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The Importance in What We Cannot See

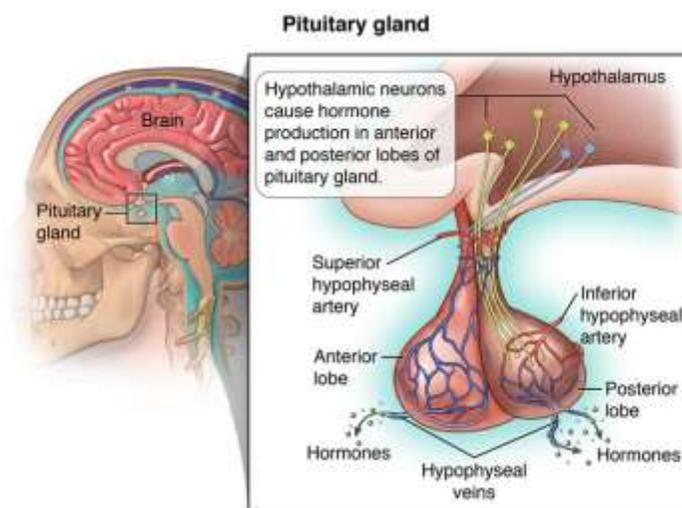


In the above photograph, a woman poses with her head slightly tilted. One can assume she is positioned this way to display the illustrated part of the photo. The background is plain and black, so are her garments. The woman is beautiful. She is wearing earrings and a necklace, both elegant yet modest. Her eyes are closed and her mouth is slightly opened. It is as if she has just taken a deep breath of relief. There are pale grey and red trails drawn on the woman's body, stemming from a bright pink fig-like shape. Her hair is designed to form another shape, more circular much larger. The smaller shape seems to have more relevant significance, as it is

illuminated profoundly. The woman in this photograph suffers from a rare disease by the name of "Panhypopituitarism". The meaning of 'Pan' in Latin translates to all, 'Hypo' –decreased function, 'pituitarism' –of the pituitary.

Panhypopituitarism is a condition in which the pituitary gland no longer functions. This devastating disease exemplifies an invisible disease. Visual effects do not necessarily reveal the intensity of one's health and well-being.

The pituitary is a pea size gland located at the base of the brain, behind the nasal cannula and underneath the hypothalamus. (See photograph above, *Johns Hopkins Health Library* [*1].) Although the pituitary is small, it is mighty indeed. In medicine, the pituitary gland is referred to



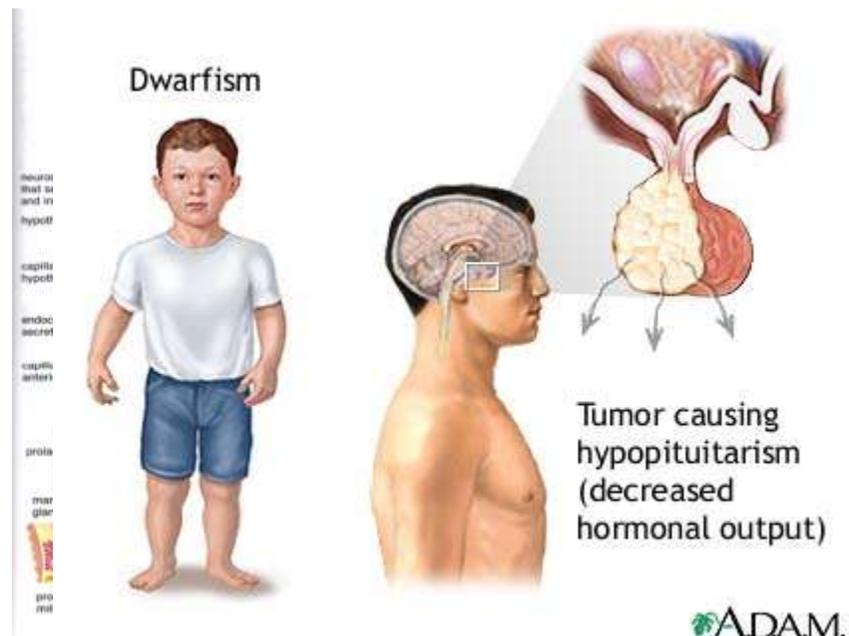
as the ‘master gland’. It controls the production and secretion of most hormones. In the above photograph, the pituitary which is not visible outside of the body is illustrated on the interior surface of the head. The pituitary gland is dressed in a bright color, to place it in the spotlight as the source of her Endocrine system failure, her Panhypopituitarism. The source of the photograph, *Visual MD* [*2] is a company dedicated to helping patients visualize and internally comprehend their diagnosis. In this Essay, Panhypopituitarism will be described in detail for the purpose of constructing an awareness of the serious impact of a disease can potentially have on an individual, invisible none the less.

According to the *U.S. National Library of Medicine* [*3], The Pituitary gland has 2 parts anterior and posterior. The anterior pituitary controls the thyroid gland by producing Thyroid Stimulating Hormone (TSH). With no production of TSH, the thyroid gland will not produce any of the Thyroid hormones T4, T3 and some T2 and T1. Even if the thyroid is intact, it will “sleep” without TSH and so with all other endocrine glands controlled by the pituitary. The Thyroid hormones are responsible for our metabolism, temperature regulation, heart rhythm and more. The anterior pituitary also controls the Adrenal glands by producing the Adrenocorticotropic Hormone (ACTH) which stimulates the adrenal glands to produce Cortisol. When the adrenal glands stop working, the production of Cortisol, Epinephrine and the Aldosterone-Renin system regulation are interrupted. Cortisol is responsible for stress response, cardiovascular function, maintaining blood pressure, aid insulin, regulate protein synthesis, immune function and inflammatory balance. Cortisol is vital to our survival. Cortisol deficiency poses a serious and immediate death risk. Aldosterone and Renin are responsible for maintain the salt-fluid ratio and

by that regulating the kidneys. Epinephrine which is Adrenaline, regulates the autonomic nervous system and more. LH (Luteinizing Stimulating Hormone) and FSH (Follicle Stimulating Hormone), the sex stimulating hormones are also produced by the Anterior Pituitary and control the Ovaries (women) and Testes (men). The Ovaries and Testes produce Estradiol, Progesterone, Testosterone and DHEA. These hormones are vital to our reproduction, sexual functions, strengthening of the bones, building muscle tissue, hair and preventing early aging. A

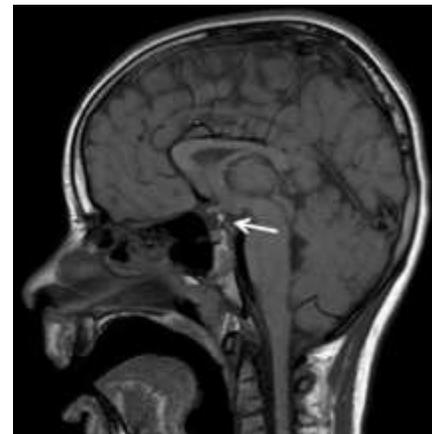
young women with millions of eggs, will never naturally ovulate or menstruate if she has Panhypopituitarism.

MSH (melanocyte-stimulating hormone) is produced by the pituitary gland and controls the production of melanin, the



hormone which is responsible for the color of our skin and hair. PRL (Prolactin), is secreted by the anterior pituitary and responsible for milk production. HGH (Human Growth Hormone) is stored and secreted by the anterior pituitary. GH is an essential hormone for breaking down fat tissue, regulating sleep and allow bone growth and tissue healing. In the past, GH was considered essential solely in pediatrics. Growth Hormone deficient children are subjects to dwarfism and failure to thrive. See photograph from *Mercy health* [*4]. The latest studies however, have

proven that Growth Hormone is essential for adults none less. The posterior Pituitary stores and secretes Vasopressin which is a critical hormone. Vasopressin is the antidiuretic hormone, it regulates and enables water retention in our body. Without Vasopressin, the kidneys pass out all fluids and death is inevitable. This condition is called “Diabetes Insipidus” (no connection to “Diabetes Mellitus” which is the known form of Diabetes). Oxytocin is also secreted in the posterior pituitary and has important primary functions. Hormone Oxytocin plays a part during and after childbirth in contracting the uterus. Oxytocin has a significant role in social development and behavior. Studies have shown that autistic individuals, lack Oxytocin. The photograph seen on page 4 visualizes the pituitary gland and its massive whole body affects. [*Nelson Biology*, *5].



There are many diseases which decrease or eliminate the function of one or few parts of the endocrine system. Panhypopituitarism is the only one which takes away all pituitary function. [See MRI photo; *Hormones, Journal of Endocrinology* *6.] Most of the critical hormones, can be replaced with medications but they offer only a poor substitute. While the body produces its own hormones, they are secreted in the right quantity and quality. When replacing with synthetic hormones, results are incomparably inferior. Horrible side effects are unavoidable and life is a constant rollercoaster. Unlike a healthy pituitary which produces more cortisol at any sign of physical stress such as a cold, Panhypopituitary patients must guess dosing on their own. The slightest virus, can trigger an adrenal crisis which is deadly. And this is only

one of the pituitary controlled hormones. A physician by the name of Van Aken who has done extensive research in the field of Endocrinology, wrote in his book *Diagnosis and treatment of hypopituitarism: an update*: “Quality of life may be significantly reduced, even in those people on optimum medical therapy... It is likely that the commonly used replacement therapies still do not completely mimic the natural hormone levels in the body. Health costs remain about double those of the normal population. Hypopituitarism is permanent. It requires lifelong treatment with medicines.” [*7]

The woman in the photograph, has pale grey and red trails drawn on her body. The photographer is trying to capture the idea of the pituitary gland being the Control center of the body. The picture captures the proportions of her illness. Even though it's invisible, it is still there no less. Her eyes are closed and her mouth slightly opened. It is as if she has just taken a deep breath of relief. Relief from revealing what was unseen. She appears pretty and is wearing elegant jewelry, to symbolize that her illness does not lesser her. It does not diminish her personal qualities, her essence. *The Magic Foundation* which is the leading organization for pituitary patient education informs: “Hypopituitarism (a depletion of 2 or more pituitary hormones) is a rare condition that occurs in between 1–1.5 per 100,000 individuals.” [*8] Panhypopituitarism is estimated to affect less than 10% of the above. One of those rare individuals is someone close to my heart.

We now understand the seriousness of Panhypopituitarism, but will we recognize it? No, it is invisible. Sadly, there are many more invisible illnesses which have detrimental effects. Imagine yourself strolling around campus, when you are faced with a scenario that catches your



eye. A young, fit and healthy appearing man, drives into a handicap parking lot. He walks out of his vehicle with no mobility aid or any visual difficulty. How would you perceive this situation? Would you react upon your feelings? The scenario is seen as a cruel violation.

Handicap parking spots are solely for the use of disabled persons, who lack the ability to easily move about.

Handicap parking lots are conveniently located in a close proximity to the destination. Taking a disabled individual's spot, is essentially stealing his/her right. A passionate individual might stand his ground and engage in battle with the "offender". He or she might even go all the way and turn to violence or other extensive actions. Other reactions might include placing a shame note on the window shield, commenting judgmentally or name calling. Even the most neutral individuals who will not involve themselves, will often associate this behavior as profoundly negative. It is important to note, that even when the "violator" has a certified and up to date handicap placard or license plate, observers interpret it as unlawfully used and/or obtained.

Photograph to the left visualizes an individual's handicap placard with a shameful note. [*Social justice blogger* *]

As a progressive human society, we are encouraged to protect the innocent. We are taught, to defend the weak and fight for the rights of those who cannot fend for themselves. Now, let's stop and think for a moment. During this theoretical process, have a considered an alternate view? Does our world consist only of what meets the eye? The majority of disabling illnesses

carry a visual aspect. Rheumatoid Arthritis will cause clear progressing deformities. Cancer patients may lose their hair and appear sickly. Severe Scoliosis patients have an abnormal alignment of the spine. Wheelchairs, casts, prosthetic limbs, canes, a Seeing Eye dog and many more. These illnesses are clearly all of great significance and the following is not meant to reduce their severity, only to simply speak of another matter. In the United States, Invisible Illness patients face prejudice and discrimination regularly. These patients not only deal with the debilitating and lifelong aspects of severe illness, but suffer the added burden of disregard for their basic rights. Invisibly ill individuals more than often appear as any other man or woman. They are intelligent and respected members of society like anyone else. They gained their courage, resilience and positive attitude through overcoming unimaginable trying life experiences.

The concept I'm projecting, represents the social dynamics in regards to invisible illness. If one examines the photographed women in real life (perhaps parking in a handicap spot), the invisible manifestations of her illness will not be apparent. We never know what challenges others are facing from simply looking at them, there is an importance in what we cannot see.

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