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# PREVALENCE OF POLYCYSTIC OVARY SYNDROME

**Debasmita Chatterjee*, Dr. Satadal Das, Dr. Rathin Chakravarty, Dr. Bishaka Halder, Dr. Asutosh Kundu and Dr. Suparna Mukherjee**

Dr. Bholanath Chakravarty Integrated Medical Research and Treatment Centre, Kolkata, India.

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***Corresponding Author**
**Dr. Debasmita Chatterjee**
Dr. Bholanath Chakravarty Integrated Medical Research and Treatment Centre, Kolkata, India.

## ABSTRACT

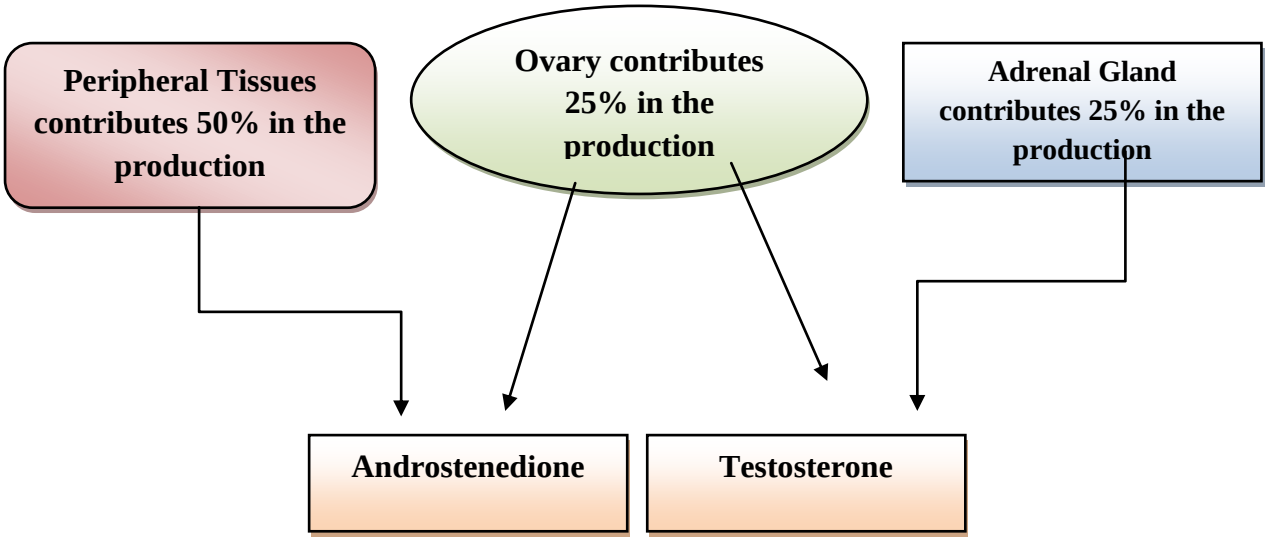
**Background:** Ovaries are paired sex glands in females involved with germ cell maturation, storage and release. The development of non neoplastic cyst is due to accumulation of fluid within the ovary due to hormonal disorders. They manifest at the reproductive age with varied clinical symptoms. **Objective:** To study the prevalence of Polycystic ovary disease (PCOD) among the patients attending Dr. Bholanath Chakravarty Integrated Medical Research and Treatment Centre. The detailed literature study for the cause and treatment of the disease were also kept in mind. **Methods:** A descriptive 6 months survey was conducted at Dr. Bholanath Chakravarty Integrated Medical Research and Treatment Centre from April to September, 2018 at. All the clinical records of the patients along with their consent were taken and recorded for analytical purpose. **Results:** Our survey revealed that out of 113 selected patients who attended the OPD clinic, 8 patients revealed significant gynaecological problems investigated via diagnostic tool ultrasonography, amongst them only 4 cases were confirmed to be suffering from polycystic ovary disease (PCOD). The age wise distribution of patients revealed that more number of women suffer from this disease in the age group of 20 – 40 years**.** Our study revealed that the prevalence percentage of patients suffering from PCOD is 3.5%. **Conclusion:** Therapeutically PCOD cases are suggested with oral contraceptives for 3 – 6 months which differentiates between physiological and pathological ovarian cysts. Symptoms such as pain in the abdomen along with other clinical features are considered for diagnosis. With the aid of diagnostic tool ultrasonography, clinicians can accurately diagnose mature cyst and benign epithelial cysts.

**KEYWORDS:** Ovaries, Polycystic disease ovarian disease (PCOD), hormonal disorders, ultrasonography.

## INTRODUCTION

The disease "Polycystic ovary disease" (PCOD) occurs due to higher androgen production rate (PR) which occurs from ovary and adrenal gland and conversion of the precursors of hormone from peripheral tissues particularly from tissues such as adipose and skin.[1] Many associated disorders such as psychological which include depressions and mood swings, metabolic disorder, development of resistance to insulin and compensation with hyperinsulinemia leads to altered androgen production and its metabolism.[2] It is observed that most of the women who suffer from PCOD are obese and secretes androgens causing impairment of metabolism and primarily of reproductive functions. [3] Metabolic clearance rate occurs in glandular and extra glandular tissues. Therefore both the factors such as PR and MCR of androgens depend on the age and physiological status of the female patients. As per literature study, it was observed that testosterone MCR was higher among obese PCO women while MCR of hormone androstenedione was different marginally among affected women having normal weight.[4] Those who suffer from PCOD they have different obesity phenotypes and those patients having abdominal fat distributions have higher testosterone PR but not higher androstenedione.[5] Hyperandrogenic measurement was done using the instrumentation technique Liquid chromatography tandem mass spectrometry (LM/ MS-MS).[6] As per literature study, the functional cysts can be distinguished from neoplastic cysts by size (6-8 cm), having no symptoms and also revert spontaneously.[7]

Clinical studies have revealed that the development of benign ovarian tumors manifest with late reproductive age. Symptoms includes such as dull ache in the lower abdomen, mild or severe hirsutism, obesity, tumors though may be asymptomatic but shows lump formation via diagnostic tool USG and colour Doppler which also helps in distinguishing benign from malignant. Further complications such as torsions, intracystic hemorrhages, infection and pseudo mucinous peritonitis or malignancy can also be manifested.[8]




**Flowchart representing the significance of adrenal androgen production**

**Role of Anti-Mullerian Hormone (AMH)**

The level of this hormone is found to be considerably higher among PCOD women especially during anovulatory phase in comparison to women having normal periodic cycle with PCOD. According to literature study, the role of AMH is to suppress folliculogenesis. The hormone level falls when they have the best response to induce ovulation. It was also observed that cells when incubated with drug metformin, inhibits the production of AMH. [9]

## METHODS

A descriptive observational study was conducted at Dr. Bholanath Chakravarty Integrated Treatment and Medical Research Centre, for 6months, from April to September, 2018. Among 113 patients, 8 patients were found in our study having acute gynaecological problems similar to PCOD and the cases were investigated via physical examination followed by ultrasonography. The detailed history and clinical examination of all patients were recorded and analysis was done based on the clinical symptoms and USG plate reports. Inclusion criteria were chosen based on symptomatic features such as abdominal pain, number of cysts observed, location and type of cysts, symptomatic features of uterus were also recorded for future analysis. Patient consents were also taken before the study.[8]

## RESULTS

**Table 1: The table represents the Clinical Features of confirmed PCOD cases confirmed by Ultrasonography.**

| Sl. No. | Patient Code | Clinical Features of confirmed PCOD cases | Ultrasonography Performed |
|---|---|---|---|
| 1 | BNCH 001 | Right ovary not visible, Left ovary is enlarged and multiple cysts observed. | Whole Abdomen |
| 2 | BNCH 095 | Bulky uterus with thickened endometrium. Bilateral bulky ovaries with cystic change | Whole Abdomen |
| 3 | BNCH 096 | Bulky uterus with thickened endometrium. Bilateral bulky ovaries with cystic change | Pelvic Organ |
| 4 | BNCH 111 | Bulky uterus with thickened endometrium. Bilateral bulky ovaries with cystic change | Whole abdomen |

**Table 2: The table represents the Clinical Features having gynaecological problems confirmed by Ultrasonography.**

| Sl. No. | Patient Code | Clinical Features having gynaecological problems | Ultrasonography Performed |
|---|---|---|---|
| 1 | BNCH 009 | Bulky uterus with large posterior wall fibroid | Whole abdomen and Genitourinary |
| 2 | BNCH 035 | Bulky uterus - left cyst. Hepatomegaly with grade 1 fatty changes. | Whole Abdomen |
| 3 | BNCH 055 | Bulky retroverted uterus within homogeneous parenchyma. Echogenic cervix with tiny nebothian cyst. | Pelvic Organ |
| 4 | BNCH 066 | Rt sided tubo ovarian lesion. Clinical correlation via ct scan | Whole abdomen |

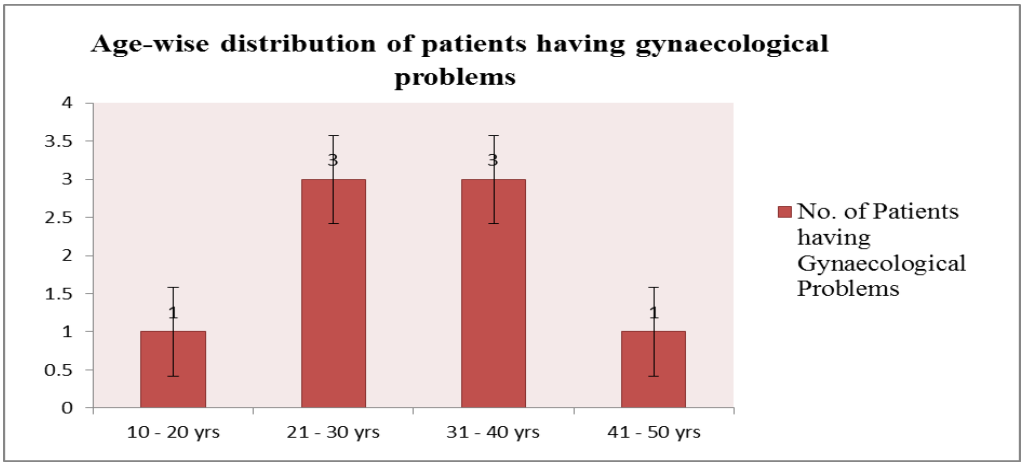



**Fig. 1: The bar chart represents the age-wise distribution of patients having gynaecological problems.**

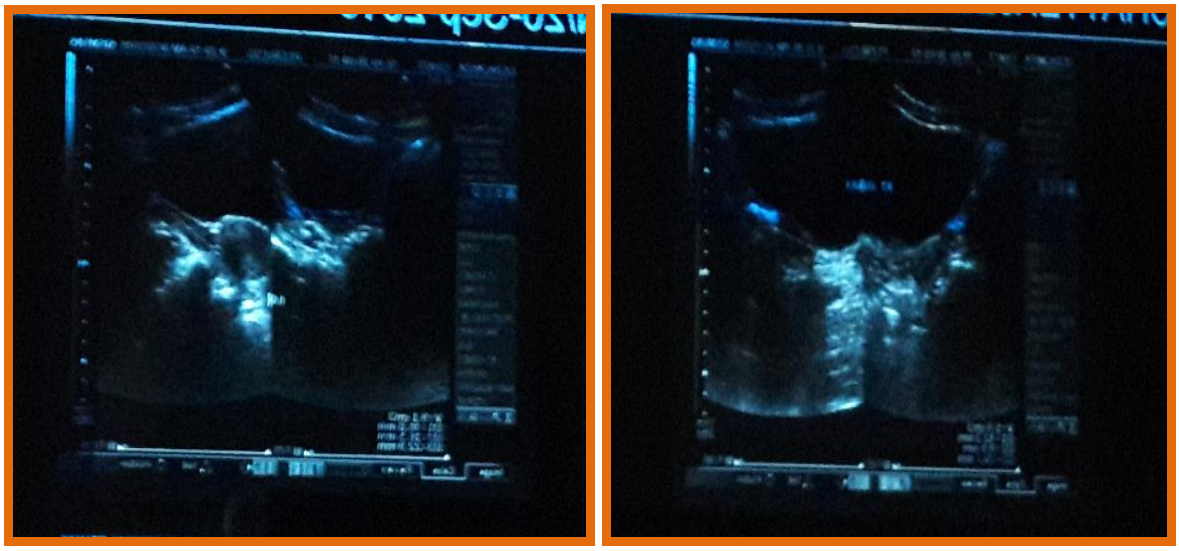


**Fig 1 & 2: The picture revealed that both right and left ovaries are enlarged in size, rounded in shape and shows increased stromal echogenicity. Small cysts (> 5 in number and of diameter 5 -8mm.) are seen peripherally in both ovaries. Right ovary measures 4.4 X 3.5 X 1.9 cm. (vol. 16cc.) & left ovary measures 3.9 X 2.9 X 2.4 cm. (vol. 14 cc). Small cysts peripherally arranged in both ovaries – consistent with polycystic ovaries.**

## DISCUSSIONS

The masses are associated with unclear symptoms and these lesions are either pathological or physiological.[10] Therefore, due to unclear symptomatic features, ultrasonography, hormonal levels and tumor marker CA 125 are also suggested for proper diagnosis.[11] As per literature survey, it revealed that PCOD has genetic heritability and is also associated with environmental factors, increased dietary consumption and development of obesity. It also revealed that development of peripubertal obesity is associated with hyper production of androgens. The development of obesity is also associated with increased insulin resistance, adipocyte factors.[12] Our survey revealed that out of 113 patients who attended the OPD clinic, 8 patients revealed acute gynaecological problems and among them only 4 cases were confirmed to be suffering from PCOD (Table 1 and 2). The age wise distribution of patients revealed that more number of women suffering from this disease lies in the age group of 20 – 40 years (Fig. 1). Life style associated factors such as excess intake of calories, sedentary life styles, genetic factors which leads to endocrine and metabolic abnormalities are all associated with hyperandrogenism.[6] Though according to literature study there are inadequate association between PCOD and cardiovascular diseases (CVD), factors such as improper diagnosis of PCOD and also due to insufficient measurement of CVD followed by lack of follow up study cannot determine the true association between the concerned factors.[13]

Some studies revealed that there is an association of PCOD with angiographic coronary heart disease (CHD) followed by worsening of survival due to rising development of cardiovascular problems.[13] However, the field requires much more extensive research.

## CONCLUSIONS

Ovarian cysts usually resolve spontaneously. Therapeutic measures includes intake of oral contraceptives for 3 – 6 months and this also differentiates between physiological and pathological ovarian cysts. Our study revealed that the prevalence percentage of patients suffering from PCOD is 3.5%. Benign ovarian tumors are associated with a wide range of clinical and histopathological patterns. Symptomatically pain in the abdomen is considered to be the commonest symptom. By ultrasonography, clinicians can accurately diagnose mature cyst. The most common of the benign ovarian tumor is epithelial tumor.[8]

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## REFERENCES

1. Longcope C. Adrenal and gonadal androgen secretion in normal females. J. Clin. Endocrinol. Metab, 1986; 15: 213–228.
2. Escobar-Morreale HF, Botella-Carretero JI, Alvarez-Blasco F, et al. The polycystic ovary syndrome associated with morbid obesity may resolve after weight loss induced by bariatric surgery. J. Clin. Endocrinol. Metab, 2005; 90: 6364–6369. [PubMed: 16189250].
3. Dunaif ACR, Franks S, Legro RS. Polycystic Ovary Syndrome: Current Controversies, from the Ovary to the Pancreas. Humana Press, 2008.
4. Bardin CW, Lipsett MB. Testosterone and androstenedione blood production rates in normal women and women with idiopathic hirsutism or polycystic ovaries. Eur J Clin Invest, 1967; 46: 891–902. [PubMed: 6025489].
5. Pasquali R, Casimirri F. The impact of obesity on hyperandrogenism and polycystic ovary syndrome in premenopausal women [Review]. Clin. Endocr (Oxford), 1993; 39: 1–16. [PubMed: 8348699].
6. Pasquali R, Stener-Victorin E, Yildiz B O. PCOS Forum: Research in Polycystic Ovary Syndrome Today and Tomorrow. Clin. Endocrinol, 2011; 74: 424–433.
7. Dutta DC. Benign Ovarian Lesions. In: Hiralal Konar, eds. Text Book of Gynaecology. 7th ed. New Delhi: Jaypee Medical Publishers, 2013:471-79.

8. Shivaji N, Panchaksharayya H. A retrospective study of ovarian cysts. Int J Reprod Contracept Obstet Gynecol, 2016; 5(6): 1969-1973.
9. Pellatt L, Hanna L, Brincat M, et al. Granulosa cell production of anti-Mullerian hormone is increased in polycystic ovaries. J. Clin. Endocrinol. Metab, 2007; 92: 240–245. [PubMed: 17062765].
10. Grimes DA, Jones LB, Lopez LM, Schulz KF. Oral contraceptives for functional ovarian cysts. Cochrane Database Syst Rev, 2014; 4: CD006134.
11. Hassan SA, Yasir AB, Estabrq G, Hachim A. Review of 244 cases of ovarian cysts. Saudi Med J, 2015; 36: 834-838.
12. McCartney CR, Blank SK, Prendergast KA, et al. Obesity and sex steroid changes across puberty: evidence for marked hyperandrogenemia in pre- and early pubertal obese girls. J. Clin. Endocrinol. Metab, 2007; 92: 430–436. [PubMed: 17118995].
13. Shaw LJ, Bairey Merz CN, Azziz R, et al. Postmenopausal Women with a History of Irregular Menses and Elevated Androgen Measurements at High Risk for Worsening Cardiovascular Event- Free Survival: Results from the National Institutes of Health—National Heart, Lung, and Blood Institute Sponsored Women's Ischemia Syndrome Evaluation. J. Clin. Endocrinol. Metab, 2008; 93: 1276–1284.