

## Case Report: An IIH Induced Endometriosis that Diagnosed by OCT, and Revealed Ten Years Dilemma of HPG Axis Dysfunction due to Pressure Effect of CSF on Pituitary Stalk.

### Introduction

Heinrich Quincke initially defined Pseudotumor Cerebri in 1983, as a defect in Cerebrospinal Fluid (CSF) dynamics that results in Raised Intracranial Pressure (RICP) [1]. Thus, the etiology of the disease has been mostly unknown, it has further entitled as Idiopathic Intracranial Hypertension (IIH) [1]. Visual Impairment caused by Papilledema is one its known symptoms [1], for which fundoscopic exams have been widely used to diagnose and verify it [2]. However, as long as the evaluation of increased ICP has recently experienced a more accurate approach via Optical Coherence Tomography (OCT), IIH diagnosis has eke become an interesting subject of study [3]. Research has indicated the correlation between IIH and occurrence of gynecologic disorders, including endometrial disorders [4] and Polycystic Ovary Syndrome [5].

The reviewed case encounters a female patient suffering from Dysfunctional Uterine Bleeding (DUB) along dilemmatic headaches for ten years. This case review is hence aimed to reflect the potential of OCT as a non-invasive solution to approach the cause of those endometrial disorders that come in combination with severe headaches for long durations of time.

### Case Report

A 50 years old female patient, who had been suffering from DUB, was diagnosed by stage 2 endometriosis. At the meantime, she was assessed by migraine and followed for 10 years to have her headaches controlled. Meanwhile, the lab workup did not reflect much of an off the chart hormonal study, anemia was a point of consideration. Although anemia treatment was successfully fulfilled, no progression was noted with healing of DUB and headaches. The Patient was therefore referred to neurologist; when she underwent an MRI and reported to cope with Empty Sella. As a result, she was referred to ophthalmologist to check for Papilledema via ophthalmoscopy, where no significant findings reported.

Whereas, thus the Empty Sella was a red flag in combination with severe headaches, Optical Coherence Tomography (OCT) was performed to have a precise investigation on the Optic-Nerve head. Raised Intracranial Pressure (RICP) was concluded to be a consequence of a Micro-Papilledema, identified through the OCT (Figure 1).

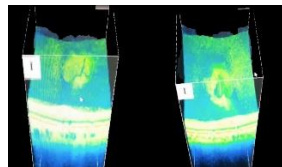


Figure 1. Patient's Papilledema in 3D OCT

To that end, the patient went through lumbar puncture (LP); where Idiopathic Intracranial Hypertension (IIH) was confirmed, by the Cerebrospinal Fluid (CSF) Opening Pressure to be 29cm H<sub>2</sub>O at her spinal tap, as with meeting the normal Cerebrospinal Fluid (CSF) lab workup. She was eke prescribed by Acetazolamide and constantly studied through OCT to comprehend the ICP reduction. Along with ICP decrease, improvements were observed in DUB. Such recovery was likewise perceived in headaches to occur in lower frequencies and severities.

### Discussion

Androgen excess has discussed to be prevalent among women with IIH [6]. An NIH fundamental diagnostic criterion for PCOS, demands a clinical or biochemical element of androgen excess [7]. Otherwise, The ICP elevation by IIH impacts on Pituitary Stalk [8] and Empty Sella Turcica [9], which causes the Hypothalamic-Pituitary-Gonadal (HPG) Axis to confront fault in its mechanism [10]. HPG Axis encounters the unified functionality of those included glands [11]. Once the pituitary stalk withstands an Empty Sella, changes in Gonadotropin-Releasing-Hormone (GnRH) [12] would leave neurometabolic effects on endometriosis development [13]. The additional malfunctioning among HPG Axis would cause alternations in FSH and LH [14], which both contributes to endometriosis [15]. Moreover, when HPG Axis is disturbed as a unified hormonal system, would drawback a lack of balance in Estradiol Progesterone [16]. Such impairment would transform the uterine tissue and could therefore influence the progression of Endometriosis [16], [17].

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Gynecologists are hence recommended to consider the probability of IIH or any condition that elevates the ICP; meanwhile experiencing long-term lack of response to endometriosis treatments, in combination with headaches. Thus, the IIH or any ICP elevating condition could be easily diagnosed in early stages by OCT [18], [19], as long as its volumetric tomography reveals much clinical information than ophthalmic clinical reviews, such as the micro-papilledema [20] of this case. OCT observation of such condition by changes in RNFL thickness [18], [21] and Choroidal fold has been so far a novel approach in diagnosing IIH and ICP elevated disorders [21]. Patients could be likewise monitored by OCT as a noninvasive [22], non-ionizing [23] and cost-effective approach [24].

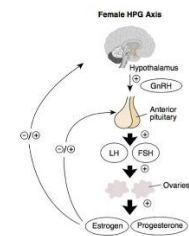


Figure 2. RICP Relation with Endometrial Issues [4]

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