

# **PSYCHOSIS AND CO-MORBID PITUITARY ADENOMA (PROLACTINOMA): A MANAGEMENT DILEMMA**

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## **ABSTRACT**

This paper is a clinical as well as diagnostic description of the presentation, investigation and pharmacological management of an 18-year-old young woman with first episode of mental illness; and recently diagnosed pituitary microadenoma (prolactin secreting type).

It brings to light the possible role of prolactin in the development of psychosis, the treatment difficulties commonly encountered in the choice of antipsychotics and / dopamine agonists and the need for an interdisciplinary team approach when patients presents with such complex symptoms.

## **INTRODUCTION**

This case report is a clinical description of Miss BA, a 18-year old woman, who presented for the first time with symptoms of psychosis, which were; visual hallucination, auditory hallucination, persecutory delusion labile affect, delusional misidentification, Aggression, and disorganized behaviour.

She was subsequently placed on antipsychotic (i.m Haloperidol and Tabs Risperidone). Symptoms however became worse 2days after making the psychiatrist to discontinue risperidone.

She was then placed on intravenous diazepam 5mg prn. She however became even more disturbed and could not sleep for two days; thus prompting the need to recommence antipsychotic, only that this time around, it was changed to Tabs Olanzapine 10mg nocte.

After two weeks of using the Olanzapine with no improvement in symptoms, consults were sent to the Endocrinologist who was strongly of the opinion that the Olanzapine should be continued as it may be causing more harm than good by elevating the prolactin level. He then placed the patient on Cabergolin (a dopamine-agonist).

But it became clear after 2 weeks with no response to treatment that there may be a complete interaction with the hyperprolactinemia and the psychosis or the drugs she is receiving for the

hyperprolactinemia (i.e. Cabergoline), even though from the onset, the psychotic symptoms were thought to have arrived primarily, with the finding of microadenoma on the MRI, being an accidental finding.

The clinical effects of increased prolactin levels are poorly understood; even though there are some evidence that increases in serum prolactin level may be associated with severe psychiatric disorders (1).

Dopamine antagonists are used to treat psychiatric symptoms (because of the increase dopamine level), while dopamine agonists are used to treat hyperprolactinemia ( thus further increasing the dopamine level).As a result of the potential counteractive nature of the treatment, effective management of individuals who present with both problems is thus extremely difficult (2). Moreso, lack of guidelines regarding the monitoring for hyperprolactinoma in patients receiving antipsychotics only serves to exacerbate the problem (3), otherwise it would have made it possible to know at what level of dopamine is psychotic symptom exacerbated.

This case presentation therefore aims to showcase the importance of teamwork and integrating psychiatry and physical treatment modalities.

## **CASE PRESENTATION**

History of the presenting complaints revealed that, Miss BA is from a polygamous setting, the last child of two from a divorced marriage as far back as when patient was 9 years old.

Pregnancy, birth and early childhood history was said to be uneventful. Developmental milestone was said to be at par with other siblings. There was no known medical problem in the past. There is however positive history of mental illness in the paternal grandmother.

Her academic performance however was adjudged to be average, and was able to finish her secondary level of education without repeating any class. She was about to gain admission into the tertiary college (polytechnics) a week before the symptoms began, even though she was said to have been in high spirit concerning the admission.

Premorbidly described as a quiet and easy going person who hardly made friends, but said to have had positive attitude to life.

Miss BA symptoms started a day prior to presentation at the private hospital when she suddenly became sad over her neighbour's living condition which she described as very pathetic, she then started talking irrationally claiming that children within the neighbourhood were teasing and beating her, she also started sleeping poorly and exhibited vivid visual hallucination as she claimed she could see those children while on the ward; claiming they had come with evil intentions; There was also delusional misidentification as she recognized everyone at a glance, (including the strangers who came into the hospital and would give them whatever name she could come up with, for example, on seeing the attending psychiatrist for the first time she called

him Joshua! claiming assuredly to have met him before). There were episodes of weeping spells, disorganized behaviour and wondering tendency. There was however no history of head injury or any febrile illness prior to the onset of symptoms.

While in the hospital, (which she refused to accept as hospital, but claimed it was a “Jerusalem” with angles all around); she was occasionally aggressive, especially when prevented from having her ways.

There was also elements of grandiosity as she claimed she was a lawyer, a pastor and engineer, without any proof to ascertain all of these.

She had impaired memory and had difficulty following a train of thoughts.

Mental state examination revealed irrelevant speech, labile affect; her thought content and form were that of persecutory delusion and derailment respectively; perceptual abnormalities identified were visual hallucination and 2<sup>nd</sup> person auditory hallucination (making derogatory statements). She was also disoriented in time, place and person, (but with occasional lucid interval). Her attention, concentration, and memory were impaired. Judgement was poor and she lacked into her problem.

There were also physical and somatic features (including diarrhea, hyperphagia). She has a moon fascie with multiple striae all over her two thighs and bilateral non pitting oedema.

An assessment of Acute Schizophrenia-like Psychotic Disorder was made to rule out Organic mood disorder.

Laboratory investigations such full blood count, hormonal profile (FSH, LH, Prolactin, T<sub>5</sub> T<sub>4</sub> were all done), all were (N) except for the prolactin hormone level, which was discovered to be fourfold higher, even though as at this time she had only been placed on antipsychotic for two days.

The CT scan and magnetic resonance imaging (MRI) scan of the brain done revealed a lesion less than 10mm within the sellar tursica of the pituitary gland.

Blood and urinary samples were taken and sent to India for cortisol estimation, to ascertain diagnosis of cushion – syndrome (the result however did not come back before the patient left the hospital).

Miss BA, was initially placed on i.m Haloperidol 5mg 12hrly; and Tabs Risperidone 1mg b.d. This was later changed to Tabs Olanzapine 10mg nocte.

The MRI revelation of Prolactinoma (pituitary microadenoma) and poor response following the use of the antipsychotics lead to the discontinuation of the antipsychotics by the attending Endocrinologist and dopamine agonist-Cabergoline was instituted.

There was however little or no improvement after about 2 weeks on Cabergoline, and Miss BA was eventually discharged home against medical advice by the father to seek other local interventions even though Miss BA was still in psychotic state.

## **DISCUSSION**

Miss BA presented with a constellation of risk factors for mental illness ranging from; positive history of mental illness in the paternal grandmother, her possibly schizoid personality trait, the possibly cushion syndrome, the pituitary microadenoma (Prolactinoma); and the family dynamics from the parents' divorce. Any of these could have predisposed her into having mental illness, and not the hyperprolactinemia as the endocrinologist argued.

It is possible that Miss BA could have gotten better, has it been that the antipsychotics were continued and allowed to work for a longer period before the Physicians jumped into the conclusion that patient's psychotic problem was secondary to the underlying organic pathology (Prolactinoma) and that the antipsychotic was worsening her conditions, hence believed that taking care of the hyperprolactinemia will ultimately lead to resolution of the psychotic symptoms.

An important issue that evolved during the course of Miss BA's treatment was that, with increasing specialization, medical treatment has moved towards the direction of team work and multidisciplinary approach.

There is increasing evidence for the interaction between physical and mental health (4), for example it has been found that standardized mortality rates increased three fold in patients with schizophrenia particularly with reference to disease of the cardiovascular, respiratory, digestive endocrine and nervous system(5).

The World Federation for Mental Health even highlighted some factors that often result in people with mental illness not receiving adequate health care in relation to their overall health needs; one of such is discrimination and the separation of health care for physical illness from mental health (6). It is notable that separation of physical and mental health care often fragments the total care offered to individuals suffering from a mental illness, perhaps explaining why physical illness often goes undetected in psychiatry patients (7).

There is no extensive literature on patients with both psychosis and a pituitary tumor (the author), but acute psychosis has been reported elsewhere in a woman with a known prolactinoma (8), and in three patients with psychoses and concomitant prolactin – producing tumors (9).

A review of the literature on bromocriptine (another dopamine agonist such as cabergoline) and psychosis concluded that confusion, hallucination, and delusion have often been reported with the use of bromocriptine (10, 11).

In addition, cabergoline- induced psychotic exacerbation in schizophrenic patients has been discussed elsewhere (12).

Miss BA's prolactin level was 102ng/mL, normal level is between 2-29ng/mL (13, 14), such an elevation can occur from stress medication (for example, the antipsychotics), a pituitary tumor, and so forth (15). Miss BA had experienced all of these. It is also not impossible that both the pituitary tumor-which is a space occupying lesion, or the high prolactin produced by the microadenoma led to Miss BA's psychiatric illness. It could even be that she had a co- morbid psychiatry illness (with the? cushion syndrome, and the pituitary adenoma being incidental findings).

It is also possible that the dopamine agonist (cabergoline) which Miss. BA was receiving for the pituitary adenoma promoted and prolonged her psychotic thinking. It could also have been due to the stoppage of the antipsychotics often a week without giving enough time to either change or increase the dose of the antipsychotics before concluding that they were not effective. Although, some authors have reported prolactinoma growth with Risperidone treatment and suggested using other antipsychotic medications, which do not affect prolactin secretion, such as Aripipazole(a dopamine partial agonist) (1, 16).

This could not have however been easily possible in Miss BA's case considering the fact that the discovery of prolactinoma was 2 days just after starting the Risperidone.

And for the fact that Aripipazole is not easily available in many developing countries, such as Nigeria, Miss BA may not have readily benefited from its use.

Other authors have also recommended the use of Clozapine (another atypical antipsychotic but with lesser effect on dopamine receptor) (9), which is what Miss B could have benefited from has it been that she was discharged against medical advice.

Also successful treatment of schizophrenia with no elevation of serum prolactin levels using combination of Olanzapine and Quetiapine (an atypical antipsychotic) has been reported in a patient who could not tolerate Clozapine(17), but Quetiapine is also not readily available in Nigeria for Miss BA to have benefited from either.

## **CONCLUSION**

This case study thus highlights the role of prolactin in psychotic illness, the complexities involved in the management of patients with both psychiatric and medical problems and also the interdisciplinary team approach when patients present with such multiple and complex symptoms.

## INVESTIGATION TABLES

### LABORATORY INVESTIGATIONS

* E/U/Creatinine–Normal	Hormone Profile
	* FSH – Normal
* Full Blood Count–Normal	* LH – Normal
* Urinalysis– Normal	* Prolactin– 102ng/mL
* Fasting Blood Sugar –7.6mmol/l	* Oestradiol– Normal

### RADIOLOGICAL INVESTIGATIONS

- **CT Scan**-inconclusive, but suggestive of a pituitary microadenoma.MRI advised.
- **MRI**- revealed an 8mm X 6mm tumor in the sella tursica of the pituitary fossa, confirming a microadenoma. Advised to match up the radiological findings with the clinical presentations.

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