

## Non-functioning pituitary adenoma (NFA)

### What is a non-functioning pituitary adenoma?

It is a type of pituitary tumour which does not produce any hormones. Although these tumours are very rarely malignant, they can grow and cause pressure on pituitary, which can disturb normal hormone production. They can also cause pressure on the surrounding structures, which can cause headaches and impaired vision.

### What is the pituitary gland?

It is a small pea-sized gland situated in a hollow bony pouch, at the base of the brain, at the back of the bridge of the nose. It controls the functions of the other endocrine glands.

### What are the symptoms?

The effect on the surrounding structure can cause impaired vision and headache. Pressure on a normal pituitary gland can cause under-production of the normal pituitary hormones (hypopituitarism). Pressure on the neck of the pituitary gland can cause over-production of prolactin with subsequent effects on your body such as reduced fertility, breast changes, and headaches. In children there may be reduced growth or delayed puberty.

### What do these missing hormones normally do?

- *Thyroid stimulating Hormone (TSH)*: circulates to the thyroid gland in the neck to make and release thyroid hormones called Thyroxine and Tri-iodothyronine.
- *Adrenocorticotrophic hormone (ACTH)*: stimulates the adrenal glands (small endocrine glands situated on the top of your kidneys) to produce cortisol. This is a steroid hormone which is essential for everyday activities and health. Lack of cortisol causes severe fatigue and lack of appetite with weight loss.
- *Growth Hormone (GH)*: Have effects on various tissue of the body. In children, it is essential to reach normal growth. In adults, it appears to maintain normal energy levels and to keep body tissue, such a muscle and bones, strong and healthy.
- *Gonadotrophins* - Follicular Stimulating Hormone (FSH) and Luteinising Hormone (LH): these hormones regulate and control the male and female hormones, menstrual cycles, ovulation, sperm production and fertility.
- *Prolactin (PL)*: stimulates the breasts and regulates milk production. It is normally produced at very high levels during pregnancy and breast-feeding. This hormone can be responsible for irregular or absent menstrual periods and the lack of libido.

- *Antidiuretic hormone (ADH)*: circulates to the kidneys where it regulates the amount of urine produced. Too little ADH causes continual thirst and copious output of urine.

### What investigations will I have?

- Blood tests to check the level of the hormones which are controlled by the pituitary.
- You may need a special test to measure some of the pituitary hormones before and after stimulation to find out which are working normally and which are not.
- Visual field check. The optic nerve which relays images from your eye to your brain passes very close to the pituitary gland. Tumours of the pituitary gland can expand causing pressure on this nerve and this will cause impaired vision initially involving the periphery of the vision. This is checked by a special computerised light screen. Dots of light appear on the screen and the patient has to identify when they are seen.
- Special scans such as MRI can detect the site and extent of the tumour and any pressure on the surrounding structures.

### What is the treatment of NFA?

This will require an operation to remove the tumour as presently there is no medical therapy that will shrink the tumour. The operation is usually performed through the nose (*Transsphenoidal adenectomy*) or if the tumour is too large for this approach then it may have to be removed by an open surgical approach called a craniotomy. Although the surgeon will try to save the normal pituitary tissue this might not be possible. This depends on the size and extent of the tumour. If total removal is impossible, you may require follow-on radiotherapy to treat the remaining tumour cells.

### What tests are required after the operation?

You will require regular follow-ups by a specialist.

- Blood tests to recheck the levels of the hormones controlled by the pituitary.
- Repeat visual field charting.
- Repeat MRI scans to reassess the pituitary and the surrounding structures.

### Medicine after the treatment

If it was impossible to save the normal pituitary during the surgery then you are likely to become have hypopituitarism and will require replacement therapy such as life long medication.

### Where can I learn more?

Contact the Pituitary Foundation at:

Pituitary Foundation

PO Box 1944

Bristol BS99 2UB

Tel: 0845 450 0375

e-mail: [helpline@pituitary.org.uk](mailto:helpline@pituitary.org.uk)

Websites: [www.pituitary.org.uk](http://www.pituitary.org.uk)

More information is available on the Trust website [www.royalberkshire.nhs.uk](http://www.royalberkshire.nhs.uk)

This document can be made available in other languages and formats upon request.

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