the symptoms of another disorder, such as major depressive disorder, panic disorder, persistent depressive disorder (dysthymia), or a personality disorder (although it may co-occur with any of these disorders).
F. Criterion A should be confirmed by prospective daily ratings during at least two symptomatic cycles. (NOTE: The diagnosis may be made provisionally before this confirmation.)
G. The symptoms are not attributable to the physiologic effects of a substance (e.g., a drug of abuse, a medication, and other treatment) or another medical condition (e.g., hyperthyroidism).

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possible that retrospective reporting of symptoms was altered during the luteal phase. Interestingly, four out of seven of the prospectively assessed symptoms were more severe during the menstrual phase than the premenstrual or postmenstrual phases in these women [6], [7], [8].

This present case report describes an adolescent woman who developed a brief psychotic episode during her PMDD symptoms.

Case Presentation

A 15-year-old girl was brought by her parents to the department of psychiatry of general hospital USU with an odds attitude. She was repeatedly said "nenek, nek, and nenek" and said that she was seeing her grandmother, who has been dead for 5 years. This is the 3rd time for her experiencing this symptom. Before that, her parents said that, for 2 months ago, sometimes, she told her mother that she looked at her grandmother and pointing to the empty space between her toilet and kitchen in her house. This is not happening all time; because of that, her parents thought her daughter was missing her grandmother. In the next month after that, her daughter was experiencing the same symptoms again. Uniquely, her mother said that it happened 2–3 days before she was menstruating. Thus her mother said these symptoms are "signs" for her daughter's menstruation.

Further, her parents said that she had had a terrible premenstrual syndrome since menarche. At menarche, she was 11 years old. In her premenstrual days, she complains about stomach cramps, tender breast, and back pain. Besides that, her parents observe that she is always in a fluctuating mood on premenstrual days. In the 3 months, which her parents were referring to, she has been uncontrolably angry and sad. These symptoms regressed without residues on menstruation days. She was brought to a gynecology consultant 2 times to assess the premenstrual symptoms. These examinations revealed a normal condition.

Acute infection, metabolic disorders, and intoxication were ruled out by clinical and laboratory examinations. Psychological testing during the symptom-free interval revealed average intellectual functioning and minor concentration problems. Screening for anxiety and depression was negative. The use of alcohol, any drugs, and addictive substance was ruled out by psychiatric interviews.

After careful consideration of the patients' condition, the patient was diagnosed with PMDD. In addition, brief psychotic episodes were still observed. She was prescribed antipsychotics and antidepressants. She was advised to control her condition every month, and her parents are told to help her make notes and time table due to her menstrual cycle and the symptoms, she has experienced.

Discussion

In general, the menstruation's cycle is divided into two-phase, the follicular phase and luteal phase. The first phase, the follicular phase, is the days from onset of menstrual bleeding to ovulation, while the second phase after this is the luteal phase. The luteal phase is defined as the days between ovulation and the subsequent onset of menstrual bleeding. Only a few females suffer from cyclical changes in emotion and cognition, with symptoms coinciding with the menstrual cycle. Leeners *et al*. demonstrated that PMDD patients suffer from an abnormal sensitivity to normal ovarian hormonal changes [7].

Its time course specifically defines PMDD. The symptoms that are commonly observed in PMDD are mood swings and irritability. In this patient, we found predominantly a depressed mood. Therefore, we have to differentiate whether it's a PMDD or a beginning of a depression. In this patient, we found symptoms of depression, but those symptoms go in remission during the menstruation phase.

Patients with PMDD most often suffer a long time before they receive a diagnosis and treatment. Commonly PMMD patients experience premenstrual syndrome, and as time goes by, they merely see a changing of the symptoms. The symptoms that they

report include mood symptoms, cognitive symptoms, and all the pain related to their menstrual cycle. Although, some women, even experiencing these symptoms, do not seem to be adversely affected by them.

In Table 2, there are other comorbidities, which are correlated with PMDD. According to this case report, there are no criteria for this cyclic psychotic episode in DSM-5 or ICD-11. We currently considered that it was a variant of BD with rapid cycle or major depressive disorder with a psychotic episode. However, there were criteria which did not fulfill a diagnosis of bipolar or major depressive disorder [8].

A brief psychotic episode of PMDD is rarely found in cases of PMDD. There was a report of a case of PMDD with psychotic in Japan in 2008; back then, initially, she was misdiagnosed with rapid cycling bipolar I and borderline personality disorder. After an observation with the diary, they concluded that the symptoms correlated with her menstrual cycle and then diagnosed her with PMDD [3].

PMDD is a cyclic mood illness that appears to be linked to the common biological mechanism, such as polygenic risk factors such as the Brain-Derived Neurotrophic Factor catechol-O-methyltransferase polymorphisms. A recent study suggests a critical role of estradiol and progesterone in neuroregulation, and the cyclic changes of their level significantly affecting mood and behavior in susceptible women. Reproductive hormones regulate the synthesis of important neurotransmitters such as dopamine, noradrenaline, serotonin, GABA, and glutamate, thus resulting in significant changes in the activation of limbic and prefrontal brain regions. It involves attention, reward, and emotional processing rapid changes of progesterone levels during the different phases of the menstrual cycle. The estrogen influence on serotonin results in premenstrual symptoms even in the case of normal ovarian function [8].

Psychosis is referred to as a person who has impairing mental function, which interferes with the quality of life. In 1980, DSM-III subsumed psychosis in

Table 2: Prevalence of PMDD with other comorbidities

Author year published		Psychiark diagnosis	56 PMS/PMDD s paydaiark cournbiSty	Thpulatko exic 6311
Price *et al*.-086	25	Bipnlar I Disorder. Rapid Cycling	60	Unhanny ontparent Psychiary Oink
Roy-Byrne *et al*. 1986	34	Seasonal Afectite Disease.	26	Yohsneers recnaked with
	16	Bipolar I Disteder		PMS symptoms
Mariam *et al*. 089	56	Affective or unkty disorder 0201 lised by and warder	89	Universey PMS Research Unk
Rarlacin *et al*.-090	97	Inoemkent Depressive Disorder	9	Oqlsern PMS clink
		Minor Depreasioa	1	
		Major Ds: pensive DitONIO	2	
		Generalised Anxiety Disorder		
likatiret6 *et al*.-092	35	Par& Ditoder	35	Ouvakst PMS Oinic
		Generalised Anxiety Disorder	35	
		Sisnple phobia	33	
		Social phobia	23	
		Obsessive Garrquisive Diarder		
Pour *et al*. 1992	32	DYsthrta.	16	University Gynecology Clinic
		Depressico Not Otherwise Specified	9	
		Major Ds: pensive Ditoder	0	
		Bipolar Diarder	0	
		Cyckshymis	6	
		Generated Anxiety Disorder	38	
		Pas& Moder		
		Social Plates	19	
		Simple PIrlia	16	
		Obsessise Compulsive Dia: soder	13	
Hari, 097	39	Schkophenia	0	Rychistric Unit
%Udall *et al*.-097	100	Sescaul Afkcsine Dia: seer	38	(Maier. PAC clink
Melores *et al*.-098	ISO	Bipolar I Disorder		UninefOty Psw: hisny Clinks
De Rceclai *et al*. 3333		Major Depessive Ditoder	12	OsTaient Gynesingy, Clink
Golding *et al*.-2033		Post Tranmask Stress Ditoder	65	Onalse. PMS Oki<
Alpay and Turban. 3301	133	Major Depessive Ditoder	18	Universey Gynecology Clinic
		Obsessive Compulsive Dia: soder	226	
		MDD OCD	226	
		Geseralired Anxiety Dionder	226	
Mg *et al*. 3001	141	DYsknaa	9	Conanuniq sample
		Mine and petite		
		Meer D.: Pensive Ditoder		
		Bipolar Diarder	16	
		Geseralired Anxiety Disorder	15	
		Pane sacks	35	
Hod *et al*. 2001	24	Schizophenia	8	Inpatient Psychistic Unit
Crischkav *et al*.-2031	39	Drknas	25	Realm*nts to a newspaper
		Major Depessive Disonder	10	ad fee PMS mfferas
Prachalt. Rieder *et al*. 2031	46	Sescoal Afkoine Diesrder	46	Chnlaiers Psychiatry Clinic
Sores *et al*. 2001	33	Major Depessive Dioada.	0	Corresisniq sample
Witchen *et al*. 20:2		Drthrstis	93	Corresisniq sample
		Major Depessive Pnioade	118	
		Major D.:pensive Ditoder. recurrent	62	
		Bipolar I Disorder	5.7	
		Bipalvn Ditoder	4.9	
		Parie Ditoder	15	
		Generalized Anxiety Disorder	13	
		Sorel Phobia	21.1	
		Sisnple Phobia	31.7	
		Obsessive Compulsive Meader	IA	
		Poor Trauma and Stress Dioado.	83	

Kim DR, Gyulai L, Freeman EW, Morrison MF, Baldassano C, Dubé B. Premenstrual dysphoric disorder and psychiatric co-morbidity. Arch Womens Mental Health. 2004;7:37-47. https://doi.org/10.1007/s00737-003-0027-3

the term indicated gross impairment in reality testing, which disrupts the ability to distinguish between the internal experience of the mind and the external reality of the environment. DSM-5, the current edition defined psychosis by a clinical syndrome determined by symptom duration (<1 month for brief psychosis, by symptom profile, by the relationship between psychotic symptoms and an episode of disturbed mood, and by cause (medical condition or etc.). In the clinical nomenclature, "psychotic symptom" refers to the manifestation of cognitive or perceptual dysfunction, mainly delusions or hallucinations 8].

In our reported case, the cyclical psychotic events are fully in remission in approximately 1 week. It seems that these symptoms relate to the hormonal cycle, and a full hormonal examination is recommended. Nevertheless, often a normal hormonal state can be found in patients with PMDD. Excess of synaptic levels of dopamine and glutamate can cause psychotic events and many disorders that will lead to this disturbance of neurotransmitters.

Ovulation is the beginning of PMS and is likely related to progesterone production. Progesterone is metabolized as 3-alpha-hydroxy-5-alpha-pregnane-20-one (allopregnanolone or ALLO) and 3alpha-hydroxy-5 beta-pregnane-20-one (pregnanolone). These metabolites act as a positive allosteric modulator of GABA neurotransmitter, the main inhibitory neurotransmitter. The alteration of GABAa receptor isoforms is proposed to be important in the etiology of PMDs.

The reduction of serotonin has been associated with PMS. These symptoms, such as depression, irritability, mood swings, poor impulse control, and sleep disturbance, are associated with a reduction of serotonin. In addition, serotonergic function has been altered during the luteal phase in a woman with PMS, and it seems to be one of the etiologies of PMDD.

In this case, we have not been able to identify the etiology of the brief psychotic event in every PMDD cycle. A more comprehensive examination should be done to see possibilities of pathophysiology of this brief psychotic event.

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