PAT 3
SUMMARY &ANALYSIS OF THE CASE

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INTRODUCTION:

This case study comprise of relevant patient information and history, associated clinical sign and symptoms, sonographic findings and ultrasound equipment used to produced related diagnostic images to integrate the finding of case study with other modalities.

Then we will review the demographics of PCOD, associated risk factors, method of Improvement and known treatment procedures and related prognosis.

Conclusion include summarization of findings to prove and validate the study according to literature review.

CASE REPORT:

PATIENT HISTORY

- 31 year old lady of Caucasian descent average height and built.
- With complain of Irregular periods and Infertility.
- Planning In vitro fertilization (IVF).
- No history of Acne, hirsutism, obesity, and metabolic disturbance.
- No family history of PCOD.
- No personal history of any hormone therapy.
- No h/o previous pregnancies.

LAB DATA

- Patient had blood workup done by her doctor.
- No record of lab work in Women college hospital (WCH) system.
- Sonographic equipment used:
- Philips IU22
- 5MHz curvilinear probe and 6 MHz endo-vaginal probe.
- Ultrasound gel.

Protocol And Method Used:

- According to Women College Hospital (WCH) protocol,
  first transabdominal scan done with full bladder and
  then transvaginal scan was performed after bladder emptying.
- Transabdominal scanning done by using 5 MHz curvilinear transducer and images of uterus, ovaries and adnexa obtained in both sagittal and transverse plane to demonstrate uterine dimensions, endometrial thickening and ovarian size.

Protocol and method used cont’d

- After emptying of bladder transvaginal sonography is performed with 6 MHz transducer for better visualization and to get better images of uterus , both ovaries and adnexa.
- Numbers of ovarian follicle counted in both planes(sagittal and transverse) and morphology including shape, size and pattern of distribution of follicles noted .
- Ovarian size measured in three dimensions including length, width and height and volume calculated by using formula L X W X H X 0.52.
- Doppler studies of both ovarian vasculature done.

Integration Of Finding From Other Modalities:

- Finding from other Modalities to integrate and confirm the diagnosis was not possible as patient did not have further follow up at WCH.

Professional Involved:

- Professionals involved in case study are,
- Clinical co-ordinator, manager of sonography department and

Student sonographer.

- Clinical co-ordinator assisted and guide student sonographer throughout examination.
- Manager’s permission was taken for using case for study purpose.

CASE DISCUSSION:

Critical Analysis Of Case

- PCOD is a common endocrinopathy with heterogeneous presentation.(1) 5–10 % of reproductive age women affected any time from menarche to menopause.(2)
- 25-30% have positive family history of mothers and sisters with PCOD.(3)
- Clinical presentation varies widely and women seeks medical advice mainly due to menstrual irregularities, hirsutism, acne and infertility.(4)
- My patient was 31 year old female falling under reproductive age category. Presenting with irregular bleeding and inability to conceive.

Critical Analysis, Cont'd:

- Ultrasound (transabdominal and transvaginal) is the most widely use non-invasive method to evaluate ovarian morphology.(5)
- The typical ovaries of PCOD have 12 or more follicles of 2-9 mm located in the ovarian cortex, ovaries are enlarged symmetrically and shape changes from ovoid to spherical and ovarian volume increases.(6)
- However 30% of patients with diagnosis of PCOD has no increase in ovarian volume.(6)
- My patient ultrasound features demonstrate PCO (poly cystic ovary)with both ovaries showing more than 12 antral follicles of 2-9 mmm in diameter arranged in necklace like pattern in periphery of ovaries but her ovarian volume is normal.

Figure 1 &2 illustrate Sagittal and Transverse view of Right ovary .
Showing multiple antral follicles arranged in necklace like pattern in peripheral ovarian cortex. Volume of ovary is also calculated.

Figure 1

Figure 2

Figure 3 & 4 illustrates sagittal and transverse view of left ovary with multiple follicles in peripheral ovarian cortex. Volume of ovary is also calculated.

Figure 3

Figure 4

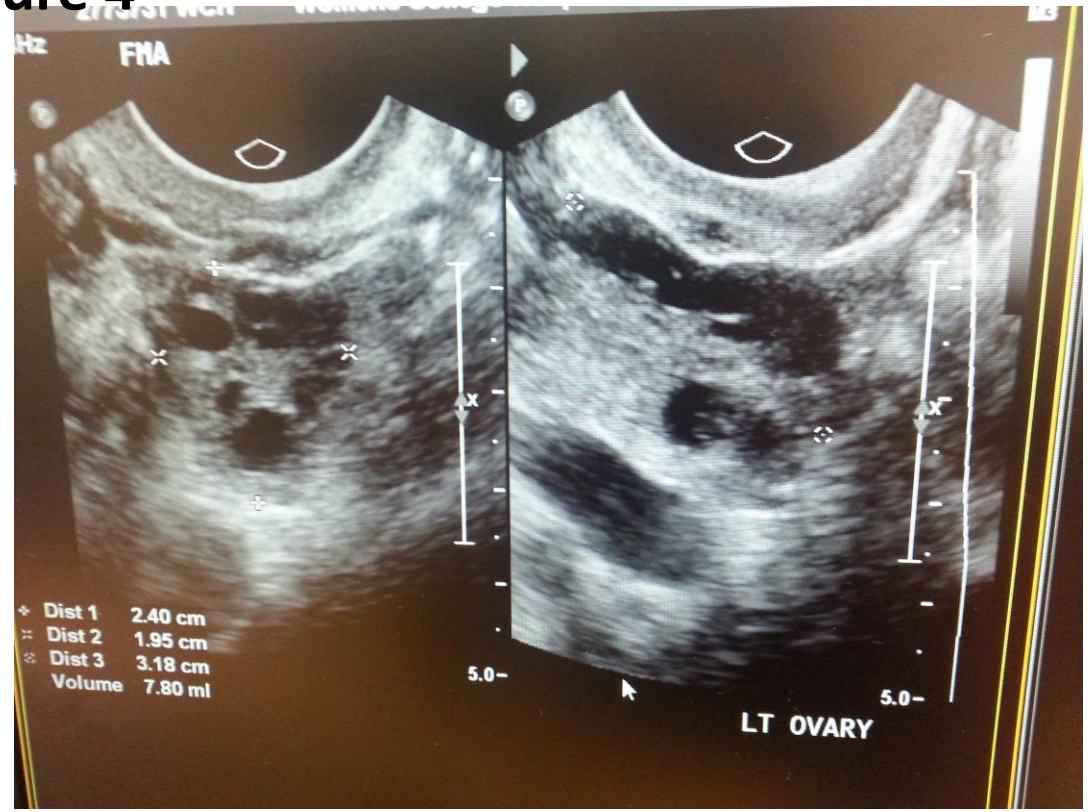

Figure 5 & 6 :Images of right ovary at different levels and planes to show shapes, number and distribution of antral follicles.

Figure 5

Figure 6

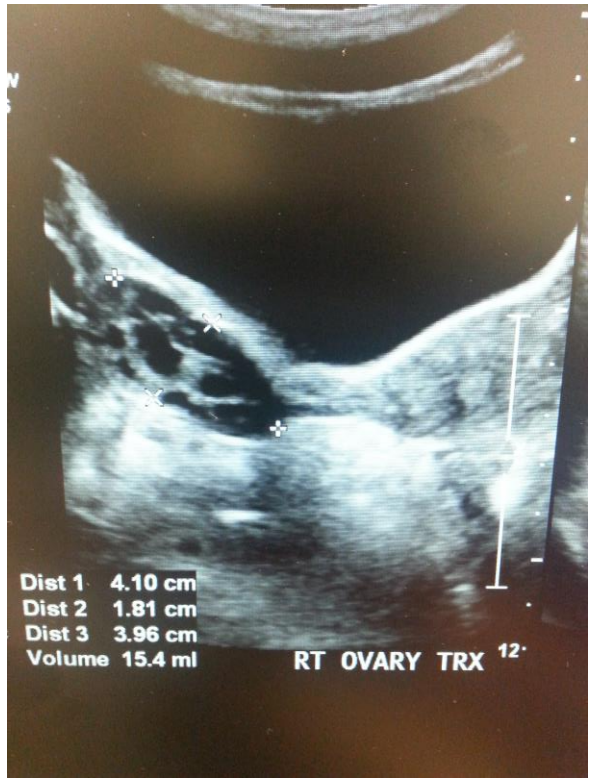

Figure 7 :Sagittal view of right ovary at different plane to show antral follicles.

Other imaging modalities:

- She did not have further imaging examination like, 3D or MRI at WCH, so correlation of PCO with other imaging modalities could not be possible.

Risk Factors:

- The main risk factor for PCOD is family history.(3)
- PCO syndrome, irregular periods and diabetes in first degree relatives suggest genetic predisposition and strong inheritance.(3)
- My patient has no family history of PCOD.

New Techniques/Technologies For Improvement :

- 3D ultrasonography can improve the quantitative assessment of follicular count, total ovarian volume and blood flow better than 2D.(5)
- However, being a relatively new modality, expensive instrument and need of more experience to use the technology, limits its use. (5)
- As transvaginal u/s has greater sensitivity, therefore optimization of 2D sonographic instrument like penetration settings and increased frequency can greatly help in making the correct diagnosis.(5)
- MRI more sensitive than u/s in detecting PCO but not specific to diagnose PCOD without corroborating features of patient's history and laboratory findings.(5)

Treatment Options:

1. Life style modification and weight reduction is first step for obese PCOD patients.(2)
   My case was not obese but diet and exercise would definitely help her in achieving spontaneous ovulation and increased chance of getting pregnant.
2. Insulin sensitizing agents, increase tissue sensitivity to insulin action and reduce BMI (body mass index).(3)
   My case is not suffering from diabetes and her BMI is normal.
3. Oral contraceptive pills are effective in maintaining cycle regularity in women who don’t want to get pregnant.(3)
   So my case is not a candidate for this option as she is trying to get pregnant.

Treatment Options Cont'd:

4. Ovulation induction drugs are first line of therapy for anovulatory infertile patients who wish to conceive.(3)
   My case is trying to conceive and would possibly benefitted by ovulation inducing drugs including clomiphene and other injectable hormone preparations.
5. Antiandrogens are used for acne and hirsutism which my case is not suffering from. (3)

Prognosis:

- As we have mentioned earlier that, no further follow ups were performed at WCH.
- Therefore, we cannot trace or follow what actual course of treatments she may have proceeded with.

Conclusion:

The case study support the literature review for diagnosis of PCOD.The reasons are as follows :

1. My patient is 31 year old falling into reproductive age category prevalent for PCOD.
2. My patient's clinical presentation include , Irregular bleeding which affects 30% of women and infertility which affects 50% of women and is the most common cause of anovulatory infertility.
3. Sonographic evaluation of my patient met criteria, with both ovaries shows >12 antral follicles of 2-9 mm diameter arranged in necklace like fashion in periphery of ovarian cortex.

Changes Required:

- I believe that health care professional should have secure access to follow up their patients regarding other imaging modalities, lab works, treatment plans and prognosis, in order to improve their current practices by knowing outcome.

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Acknowledgement:

- Thank you to Raylene Biblow ,my Clinical coordinator who guided me in selecting and examining the case and assisted me in taking diagnostic images required for case study.
- Thank you to Marina Andric, Manger of Sonography department for assisting me in doing relevant consent paper work.
- Thank you to Sheena Bhimji-Hewitt, course supervisor for organizing this helpful course.