

Endocrine System – Unit 5

Group B

Merissa

Heather

Tammy

Situation

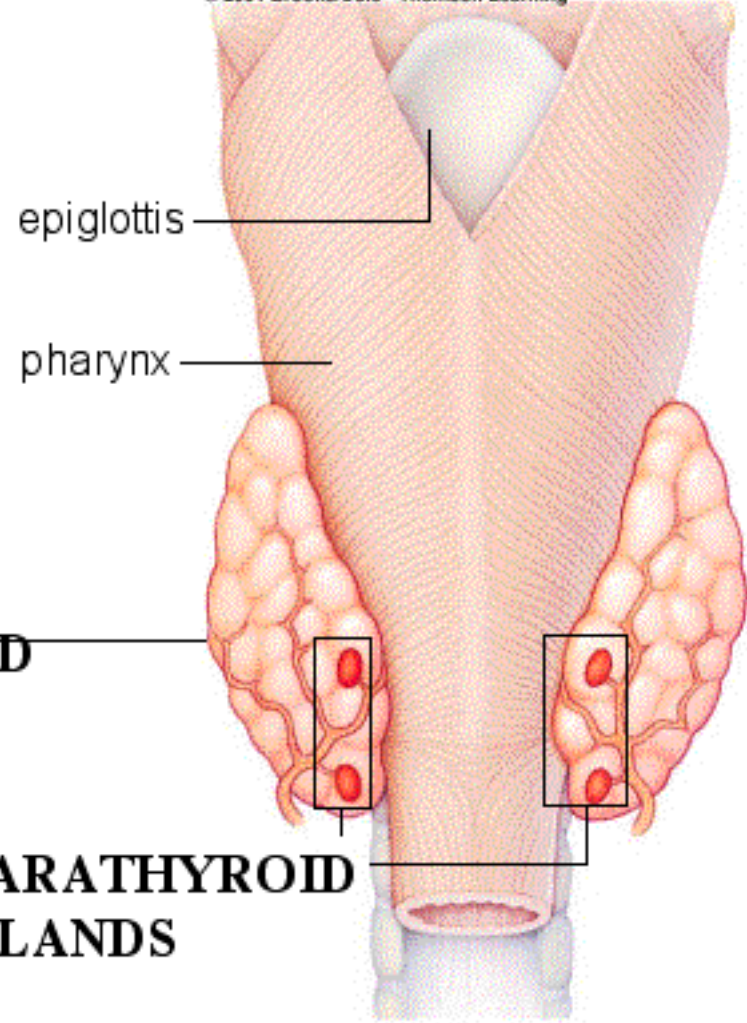
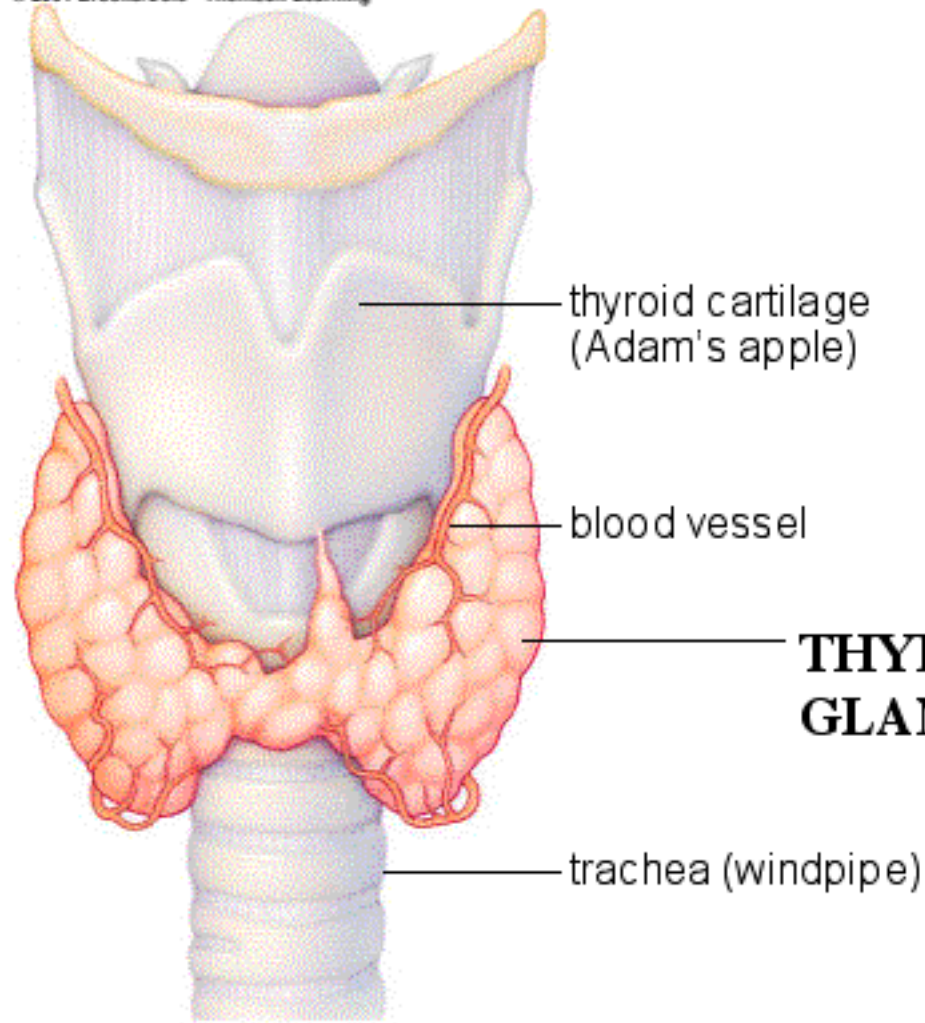
Ms. T presents to you concerned about her weight gain and fatigue. Both of these problems have been problems for years. Recently, a friend told her these problems may be because her thyroid is not working properly and she wants to have her thyroid checked.

Question

Why do you see these signs and symptoms with a hypofunctioning thyroid?

Hypothyroidism

- The onset of hypothyroidism is usually insidious over months or years (McCance & Huether, 2006).
- Thyroid hormones affect cell metabolism by altering protein, fat and glucose metabolism (McCance & Huether, 2006).
- The lowered levels of thyroid hormones result in decreased energy metabolism and heat production (McCance & Huether, 2006).
- Individuals develop a low-basal metabolic rate, cold intolerance, lethargy, and tiredness (McCance & Huether, 2006).



Weight Gain and Fatigue

- Ms. T's weight gain and fatigue could possibly be related to a deficiency of thyroid hormone (TH) produced by the thyroid gland.
- The deficiency of TH results in the increased release of Thyroid Stimulating Hormone (TSH) from the pituitary (Copstead & Banasik, 2000).
- Low levels of TH results in fatigue, a lowered metabolic rate which would explain Ms. T's weight gain and fatigue (McCance & Huether, 2006).
- Fatigue occurs because of decreased cerebral blood flow, which can lead to cerebral hypoxia (McCance & Huether, 2006).
- Weight gain in hypothyroidism can be due to edema associated with high concentrations of exchangeable albumin in the extravascular space caused by increased capillary permeability to proteins (McCance & Huether, 2006).

Primary Vs. Secondary Hypothyroidism

- The majority (95%) of people with hypothyroidism have a dysfunctional thyroid gland, referred to as primary hypothyroidism (Smeltzer & Bare, 2000)
- Cretinism, refers to a thyroid deficiency present at birth, which would not be applicable in Ms. T's cause (Smeltzer & Bare, 2000).
- The most common cause of non-congenital or acquired hypothyroidism is lymphocytic thyroiditis, including Hashimoto or autoimmune thyroiditis (Copstead & Banasik, 2000)
- Secondary hypothyroidism is caused by a problem with the pituitary gland, and tertiary hypothyroidism is related to a malfunctioning hypothalamus (Smeltzer & Bare, 2000).

Situation

At her follow up visit, you discuss with Ms. T that her thyroid function is okay. You do note, however, that her fasting blood sugar is elevated.

It has been established that Ms. T has type 2 diabetes mellitus. She has a friend whose child has diabetes and must use insulin 4 times/day. Ms. T has the following questions. How would you answer her?

Diabetes Mellitus

Type 1 Vs. Type 2

- In type 1 diabetes there is pancreatic atrophy and the Beta cells of the pancreas are destroyed by either an immune mediated response or idiopathic response (McCance & Huether, 2006).
- It is known as juvenile diabetes and is usually identified in childhood
- Type 1 diabetes is a complete lack of insulin production. Glucose, therefore, is unable to enter muscles and adipose tissue. (Copstead & Banasik, 2000)
- Type 1 diabetes require insulin injections to regulate blood sugar levels and is known as insulin-dependent diabetes (IDDM) (McCance & Huether, 2006).
- Type 2 Diabetes is much more common than type 1 (McCance & Huether, 2006).
- Type 2 diabetes is caused by insulin resistance and decreased insulin production by the Beta cells of the pancreas (MedicineNet.com, 2009)
- Type 2 diabetes can normally be initially managed by lifestyle modifications and oral anti-diabetic medications

Risk Factors for Type 2 Diabetes

- being overweight or obese
- pre-diabetes
- advanced age
- physical inactivity
- having high blood pressure and/or high cholesterol
- having a family history of diabetes
- belonging to certain high-risk ethnic populations (e.g. Aboriginal, African, Hispanic, Asian)
- having a history of gestational diabetes
- having other conditions which may include vascular disease, polycystic ovary syndrome, acanthosis nigricans and schizophrenia

DIABETES RISK



Ms. T

- Ms. T's diabetes is not the same as her friend's child, who likely has type 1 diabetes.
- Ms. T's diabetes won't be managed the same either, she will likely be managed with diet and oral medications.
- Ms. T could make changes to her diet and health in the future that could eliminate her need for oral anti-diabetic medications whereas her friend's child will always need to take insulin.

Diabetes is a life long disease that requires monitoring, medicating, and modifications to diet and lifestyle



Something to think about



With rates of diabetes on the rise, specifically type 2 diabetes which has now been seen in children, what impact, if any can health care professionals including nurse practitioners have on this growing population?

Both to manage and avoid diabetes?

In 2005-2006, approximately 1.9 million Canadian men and women had been diagnosed with diabetes. This represents about 1 in 17 Canadians (Public Health Agency of Canada, 2009).

References

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