

## Case Report

# Irritable bowel syndrome, endometriosis and polycystic ovary syndrome: is there a link?

Ashwath Narayan Ramji\*

Department of Surgery, Kempegowda Institute Medical Sciences, Bangalore, Karnataka, India

**Received:** 06 April 2019

**Accepted:** 04 May 2019

### \*Correspondence:

Dr. Ashwath Narayan Ramji,

E-mail: drashwathramji@gmail.com

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

Chronic pelvic pain is a common yet difficult problem to manage, plaguing the gynecologist as well as the gastroenterologist and general surgeon. Highlighted by increased visceral hypersensitivity, endometriosis and irritable bowel syndrome (IBS) are the most common causes of chronic unrelenting pelvic pain. Recently, the similarities between the two conditions has begged the question as to whether there is any common denominator between the two conditions and their likely co-existence and mismanagement. Further, the association of polycystic ovary syndrome (PCOS) in this cohort remains definitively uncharacterized. This report details a young female patient with the triad of PCOS, IBS and endometriosis presenting with chronic pelvic pain.

**Keywords:** Chronic pelvic pain, Chocolate cyst, Endometriosis, Irritable bowel syndrome, Metabolic Syndrome, Pelvic inflammatory disease, Polycystic kidney disease, Visceral hypersensitivity

## INTRODUCTION

Chronic pelvic pain is a major source of morbidity in women, and when all attempts to diagnose pelvic inflammatory disease are unfruitful, a series of referrals ensues, such that 20% of all gynecological referrals are for chronic pelvic pain.<sup>1</sup>

The two common but oft obscure causes are endometriosis and irritable bowel syndrome, which have considerable overlap in their features and are both mediated by increased visceral hypersensitivity.<sup>2,3</sup>

Therefore, the speciality managing the patient decides the diagnosis, and potential differential diagnosis or co-existing condition may be over-looked.<sup>4</sup> A third associated condition though not contributing directly to pelvic pain, but involved in linked pathological pathways is polycystic ovary disease (PCOS), which is again oft over-looked.<sup>5</sup>

## CASE REPORT

A 30-year-old female patient presented with intermittent pain in the lower abdomen for the last 10 years, with intermittent exacerbations. The pain was usually of the cramping type, deep seated, occasionally associated with nausea and bowel disturbance. There was no associated vagina discharge OR urinary symptoms. She had been diagnosed with irritable bowel syndrome for which she practiced diet modification and alleged that she had symptomatic improvement with cognitive behavioral therapy, however sustained remission was lacking. She earlier had polycystic ovary disease and complained of irregular menses, difficulty in losing and maintaining weight as well as severe acne and excessive hair growth for which she had earlier sought treatment. She was para one, having delivered via cesarean section 5 years earlier for foetal distress, with the live born issue initially hindered by transient tachypnea of the newborn (TTN) but recovered early and has thrived well. She had taken ovulation induction treatment for conception,

progesterone supplementation had been given during the first trimester, and she had also developed gestational diabetes mellitus (GDM) which settled post-delivery. She was a known case of hypothyroidism on treatment for the last decade. Besides maternal hypothyroidism and bilateral ovarian teratomas, family history was unremarkable.

Abdominal examination revealed a soft scaphoid abdomen with healthy Pfannenstiel scar. There was tenderness in the right iliac fossa on deep palpation, but no alarm features such as guarding or rigidity. As clinical examination was non-specific, ultrasound abdomen was sought, which revealed a thick walled cyst containing low level echoes without septations measuring 4.1x3.8 cm in the right ovary suggestive of chocolate cyst (Figure 1 and 2), both ovaries seen close to the uterus suggestive of pelvic adhesions and multiple small cysts in the left ovary measuring less than 6mm situated peripherally suggestive of polycystic ovary disease.



**Figure 1: Ultrasound examination.**



**Figure 2: Ultrasound finding of right ovarian chocolate cyst.**

She was started on the oral progestin dienogest and omega-3-fatty acid (eicosapentanoic acid and docosahexanoic acid) supplementation after gynecology review, and at follow up after three months reported substantial improvement of symptoms.

## DISCUSSION

Chronic pelvic pain, despite its ubiquitous occurrence has not yet been completely characterized and remains a management challenge.<sup>1</sup> The most commonly encountered causes for pelvic pain include endometriosis, irritable bowel syndrome and pelvic inflammatory disease, all of which have been implicated to co-exist.<sup>2</sup> Recently, the pathological basis for pain these conditions was found to be visceral hypersensitivity.<sup>3</sup>

Due to the overlapping features and absence of specific or trade-mark signs (except in pelvic inflammatory disease), the diagnosis often depends on the specialty managing the patient, with the possible co-existing condition (of situational severity) being overlooked.<sup>4</sup>

Endometriosis is present in 10-20% of women of the reproductive age, and irritable bowel syndrome which is more common in women, affects about 10-15%. Both conditions show familial clustering, suggestive of a genetic component.<sup>4</sup> Dietary links to exacerbation of symptoms have also been delineated.<sup>4</sup>

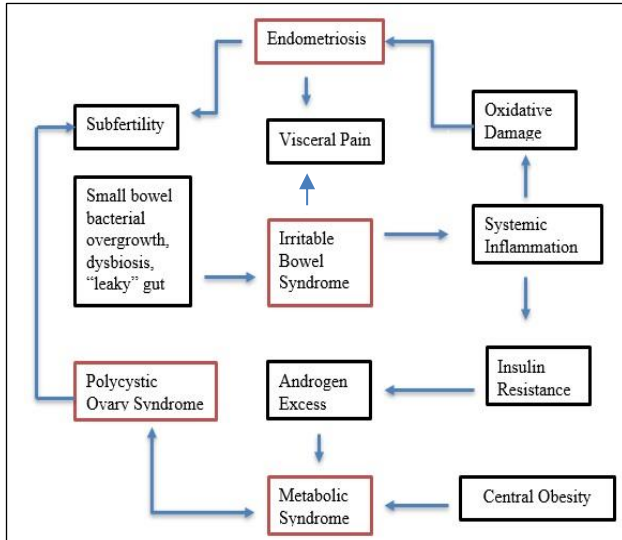
Endometriosis is the presence of extra-uterine endometrial stroma and glandular tissue, which on account of its sensitivity to hormones causes cyclical symptoms and has been explained by several theories like Sampson's retrograde menstruation theory, coelomic metaplasia as well as immunological phenomena.<sup>4</sup> Recent studies have demonstrated the inflammatory basis of the condition, with various cytokines demonstrated in the ectopic rests, and increased invasiveness and reduced sensitivity to apoptotic signals found in these rests compared to native endometrial tissue.<sup>6</sup>

The inflammatory basis of irritable bowel syndrome is well-known, and literature is ripe with the post-infectious pathogenesis of the condition and the implicated disrupted brain-gut-axis.<sup>7</sup> The role of sex hormones in inflammatory bowel disease explains the female preponderance, the flaring up of symptoms with menses and the inherent cyclical nature of the condition itself- which additionally blurs the line between the two conditions.<sup>8</sup>

Adhesions and scarring resulting from cyclical endometrial proliferation and shedding directly cause pain via visceral pathways. Endometriosis is additionally not uncommonly seen in conjunction with fibromyalgia and chronic fatigue syndrome, conditions where pain processing and modulation is inherently disturbed.<sup>4</sup>

The non-colonic symptoms of IBS such as myalgia, lower back pain and uro-gynecological symptoms can obscure the diagnosis. However, despite there being considerable overlap in the features of IBS and Endometriosis, the presence of bowel dysfunction warrants consideration of IBS.<sup>4</sup>

The third spoke of the triad, polycystic ovary syndrome is associated with IBS and endometriosis more frequently than can be credited to chance, with 42% of women with PCOS having IBS as well and causal relationships and overlaps between the conditions have been delineated (Figure 3).<sup>9,10</sup>



**Figure 3: Inter-related conditions with overlapping features.**

Our patient had the three conditions with assorted and non-specific features of each. Her fertility issues likely stemmed from the PCOS, which is known to cause implantation failure, miscarriage and luteal phase defect<sup>11</sup>. Our patient received progesterone therapy during the 1<sup>st</sup> trimester of her pregnancy due to the latter.

Though specific therapies are ideal in individually managing these conditions, serendipitous improvement in the associated condition while treating one of the syndromes further suggests a common foundation. Dietary modifications and exercise positively impact all three conditions, as do pain modulation via tricyclic antidepressants, selective serotonin reuptake inhibitors and cognitive behavioural therapy.<sup>4</sup> When these conditions coexist and the source of pain cannot be clearly identified, pharmacologically targeting visceral hypersensitivity pathways that are a common channel would be of benefit.

## CONCLUSION

Despite their pathological and clinical overlap, endometriosis and irritable bowel syndrome are seldom considered as differential diagnoses when a case of chronic pelvic pain is being assessed leading to treatment failure when the diagnosis is inaccurate, and incomplete resolution of symptoms when co-existing conditions are not properly managed. As there is no definitive cure for IBS and relapses are frequent, future studies regarding symptomatic improvement of IBS when co-existing

endometriosis is surgically eliminated might illuminate permanent therapeutic modalities for IBS. Related fertility issues between endometriosis and PCOS similarly benefit with antioxidant therapy, proving a common pathological process. Thus, it is imperative that the diagnosis is ultimately not dependent on the specialty or department managing the patient, but rather be based on an all-encompassing view so that bias does not interfere with diagnosis, and not all cases of cyclic lower abdominal pain are blindly considered gynecological without proper assessment.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

1. Latthe P, Latthe M, Say L, Gulmezoglu M, Khan KS. WHO systematic review of prevalence of chronic pelvic pain: a neglected reproductive health morbidity. *BMC Public Heal*. 2006;6:177.
2. Seaman HE, Ballard KD, Wright JT, de Vries CS. Endometriosis and its coexistence with irritable bowel syndrome and pelvic inflammatory disease: findings from a national case-control study-part 2. *BJOG*. 2008;115:1392-6.
3. Issa B, Onon TS, Agrawal A, Shekhar C, Morris J, Hamdy S, et al. Visceral hypersensitivity in endometriosis: a new target for treatment? *Gut*. 2012;61:367-72.
4. Issa B, Ormesher L, Whorwell PJ, Shah M, Hamdy S. Endometriosis and irritable bowel syndrome: a dilemma for the gynaecologist and gastroenterologist. *Obstetrician Gynaecol*. 2016;18:9-16.
5. Mathur R, Ko A, Hwang LJ, Low K, Azziz R, Pimentel M. Polycystic ovary syndrome is associated with an increased prevalence of irritable bowel syndrome. *Digest Dis Sci*. 2010 Apr 1;55(4):1085-9.
6. Li MQ, Luo XZ, Meng YH, Mei J, Zhu XY, Jin LP, et al. CXCL8 enhances proliferation and growth and reduces apoptosis in endometrial stromal cells in an autocrine manner via a CXCR1-triggered PTEN/AKT signal pathway. *Human Reprod*. 2012;27:2107-16.
7. Kellow JE, Delvaux M, Azpiroz F, Camilleri M, Quigley EM, Thompson DG. Principles of applied neurogastroenterology: physiology/motility-sensation. *Gut* 1999;45 Suppl 2:II17-24.
8. Drossman DA, Powell DW, Sessions JT Jr. The irritable bowel syndrome. *Gastroenterol*. 1977;73(4 Pt 1):811-22.
9. Abbas S, Ihle P, Köster I, Schubert I. Prevalence and incidence of diagnosed endometriosis and risk of endometriosis in patients with endometriosis-related symptoms: findings from a statutory health

insurance-based cohort in Germany. *Euro J Obst Gynecol Reprod Biol.* 2012 Jan 1;160(1):79-83.

10. Gupta S, Harlev A, Agarwal A. Endometriosis and PCOS: Two major pathologies linked to oxidative stress in women. *Sematic Scholar.* 2015.
11. Shah D, Nagarajan N. Luteal Insufficiency in first trimester. *Indian J Endocrinol Metab.* 2013 Jan-Feb;17(1):44-9.

**Cite this article as:** Ramji AN. Irritable bowel syndrome, endometriosis and polycystic ovary syndrome: is there a link?. *Int J Res Med Sci* 2019;7:2449-52.