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**Case Report**

# The psychiatric ovarian cyst - a case report on psychotropic drug induced large ovarian mass

**Aditya Nimbkar[1]*, Mounica S. N. Katabathuni[1], Jigna Garasia[2], Aditi Nadkarni[2], Vaibhav Nadkarni[2]**

[1]Department of Reproductive Medicine, Nadkarni's Medical Training Academy and 21st Century Group of Hospitals, Vapi, Gujarat, India
[2]Department of Reproductive Medicine and Obstetrics and Gynaecology, Nadkarni's Medical Training Academy and 21st Century Group of Hospitals, Vapi, Gujarat, India

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***Correspondence:**
Dr. Aditya Nimbkar,
E-mail: Nimbkaradi17@gmail.com



## ABSTRACT

Psychotropic medications used in bipolar affective disorder (BPAD) can disrupt the hypothalamic–pituitary–gonadal axis, leading to hyperprolactinemia, anovulation, and polycystic ovarian morphology. We report the case of a 29-year-old woman with BPAD on long-term multidrug therapy who presented with secondary amenorrhea, infertility, and a large multiloculated ovarian cyst. Evaluation revealed hyperprolactinemia and features mimicking polycystic ovary syndrome. Management included discontinuation of prolactin-elevating drugs and temporary use of endoxifen for psychiatric stabilization. Ultrasound-guided aspiration of enlarged follicles confirmed the functional nature of the cyst. However, persistent follicular enlargement suggested impaired ovulation, likely related to the anti-estrogenic effects of endoxifen. Following its withdrawal, ovulation induction with letrozole and intrauterine insemination resulted in successful conception. This case highlights the reversible nature of psychotropic-induced endocrine dysfunction and emphasizes the importance of individualized, multidisciplinary management.

**Keywords:** Hyperprolactinemia, Bipolar disorder, Endoxifen, Ovarian cyst, Infertility, Letrozole

## INTRODUCTION

Bipolar affective disorder (BPAD) is commonly associated with endocrine disturbances, particularly in women receiving long-term psychotropic therapy. Dopamine receptor antagonists frequently induce hyperprolactinemia such as risperidone and olanzapine, which suppresses gonadotropin-releasing hormone secretion and leads to anovulation.[1,2] This disruption can mimic or exacerbate polycystic ovary syndrome (PCOS), presenting with menstrual irregularities, infertility, and enlarged polyfollicular ovaries.[3] In certain cases, these ovarian changes may be extensive enough to simulate neoplastic pathology, creating diagnostic dilemmas. We report a case of psychotropic drug–induced hyperprolactinemia presenting as a large ovarian cyst with infertility, in which stepwise medication modification, follicular aspiration, and discontinuation of endoxifen resulted in restoration of fertility.

## CASE REPORT

A 29-year-old nulliparous woman with a 10-year history of bipolar affective disorder presented with infertility for one year and secondary amenorrhea for eight months. She had been receiving multiple psychotropic medications, including risperidone, olanzapine, lithium, and sodium valproate, in varying combinations over the years. Despite adequate psychiatric control, she developed progressive menstrual irregularity followed by complete cessation of

menses. She also reported weight gain and acne. On examination, her body mass index was 32 kg/m², and features of insulin resistance such as acanthosis nigricans were noted. There was no galactorrhea. Laboratory evaluation revealed elevated serum prolactin levels of approximately 55 ng/ml, with mildly elevated androgen levels and low-normal gonadotropins. Thyroid and adrenal function tests were within normal limits. Pelvic ultrasonography demonstrated multiple massive anechoic cysts with largest measuring approximately 8.5×7×7 cm suggestive of a functional rather than neoplastic etiology. Tumor markers including CA-125, alpha-fetoprotein, and beta-hCG were normal.

A diagnosis of psychotropic drug–induced hyperprolactinemia1 with functional ovarian enlargement was made. A multidisciplinary approach was undertaken. Dopamine antagonist medications, including risperidone and olanzapine, were discontinued in view of hyperprolactinemia.[2] Lithium and sodium valproate were initially replaced with endoxifen at a dose of 8 mg daily to maintain psychiatric stability. This resulted in normalization of prolactin levels and withdrawal bleeding, followed by resumption of menstrual cycles. However, despite normalization of prolactin, the persistence of enlarged ovarian follicles as seen in Figure 1 suggested ongoing impairment of normal ovulatory physiology.

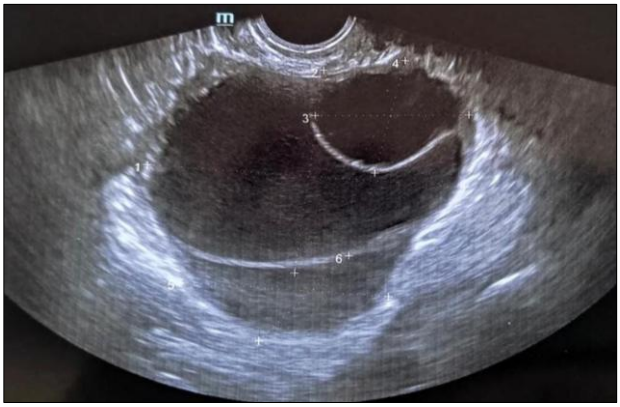

**Figure 1: Multiple large ovarian cysts.**

Ultrasound-guided transvaginal aspiration of the cystic follicles was therefore performed to prevent ovarian torsion and further depletion of fertility. The outcome of aspiration is as shown in Figure 2. The aspirated fluid was clear and consistent with functional follicular fluid, confirming the non-neoplastic nature of the lesion and reducing ovarian volume. Given the known anti-estrogenic effects of endoxifen as a selective estrogen receptor modulator, it was considered a potential contributor to continued follicular arrest. Endoxifen was therefore discontinued prior to initiating fertility treatment. Following its withdrawal, improvement in follicular dynamics was observed.

Ovulation induction was carried out using letrozole (5 mg daily from day 3 to day 7), followed by intrauterine insemination. The patient conceived in the first treatment cycle. At 12 weeks of gestation, the pregnancy was progressing normally under multidisciplinary supervision.

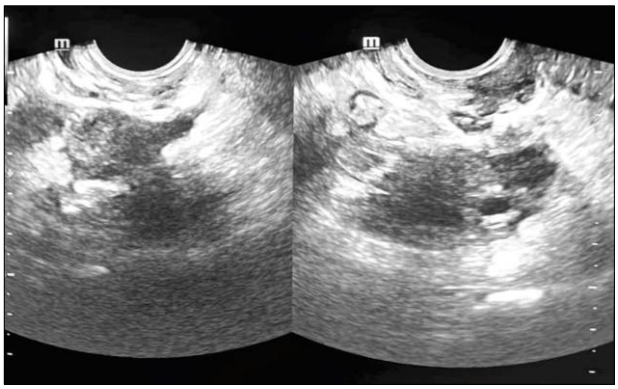

**Figure 2: Ovaries post-aspiration of cysts.**

## DISCUSSION

This case highlights the complex interaction between psychiatric pharmacotherapy and reproductive endocrinology. Antipsychotic-induced hyperprolactinemia is a well-recognized cause of anovulatory infertility. Dopamine receptor blockade leads to sustained prolactin elevation, which suppresses gonadotropin-releasing hormone pulsatility and results in hypogonadotropic hypogonadism. Chronic anovulation may result in accumulation of multiple follicles, leading to enlarged polycystic ovaries that may mimic ovarian tumors.[3] In the present case, prolonged hyperprolactinemia likely contributed to the development of large ovarian cysts. The absence of solid components and negative tumor markers suggested a functional etiology, which was confirmed by aspiration of clear follicular fluid. Follicular aspiration served both diagnostic and therapeutic roles by confirming the benign nature of the lesion and reducing ovarian volume.

Endoxifen, an active metabolite of tamoxifen, is a selective estrogen receptor modulator with emerging use in bipolar disorder due to its protein kinase C inhibitory action.[4] Unlike dopamine antagonists, it does not induce hyperprolactinemia and therefore allows recovery of the hypothalamic–pituitary–gonadal axis. However, its anti-estrogenic effects may interfere with normal follicular maturation and ovulation. In this patient, although endoxifen contributed to normalization of prolactin levels following withdrawal of dopamine antagonists, it did not restore normal ovulatory function.

Also, important to note that it has an action like clomiphene citrate, sharing same drug class of selective estrogen receptor modulators, the latter being used as ovulation induction agent with resultant multifollicular growth. Persistent follicular enlargement suggested that its anti-estrogenic action contributed to continued follicular arrest. Withdrawal of endoxifen was therefore a critical

step in restoring ovulatory physiology and enabling successful ovulation induction. This highlights an important clinical consideration that endoxifen, while prolactin-sparing, may not be conducive to fertility and should be discontinued prior to attempting conception.

Psychotropic medications have broader implications for obstetric and gynecological outcomes. Antipsychotics such as risperidone are strongly associated with hyperprolactinemia and infertility, while drugs like olanzapine contribute to metabolic syndrome, increasing the risk of PCOS and gestational diabetes. Valproate is associated with hyperandrogenism, menstrual irregularities, and significant teratogenic risks including neural tube defects and neurodevelopmental disorders. Lithium is associated with thyroid dysfunction and a small risk of congenital cardiac anomalies. Antidepressants may affect sexual function and neonatal adaptation, while benzodiazepines have been linked to neonatal respiratory depression. These considerations underscore the importance of preconception counseling and individualized treatment planning in women of reproductive age with psychiatric disorders. Following correction of endocrine dysfunction and withdrawal of endoxifen, ovulation induction with letrozole was successfully performed. Letrozole is now considered first-line therapy for anovulatory infertility in PCOS due to higher ovulation and live birth rates compared to clomiphene citrate.[5]

## CONCLUSION

Psychotropic drug–induced hyperprolactinemia is an important and reversible cause of infertility and ovarian enlargement. Recognition of this condition can prevent unnecessary surgical intervention. This case emphasizes that while certain newer agents such as endoxifen may aid psychiatric stabilization, their anti-estrogenic effects may impair ovulation. Discontinuation of such agents, combined with targeted interventions and fertility treatment, can lead to successful conception.

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