

Oligo-amenorrhoea – a triple whammy?

A Sharma¹, JE Ostberg¹,

¹Department of Endocrinology, Watford General Hospital, West Hertfordshire Hospitals NHS Trust

INTRODUCTION

- Oligo-amenorrhoea is defined as a menstrual cycle length of > 35 days.
- It has various causes including thyrotoxicosis, hyperprolactinaemia, hypothalamic oligo-amenorrhoea (excessive exercise, anorexia nervosa), and Polycystic Ovary Syndrome (PCOS).
- PCOS is recognised as the most common endocrine disorder of reproductive-aged women around the world.^[1]
- An association of PCOS with eating disorders and autoimmune thyroiditis has been described.^[2,3,4]
- We describe an unusual case of a young patient with three different causes of oligo-amenorrhoea.

CASE HISTORY

A 20-year-old female first presented to our endocrine clinic in 2013 with a six-month history of feeling faint, palpitations, weight loss of 6kg and oligo-amenorrhoea.

- ✧ She was found to have **autoimmune thyrotoxicosis** with a fT3 of 15.2, fT4 43.3 and TSH <0.05.
- ✧ Her TPO antibodies were strongly positive.
- ✧ She was subsequently commenced on Carbimazole 20mg once a day and was biochemically euthyroid within 6 months.
- ✧ Interestingly, however, she continued to lose weight and remained oligo-amenorrhoeic.
- ✧ Her BMI was now 18 (weight 46kg).

INVESTIGATIONS

PITUITARY PROFILE		
	2013	2015
Glucose	4.7 mmol/L	4.2 mmol/L
IGF-1	9.8 nmol/L	13.2 nmol/L
Prolactin	124 mu/L	132 mu/L
TSH	<0.05 mIU/L	1.78 mIU/L
fT4	43.3 pmol/L	13.2 pmol/L
fT3	15.2 pmol/L	4.1 pmol/L
LH	0.9 u/L	9.3 u/L
FSH	3.7 u/L	7.1 u/L
Oestradiol	161 pmol/L	255 pmol/L
Testosterone	1.2 nmol/L	
SHBG	>180 nmol/L	
Cortisol	603 nmol/L	

Pelvic Ultrasound: Endometrial thickness 1.5mm , no polycystic ovaries.

DEXA scan 2014: T-score -0.2 at lumbar spine, -0.1 at left hip.

MRI pituitary 2014: unremarkable

FOLLOW UP

- She was diagnosed with **anorexia nervosa** by the specialist eating disorders team (oestradiol 65 pmol/L).
- With their treatment and support, she gradually gained weight from 46kg in January 2014 to 54.3kg in April 2015, 65kg in September 2015 and now 73kg in 2016 (BMI 30).
- However despite normalisation of her body weight, spontaneous periods did not resume.
- Repeat pelvic ultrasound (October 2015): endometrial thickness 3mm, bulky ovaries with several small peripheral follicles, suggestive of polycystic ovaries.
- Reverse FSH:LH ratio (FSH 7.1U/L, LH 9.3U/L, oestradiol 255pmol/L, Prolactin 132mU/L, TFTs normal) suggestive of **polycystic ovary syndrome**.
- She has no immediate plans to start a family and is taking an oral contraceptive pill at present, which is giving her regular withdrawal bleeds.
- She has been given lifestyle advice to help her regain a normal weight.

CONCLUSION

- ✧ This case highlights multiple diagnostic and treatment challenges in a young patient with oligo-amenorrhoea.
- ✧ It is proposed that:
 - Her oligo-amenorrhoea may originally have been due to **Graves' disease**;
 - It was subsequently due to her persistent low body weight (**hypothalamic amenorrhoea** secondary to anorexia nervosa);
 - and ultimately, after gaining excess weight, due to exacerbation of underlying **polycystic ovary syndrome**
- ✧ *A clinical conundrum or a triple whammy?*

References:

1. Azziz R. PCOS: a diagnostic challenge. *Reprod Biomed Online*. 2004 Jun;8(6):644-8.
2. Wang JG and Lobo RA. The complex relationship between hypothalamic amenorrhea and polycystic ovary syndrome. *J Clin Endocrinol Metab*. 2008 Apr;93(4):1394-7
3. Bernadett M and Szeman NA. Prevalence of eating disorders among women with polycystic ovary syndrome. *Psychiatr Hung*. 2016;31(2):136-45.
4. Nisar S et al. Association of polycystic ovary syndrome and Graves' disease: Is autoimmunity the link between the two diseases. *Indian J Endocrinol Metab*. 2012 Nov;16(6):982-6.