PITUITARY TUMORS IN WOMEN

Jane E. McCutcheon, MD, FRCSC (Obstetrics and Gynecology)

High levels of prolactin will cause galactorrhea, which can be the presenting symptom of this condition. Here to, menstrual irregularity is common, as are infertility and loss of libido. If the excess production of prolactin is profound, patients may reflect the adjustments that pituitary tumor patients must make to deal with the physical symptoms caused by alterations in the various hormonal axes affected by the tumor. However, it is equally possible (at this time unpredictable) that the pituitary tumor may itself be the result of the emotional or cognitive changes experienced by the patient. It is entirely possible or even likely that disruption within the hypothalamic-pituitary axis on a molecular or structural level may trigger the formation of the pituitary tumor and concomitantly may directly produce the psychosocial disruption the patient experiences. Connections from the hypothalamus to other limbic structures (e.g. prefrontal cortex) may cause alterations in personality, mood, and behavior that are distinct from those caused by purely psychosocial disruption, however, whether this psychosocial disruption is feasible but may require intervention by psychiatrists in those most profoundly affected. Generally, treatment begins with optimization of hormone levels but may in addition require drug therapy including antidepressants. Psychological testing can yield a detailed profile of the specific areas of impairment and suggest compensatory strategies. In particular, pituitary tumor patients complain of depression, fatigue, and poor memory function. These are real symptoms of physical disease, but the treatment for them is complex and often requires multidisciplinary input.

TREATMENT

Once a diagnosis has been made or is at least entertained with a strong level of suspicion, the referral to an endocrinologist and the neurosurgeon is appropriate. Even a "simple" prolactinoma may have ramifications on other pituitary — and organ axis, with the need for treating the pituitary from a global perspective. In our practice, all patients referred for pituitary tumor are seen by both the endocrinologist and the neurosurgeon, with the theoretical ability to do both therapeutic and surgical per- spective respectively. A further word of caution is mandated here. Most endocrinologists can perform an effective workup of a pituitary tumor and make appropriate diagnosis and, where appropriate, medical treatment recommendations from that workup. However, within the neurosurgical community, a wide spectrum of expertise in pituitary disorders exists. Patients with resources tend to consult a relatively small cadre of nationally prominent subspecialists in this area while many neurosurgeons are still learning the theoretical ability to do direct surgical resection. While direct surgery actually sees only 1 or 2 patients per year, an insufficient number to develop true facility with such procedures. Statistics have been compiled that show true expertise (as judged by success in achieving cure and in avoiding complications) comes only when a surgeon has completed 500 or more trans-sphenoidal resections. Thus for optimal care, a referral to a known center of excellence is advisable. The referral practice at The University of Texas MD Anderson Cancer Center is the largest in the state of Texas or any neighboring state.

Medical therapy generally consists of reducing hormone levels on a molecular or structural level may trigger the formation of the pituitary tumor and concomitantly may directly produce the psychosocial disruption the patient experiences. Connections from the hypothalamus to other limbic structures (e.g. prefrontal cortex) may cause alterations in personality, mood, and behavior that are distinct from those caused by purely psychosocial disruption, however, whether this psychosocial disruption is feasible but may require intervention by psychiatrists in those most profoundly affected. Generally, treatment begins with optimization of hormone levels but may in addition require drug therapy including antidepressants. Psychological testing can yield a detailed profile of the specific areas of impairment and suggest compensatory strategies. In particular, pituitary tumor patients complain of depression, fatigue, and poor memory function. These are real symptoms of physical disease, but the treatment for them is complex and often requires multidisciplinary input.

RADIOLOGY

The best way of diagnosing pituitary disease radiographically is by an MRI focused on the sella. CT scan has insufficient resolution to show small tumors and does not confer the anatomic detail found in MRI. A standard MRI of the brain is also inadequate for showing pituitary disease, as it may result in the sella being off the field of view by its size. The sella is thick and too widely spaced to show a pituitary lesion properly. Therefore, if a pituitary tumor is suspected, it is wise to order an MRI of the sella upfront to avoid having to send the patient back for repeat scanning.

Physician/Patient Resources

Many thanks to Dr McCutcheon for this newsletter article. Having recently had transphenoidal removal of a pituitary tumor, I know what an excellent resource he is to patients in the Texas Medical Center. Pituitary tumor patient care is multi-disciplinary, as mentioned in this newsletter, The Pituitary Network Association has been a wonderful resource for me and hundreds of others. This website, www.pituitary.org provides the most current medical information on pituitary disease and treatment of the whole patient.

For your continued support of Healthy Connections. Happy Holidays to all of you — Gaylynn Thomas, RN, BSN
PITUITARY TUMORS IN WOMEN

Ian E. McCutcheon, MD, FRCSC
Professor of Neurosurgery, MD Anderson Cancer Center

Pituitary tumors represent a special clinical problem in women. Although their diagnosis is relatively straightforward once the suspicion has been raised, patients with pituitary tumors can go undiagnosed for years in spite of symptoms that should have raised such suspicion and led to definitive testing. This article seeks to highlight the symptoms that such tumors produce, to describe the best way of confirming the presence of the tumor, and the most appropriate ways of treating such lesions.

DIAGNOSIS

Pituitary tumors can cause symptoms by either of two methods. In some, they compress the adjacent normal pituitary gland, and thereby impact hormone secretion and produce a lack of one or more of the hormones produced by the gland. Alternatively, the tumor can itself produce hormones in excess, leading to high levels of hormones, each of which produces a specific clinical syndrome. Others symptoms of significance include visual loss, caused by a tumor large enough to reach from the pituitary to the optic chiasm running above the sella. Typically a tumor must be greater than 1.5 cm in diameter to create loss of vision, and many patients with tumors larger than that have intact vision. In addition, headache is commonly experienced by patients with pituitary tumors. In some of them the tumor causes the headache by local dural compression or infiltration. In many, however, headache represents a second, unrelated issue which will not necessarily clear if the tumor is eliminated.

The most common pituitary tumor is the "clinically non-functional" adenoma, representing 40-45% of cases. Such tumors make no clinically significant hormone and are usually found incidentally, by virtue of low hormone levels they produce, or because of visual loss when a tumor is relatively large. The second most common is the prolactin-producing tumor, "prolactinoma", representing 30% of cases. These are the tumors most likely to be seen in a gynecologic practice, given their impact on reproductive function, the menstrual cycle, and libido. Prolactinomas tend to be relatively small and exert their effects by virtue of raising serum prolactin levels attendant to them. To be secure in the diagnosis of prolactinoma, a patient should have a prolactin >100 ng/ml. Because certain drugs (e.g., Risperdal or other phenothiazines) raise prolactin levels to a similar degree, they must be excluded by history before concluding that a patient with a high prolactin level has a pituitary tumor. Patients with lower levels of prolactin that are still supra-normal (i.e., >25 ng/ml) may have either a prolactinoma or a non-functional tumor exerting "stalk effect", namely a distortion of the gland from local pressure which blocks the tonic hypothalamic inhibition of prolactin secretion and thus allows prolactin levels to rise. The distinction is important because prolactin excess caused by tumor secretion is treated in the majority of patients with Dopamine agonist therapy, whereas prolactin elevation due to stalk effect suggests that such therapy will be ineffective. Distinction is not always an easy one and an endocrinologist should be involved for any patient suspected of having a pituitary tumor. They can offer help in deciding whether a tumor is non-functional (with stalk effect) versus a true prolactinoma, and can, in addition, perform hormonal screening for all areas of pituitary function. It is not sufficient to simply check prolactin and perhaps thyroid hormone levels, as is often done in women in whom a pituitary tumor is suspected. A full hormone panel should be drawn and the nuances in interpreting this make involvement of an endocrinologist very helpful.

Other tumor types include those which secrete growth hormone (causing acromegaly), those secreting ACTH (causing Cushing’s Disease), and those rare tumors secreting TSH (producing a hyper-thyroid state commonly mis-diagnosed as primary hyper-thyroidism and often treated inappropriately with thyroid ablation). Three-quarters of all pituitary tumors will, however, be either non-functional or prolactin secreting adenomas, and understanding of which is vital in any gynecologic practice.

The hormone system most vulnerable to extrinsic pressure is the pituitary-gonadal axis. Minor disturbances of the pulsatile rhythms of FSH or LH production (produced by the pulsatile release of gonadotropin-releasing hormone) can affect fertility and libido and can disrupt the menstrual cycle. Thus, any pituitary tumor can cause infertility, and the search for such tumors should be part of any infertility work-up, particularly when low levels of FSH and/or LH can be shown. Low levels of prolactin are not considered to be significant or to re-