

## A Case of Menstruation Related Psychosis-A Rare Entity

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Rec date: March 2, 2016; Acc date: April 12, 2016; Pub date: April 19, 2016

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### Abstract

**Context:** We hereby present a case of menstruation related psychosis. There is little known about etiology of this entity.

**Case Description:** A 48 years old lady was referred to our clinic by her psychologist for further evaluation of menstruation related psychosis and to rule out underlying endocrine etiology. The psychotic episodes occur only around the time of menstruation. Since last two years she has had multiple admissions for brief delusional episodes. All those incidents coincided around the time of her menstrual cycle. She remains in full remission in the inter-menstrual periods and does not require treatment with anti-psychotic medications. In this case we discuss the less understood phenomenon of menstruation induced psychosis.

**Conclusions:** It is important to report cases of menstruation related psychosis to estimate the true prevalence of this rare entity. The endocrinologists should also be aware of this clinical entity, as they are likely to get referrals for such cases as it is presumed to be a hormonal problem.

### Abbreviations

LC/MS/MS: Liquid Chromatography Tandem Mass Spectrometry; BMI: Body Mass Index; LH: Luteinizing Hormone; FSH: Follicle Stimulating Hormone; ACTH: Adrenocorticotrophic Hormone; IGF: Insulin-like Growth Factor; TSH: Thyroid Stimulating Hormone; SHBG: Sex Hormone Binding Globulin

**Keywords** Menstruation; Psychosis

### Case Report

48-year-old lady with mild chronic anxiety and migraine headaches was referred to our clinic by a psychologist for further evaluation of menstruation related psychosis and to rule out possible underlying endocrine etiology. Her headaches were relieved with over the counter acetaminophen and mild anxiety required benzodiazepines therapy very rarely. She denied alcohol abuse. She did not report suicidal ideation and or attempt. She did not have any underlying neurologic disease including epilepsy. At 42 years of age she was admitted to the hospital with her first psychotic episode. Since then she had recurrent episodes of psychosis with delusions and agitation that were noted to be brief; lasting for few days with full remission in-between episodes that would last for a couple of months. She did not require antipsychotic medications during symptom free periods. Her psychologist noted that her episodes occurred around the time of menstruation. Her menarche started at 14 years of age and had regular periods since then lasting about 5 days. She had her first child when she was 18 years old and second at 30 years of age with no history of postpartum psychiatric illness. She denied family history of psychiatric illness but reported being emotionally abused by her mother when she was growing up. She had been admitted 5 times for delusions, psychosis and self-harm. All her episodes were in relation to her menstrual cycle. Prior to her above stated admissions for psychotic

episodes; she was not on any antipsychotic medications and her urine toxicology screen was negative. Her psychotic symptoms would develop 1-2 days prior to the menstruation. She would be admitted to the hospital with bizarre disorganized thoughts, auditory hallucinations, disruptive and paranoid behaviour and persecutory delusions with increased dangerous conduct as described in the psychiatric evaluations. During her admissions; haloperidol helped her delusions but tended to exacerbate her anxiety for which she received intravenous lorazepam, ativan IV to calm her down. Her psychotic symptoms last till the third day of her menstruation after which she would gradually return back to her baseline mental status in the next 24-48 hours. She would then be discharged from the 5-10 days. In between these episodes she remains in full remission not requiring treatment with anti-psychotic medications. This led to the suspicion that her problem might be organic leading to a mental disturbance. Her endocrinology work up as shown in Table 1 was normal and was collected when she was symptom free for two months since her admission for the most recent menstruation related psychotic episode.

Lab	Result	Normal range
AM ACTH	14	6-50 pg/ml
AM Cortisol	17	4-20 mcg/dl
LH	6.7	1-8 mU/ml
FSH	2.4	1-11 mU/ml
SHBG	59	17-124 nmol/L
Estradiol	78	19-144 pg/ml in follicular phase
Progesterone LC/MS/MS	1.2	= < 2.7 in follicular phase

<b>17-OH LC/MS/MS progesterone</b>	124	= < 185 ng/dl
<b>IGF-1</b>	248	52-328 ng/ml
<b>Prolactin</b>	19	3-30 ng/ml
<b>TSH</b>	2.59	0.4-4.5 miu/L
<b>Free T4</b>	1.99	1.4-3.8 ng/dl
<b>T3</b>	65	75-165 ng/dl
<b>Total T4</b>	7.3	4.5-12 mcg/dl
<b>T3 uptake</b>	27.2	22-35%

AM = 8.0 AM in Morning ; ACTH = Adrenocorticotrophic hormone; LH = Lutenising Hormone; FSH = Follicle Stimulating Hormone; SHBG = Sex Hormone Binding Globulin; LC/MS/MS = Liquid Chromatograpy/Mass Spectrometry/Mass Spectrometry ( Tandem Mass spectrometry); IGF-1 = Insulin like Growth Factor-1; TSH = Thyroid Stimulating Hormone; T3 = Triiodothyronine; T4 = Thyroxine hormone

**Table 1:** Investigations done during follicular phase of the menstrual cycle with preceding 2 months symptom free periods.

She remains symptoms free since last one year. She continues to have mild anxiety requiring benzodiazepines once every one to two months. She has been receiving psychological therapy under close supervision of her psychologist and continues to be free of psychotic symptoms despite having regular periods.

## Discussion

The first observations of a possible connection between menstrual disorders and mental disorders arose in the 18th century [1]. A review of the literature reveals cases of cyclical psychosis, apparently associated with menstruation. These descriptions report psychotic symptoms that appear suddenly a few days before menstruation and resolve with the appearance of the haemorrhage, only to reappear with the following cycle [2]:

Between the psychotic episodes, patients are asymptomatic [3-5].

A diagnosis of menstrual psychosis requires the following [6]:

1. Acute onset against a background of normality
2. Brief duration with full recovery
3. Psychotic features: confusion, delusions, hallucinations, stupor, mutism, or a manic syndrome
4. A circa-menstrual periodicity in rhythm with the menstrual cycle

This definition excludes chronic psychoses with menstrual exacerbations because the diagnosis depends on accurate dating of episode onsets, and this is more challenging in patients who only partially recover between episodes. The symptoms do not include those found in menstrual mood disorder (which includes premenstrual tension, late luteal phase dysphonic disorder, premenstrual dysphonic disorder and premenstrual syndrome). The main symptoms of menstrual mood disorder are depression and irritability. The key to diagnosis is the periodic recurrence of episodes [4,6,7].

There are about 80 cases with substantial evidence and about 200 other possible cases [4,6]. The case presented above is similar to the majority of cases presented in the literature but it is important to

continue to report such cases to estimate the true prevalence of this condition and also increase awareness amidst physicians. Menstruation induced psychosis does not follow a specific time - frame in relation to the menstruation (can happen prior to menstruation - Premenstrual psychosis, at the beginning of menstruation - Catamenial psychosis, mid cycle psychosis or lasting throughout the menstruation- epochal psychosis) or reproductive age. It can happen anytime since menarche till menopause. The exact mechanism behind it is not fully understood [7]. Treatment proposed for this condition is either with estrogen, estrogen-progesterone (OCP) or clomiphene but all are off label use. We did not initiate any of these agents in our patient as she is currently doing well on psychological therapy.

## Conclusion

Our patient fits into catamenial psychosis which begins with onset of menstrual flow.

One hypothesis suggests that during the follicular phase when the estrogen levels are low more dopaminergic receptors are expressed and with a higher sensitivity compared to the luteal phase. Tyrosine hydroxylase which is the enzyme responsible for producing Dopamine is heavily modulated by estrogen [8]. Also estrogen treatment has been implicated in reducing the post synaptic activity of dopamine in ovariectomized rats [9].

The implication is that in low estrogen periods, higher dopaminergic activity might correlate with the onset of the positive symptoms of schizophrenia. As shown in a study with 32 cases of schizophrenics who were admitted all had reduced serum estradiol levels compared to the normal population [10]. There have been numerous reports on how estrogen helps in relieving positive symptoms of schizophrenia in affected individuals and in people who failed standardized antipsychotic medications [11-13]. This shows the protective role that estrogen plays against psychotic features of the disease [12,13].

It is important to report cases of menstruation related psychosis to estimate the true prevalence of this rare entity. The endocrinologists should also be aware of this clinical entity, as they are likely to get referrals for such cases as it is presumed to be a hormonal problem.

## Acknowledgements

None

## Disclosure Summary

Authors have nothing to disclose.

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