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Diagnosis and Treatment of Craniopharyngioma in Brain Tumor

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Description

Craniopharyngioma is a noncancerous (benign) brain tumour that is extremely rare.

The pituitary gland in the brain, which secretes hormones that govern a number of body functions, develops a craniopharyngioma near it. A craniopharyngioma can disrupt the function of the pituitary gland and other brain structures as it develops slowly.

Craniopharyngioma can affect anybody at any age, however it is more common in youngsters and the elderly. Progressive visual abnormalities, weariness, frequent urination, and headaches are some of the symptoms. Craniopharyngioma causes children to grow slowly and to be smaller than predicted.

Diagnosis

The following tests and methods are used to diagnose craniopharyngioma:

Physical exam- A medical history review and a neurological exam by your doctor are generally the first steps in diagnosing a craniopharyngioma. Your eyesight, hearing, balance, coordination, reflexes, and growth and development are all assessed during this examination.

Blood tests- Changes in hormone levels may be shown by blood tests, indicating that your pituitary gland is being affected by a tumour.

Imaging tests- X-rays, Magnetic Resonance Imaging (MRI), and computed tomography are some of the tests that may be used to obtain pictures of your brain (CT).

Treatment

Surgery- For persons with craniopharyngioma, surgery to remove all or most of the tumour is usually indicated. The sort of surgery required is determined on the location and size of your tumour.

The skull is opened to obtain access to the tumour in open craniopharyngioma surgery (craniotomy). Special surgical equipment are put *via* your nose during minimally invasive craniopharyngioma surgery (transsphenoidal operation). The instruments reach the tumour by a natural pathway, bypassing the brain.

Surgeons try to remove the entire tumour if at all feasible. However, because there are typically numerous sensitive and critical tissues nearby, surgeons don't always remove the entire tumour to guarantee a decent quality of life after surgery. Other therapies may be utilised following surgery in some cases.

Radiation therapy- After surgery, external beam radiation treatment may be used to treat craniopharyngioma. To destroy tumour cells, this therapy employs high-energy beams such as X-rays and protons. You lie on a table during external beam radiation therapy as a machine precisely targets the energy to the tumour cells.

External beam radiation technologies, such as proton therapy and Intensity-Modulated Radiation Therapy (IMRT), allows doctors to precisely shape and aim the radiation beam so that it treats tumour cells while sparing healthy tissue nearby.

When the tumour does not contact the bundle of nerve fibres that conveys vision information from your eye to your brain, a kind of radiation therapy called stereotactic radiosurgery may be indicated (optic nerve). Stereotactic radiosurgery, which is technically a form of radiation rather than an operation, concentrates numerous beams of radiation on specific places to destroy tumour cells.

Brachytherapy is a form of radiation therapy that includes injecting radioactive material directly into the tumour so that it can radiate from the inside.

Chemotherapy- Chemotherapy is a pharmacological treatment that kills tumour cells by using chemicals. Chemotherapy may be injected directly into the tumour, ensuring that the medication hits the target cells while causing no harm to healthy tissue surrounding.

Treatment for papillary craniopharyngioma- Papillary craniopharyngioma is a rare kind of craniopharyngioma that may respond to focused treatment. Targeted therapy is a type of medication treatment that targets specific defects in tumour cells that allow them to survive.

A mutation in the BRAF gene is seen in nearly all papillary craniopharyngioma cells. A therapeutic approach might be targeted therapy targeting at this mutation. If your craniopharyngioma comprises papillary cells, specialised laboratory testing can indicate if those cells have the BRAF gene mutation.

Clinical trials- Clinical trials are research investigations that look into novel medicines or new methods to use old ones. A clinical study allows you to try the most cutting-edge medicines, but the adverse effects may be unknown. Consult your doctor to see whether you're a candidate for clinical trials.