



**ORIGINAL RESEARCH PAPER**

**Psychiatry**

**STEROID INDUCED PSYCHOSIS IN A CASE OF ERYTHEMA MULTIFORME MAJOR.**

**KEY WORDS:** Erythema multiforme major, corticosteroids, psychosis, DSM-5, olanzapine

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**ABSTRACT**

Corticosteroids have been documented to cause psychiatric disturbances to various degree. We report a case of psychosis in a case of erythema multiforme major treated with steroids that presented to psychiatric outpatient department requiring medical management. A 32 years old female was brought to psychiatry outpatient department following behavioural disturbances. Patient had a history of recently suffering from Erythema Multiforme major following a dose of injectable ceftriaxone. After being treated with injectable and oral dose of corticosteroids she developed behavioural disturbances. On detailed evaluation patient was diagnosed to be suffering from Substance/medication-induced psychotic disorder as per DSM-5. She was started on treatment with Tab. Olanzapine (5mg) HS and Tab. Clonazepam (0.5 mg) HS with which her symptoms improved and remitted completely within few weeks. Corticosteroid induced psychosis can be managed with tapering of steroid dosages and / or addition of psychotropic medication. This case emphasizes on the need of liaison-based approach for a holistic management in such cases. Further research is essential to establish the course of illness and long-term prognosis in these patients

**Introduction**

The Diagnostic and Statistical Manual of Mental Disorders, fifth-edition, categorizes steroid-induced psychosis as a form of substance/medication-induced psychotic disorder<sup>1</sup>. While the physiological adverse effects of corticosteroids have been extensively researched, neuropsychiatric adverse effects have received less attention<sup>2</sup>.

Studies reporting the incidence of corticosteroid-associated adverse psychiatric reactions have cited rates ranging from 1.8% to 57% of patients<sup>3</sup>. The substantial variability in reported incidence suggests its unpredictability, the variations in researchers' definitions of reactions, the wide range of doses, and the diverse patient groups<sup>3</sup>.

We report a case of corticosteroid induced psychosis in a case of erythema multiforme major that presented to the psychiatric department.

**Case history**

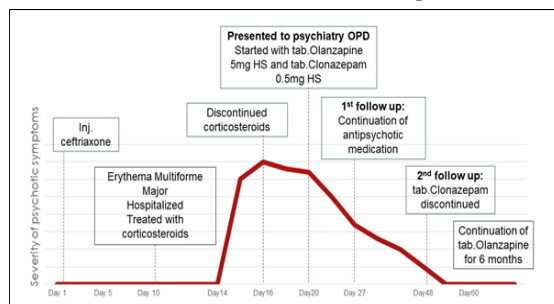
A 32-years-old, married, female, residing in an urban area of Maharashtra, India was brought by her brother to psychiatry OPD in view of behavioural disturbances in the form of agitated and irritable behaviour, fearfulness, suspiciousness, hearing of unreal voices, vacant staring spells, gesturing to self, and disturbed sleep since the past 8 days.

On detailed history, it was revealed that 20 days prior patient had developed fever and received Inj. Ceftriaxone for the same at a private hospital. Following this she developed swelling of her face and lips with multiple skin lesions over her body. She was admitted at a private hospital and diagnosed to have Erythema Multiforme major which was treated with Inj. Dexamethasone (8mg) TDS for 4 days and later shifted to tab. Prednisolone (10mg) TDS which was advised to be down-titrated and discontinued over 3 weeks following discharge. However, she developed behavioural disturbances within 4 days of starting steroids. Patient discontinued medications herself due to the behavioural disturbances. However, the symptoms persisted and increased in severity and frequency, hence was brought to the psychiatry OPD for further management.

There was no history suggestive of psychiatric illness in the past. On the day of evaluation, patient was found to have port wine stain over left half of face, sparse hair over frontal scalp, multiple hypopigmented patches on bilateral hands, neck

and chest, blackish discoloration of nails. Her vital parameters were stable. Systemic examination was within normal limits. On mental status examination, patient was kempt, sitting with her hands folded and face covered with a scarf. There was decrease in psychomotor activity and increased reaction time. She had a hostile attitude towards the clinician. Eye to eye contact was not maintained. Rapport was difficult to establish. Speech was coherent, relevant with normal rate and decreased tone and volume. Her mood was irritable and affect was restricted. She reported delusion of persecution and auditory hallucinations second person in nature. She was grossly oriented to time, place and person. Her concepts and judgment were impaired. Her insight into the illness was absent.

Patient was diagnosed to be suffering from substance/ medication-induced psychotic disorder as per DSM-5. Objective assessment was done with Brief Psychiatric Rating Scale score 94/168 suggestive of significant behavioural disturbance. Baseline laboratory investigations indicated low Haemoglobin level (7.0 gm%) with other blood parameters within normal limit. As the patient had already stopped corticosteroids and considering severity of psychotic features, she was started on psychotropics, tab. Olanzapine 5mg HS and tab. Clonazepam 0.5mg HS. On follow up after 7 days patient showed improvement in her sleep and behaviour. There was reduction in the BPRS scores. On her subsequent follow-ups, she showed marked improvement and completely recovered from the psychotic symptoms after 4 weeks of treatment without any side effects. Thereafter, tab. Clonazepam was gradually omitted and tab. Olanzapine was planned to be continued for at least 6 months post remission.



**Figure 1: Graphical representation of the timeline depicting the course of illness.**

**Discussion**

Psychiatric symptoms associated with use of steroids have been documented soon after their introduction in the 1950s and available clinical data confirmed the association of corticosteroids with major psychiatric disorders<sup>4,5</sup>. Steroid-induced psychiatric disorders appear in 3-6% of the patients<sup>4</sup>. Several case reports described the emergence of psychotic symptoms, in the absence of attentional and cognitive difficulties that would indicate delirium<sup>6</sup>.

As per DSM-5, for the diagnosis of substance/medication induced psychotic disorder, the patient must have at least delusions or hallucinations after exposure to a medication capable of producing these symptoms. The disturbance should not be explainable by a non-medication induced psychotic disorder. It must cause clinically significant distress or functional impairment<sup>1</sup>. However, the unpredictable nature and onset of psychiatric side effects makes it difficult for clinicians to practice preventive measure<sup>5</sup>.

Kenna et al. in his review of 55 cases of adverse psychiatric effects following corticosteroid treatment, reported hypomania/mania as the most common presentation, in 54.5% cases. Clinical depression was present in 23.6%, delirium was found in 20%. 'Psychosis', or a psychotic mania, psychotic depression or delirium was reported in 61.8%<sup>1</sup>. Overall, affective disorders following steroid therapy have been more common as suggested by available case reports<sup>5</sup>.

Earlier studies confirmed that, psychiatric side-effects of corticosteroid treatment have a rapid onset<sup>7</sup>. Lewis and Smith reported a median duration of treatment with corticosteroid before onset of symptoms as 11 days; 43% of cases had onset during the first week and 57% within 2 weeks<sup>9</sup>.

The study of the Boston Collaborative Drug Surveillance Program demonstrated the significant dose-response relationship of corticosteroid to the psychiatric adverse effects<sup>10</sup>. Brown et al. in his review article supported that psychiatric symptomatology and corticosteroid share a dose-related relationship<sup>11</sup>.

Although, pathophysiology of corticosteroid induced psychosis has not been completely understood, it is seen that they have a generalized effect on cerebral blood flow, oxygen consumption and brain excitability. Corticosteroids have been implicated in increasing dopamine levels and decreasing serotonergic activity peripherally and in the central nervous system which is possibly related to the emergence of psychiatric symptoms<sup>12</sup>. Decreased hippocampal volume has been demonstrated in patients receiving long term corticosteroid therapy causing inability to filter irrelevant stimuli through its action on steroid specific receptors in this area<sup>13</sup>.

Management of steroid induced psychiatric disorders includes either tapering of corticosteroid dosage or administration of psychiatric drugs or both<sup>14,15</sup>. Dosage of neuroleptics varied as per case scenario<sup>14</sup>. An adolescent female on steroid therapy for Crohn's disease was reported to have been treated with tab. Quetiapine at 300mg/day for 3 months after onset of psychiatric manifestation<sup>16</sup>. Ward et al. demonstrates successful management of psychosis with tab. Aripiprazole followed by Inj. Zuclopenthixol depot due to poor compliance to oral medication<sup>17</sup>. Tab. Olanzapine with low dose benzodiazepines have been used in the management of a 38-year-old male, resulting in complete remission in 6 months<sup>7</sup>. Other antipsychotics such as tab. Risperidone have also been considered in the management<sup>4</sup>. In this case report, patient showed similar results with low dose second-generation antipsychotic olanzapine in oral formulation.

This case is an interesting example of corticosteroid induced psychosis with rapid onset of symptoms requiring psychiatric

attention. Emphasis is required on liaison-based approach for a comprehensive management of such cases. The literature on this topic is limited to case reports. Therefore, further research is required to establish a deeper understanding of the course of illness, necessity of prophylactic therapy and prognosis.

**Conflict of interest:** Nil

**References**

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. American Psychiatric Pub; 2013-May-22.
2. Mulky PY, Debbarma M. A rare case of corticosteroid induced psychosis. *Journal of Medical & Allied Sciences*. 2018-Jul-1;8(2).
3. Warrington TP, Bostwick JM. Psychiatric adverse effects of corticosteroids. *In Mayo Clinic Proceedings* 2006-Oct-1 (Vol. 81, No. 10, pp. 1361-1367). Elsevier.
4. Milanho lu A, Güleç M. Risperidone treatment in a steroid-induced psychosis case. *Dusunen Adam The Journal of Psychiatry and Neurological Sciences*. 2011;24(1):80.
5. Rana Y, Benhuri B, Favila K, Chernyavsky S. An Extreme Case of Corticosteroid-induced Psychosis in the Treatment of Giant Cell Arteritis. *Journal of Scientific Innovation in Medicine*. 2020-Aug-3;3(3).
6. Patten SB, Neutel CI. Corticosteroid-induced adverse psychiatric effects. *Drug safety*. 2000-Feb;22(2):111-22.
7. Kenna HA, Poon AW, de los Angeles CP, Koran LM. Psychiatric complications of treatment with corticosteroids: review with case report. *Psychiatry and clinical neurosciences*. 2011-Oct;65(6):549-60
8. Ison DC, Lewis JJ. Steroid-induced psychosis after EUS-guided celiac plexus blockade. *ACG case reports journal*. 2017;4.
9. Lewis DA, Smith RE. Steroid-induced psychiatric syndromes: a report of 14 cases and a review of the literature. *Journal of affective disorders*. 1983-Nov-1;5(4):319-32.
10. Boston Collaborative Drug Surveillance Program. Acute adverse reactions to prednisone in relation to dosage. *Clinical Pharmacology & Therapeutics*. 1972-Sep;13(5part1):694-8.
11. Brown ES, Khan DA, Nejtcek VA. The psychiatric side effects of corticosteroids. *Annals of Allergy, Asthma & Immunology*. 1999-Dec-1;83(6):495-504.
12. French J, Khan A, White H. Steroid induced psychosis in an asthmatic child: case report & 10-year literature review. *The Canadian child and adolescent psychiatry review*. 2003-Nov;12(4):117.
13. Brown ES, Woolston DJ, Frol A, Bobadilla L, Khan DA, Hanczyc M, Rush AJ, Fleckenstein J, Babcock E, Cullum CM. Hippocampal volume, spectroscopy, cognition, and mood in patients receiving corticosteroid therapy. *Biological psychiatry*. 2004-Mar-1;55(5):538-45.
14. Sirois F. Steroid psychosis: a review. *General hospital psychiatry*. 2003-Jan-1;25(1):27-33.
15. Wada K, Yamada N, Sato T, Suzuki H, Miki M, Lee Y, Akiyama K, Kuroda S. Corticosteroid-induced psychotic and mood disorders: diagnosis defined by DSM-IV and clinical pictures. *Psychosomatics*. 2001-Nov-1;42(6):461-6.
16. Kim JW, Kang KS, Kang NR. Steroid-induced Psychosis in Adolescent Patient with Crohn's Disease. *Journal of the Korean Academy of Child and Adolescent Psychiatry*. 2020-Jul-1;31(3):161
17. Ward L, George J. Corticosteroid-induced psychosis in rheumatoid arthritis. *Progress in Neurology and Psychiatry*. 2016-Sep;20(5):13-5.