Brain Tumour Australia Information

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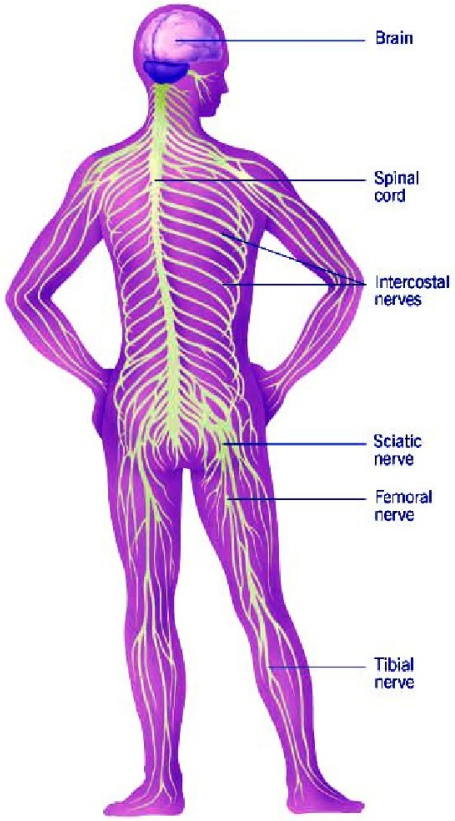
Spinal Cord Tumours

Introduction

The **spinal cord** is surrounded by tough fibrous covering called the dura. The **spinal cord** and **dura** are located within a bony canal created by the vertebral column.
Tumours can arise in any of these spaces and are grouped according to location.



Tumour strictly means a swelling.. The body is made up of individual cells. These cells multiply for normal growth and to repair tissues, allowing for normal wear and tear. If the control of these processes is lost, the cells may multiply abnormally, forming a growth or tumour. A lesion is another word for an abnormal area and can be, amongst other things, a tumour. Inflammatory lumps sometimes occur too (e.g. from infection).

The spine is made up of the bony structures (and enclosed spinal cord and nerve roots) extending from the base of the skull down to and including the sacrum and coccyx

The sacrum is the back part of the bony pelvic "ring". The spinal column consists of bones, discs and joints and encloses the spinal cord and nerve roots in the spinal canal.

The spinal cord ends just below the thoracic segment of the spine, above the small of the back. Below this only nerve roots are found in the spinal canal.

Tumours affecting the spine can arise either locally, from the structures of the spine (primary tumours), or spread to the spine from elsewhere in the body. When they are found away from the original cancerous growth, these tumours are sometimes called secondaries or metastases.
These may be multiple and typically come from cancers of the lung, breast, prostate or bowel. Since most of these spinal secondaries are in the bone, there may be weakness of the structure of the spine.

There may also be compression of the spinal cord or spinal nerve roots in the spinal canal.

These usually occur inside the membrane surrounding the spinal cord and nerves. They occur much less frequently in the bones of the spine. Consequently, benign spinal tumours rarely disturb the strength of the bony structure of the spinal column.

However, sometimes surgical removal of them can do so and benign tumours can also cause nerve disturbance, depending on their size and location. Usually a confident diagnosis can be reached, but this may involve taking a biopsy sample.

The three groups of spinal tumours are:

- extradural [outside of the dura]
- intradural-extramedullary [between the spinal cord and the dura]
- intramedullary [within the substance of the spinal cord itself].

The location of the tumour can be identified on imaging studies, such as **MRI,** of the spinal column.

In general, **extradural lesions** are the most common representing 60% of all spinal tumours, with the majority originating from the vertebrae. Intradural-extramedullary tumours represent 30% of all spinal tumours.

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The most common extradural tumours are metastatic - that is, they spread from some primary tumour site (like lung), through the blood stream, to the bones of the spinal column.

The most common intradural-extramedullary tumours are **meningiomas** and schwannomas. **Meningiomas** arise from the **dura** itself and a more common in women.
Schwannomas arise from the lining of nerve roots.

The most common intramedullary tumours are:

- Astrocytoma: tumours from the support cells in the spinal cord
- Ependymoma: tumours from the cells that line the central spinal cord
- Hemangioblastoma: vascular tumours within the spinal cord

Symptoms

Patients with spinal tumours typically present with back pain at the level of the lesion. The symptoms can be of long duration because these lesions grow slowly. The pain tends to be worse at night. Patients may develop weakness, numbness, difficulty walking, and bowel/bladder dysfunction.

Diagnosis

A detailed neurological physical examination can localize the level of the spinal cord tumour. Individual muscle groups are tested for strength to determine any signs of weakness. Sensation is tested to evaluate for any signs of numbness. Reflexes are tested at the elbows, hands, knees, and ankles for any abnormalities. The diagnostic test of choice is an MRI (magnetic resonance imaging) study with and without contrast.

Treatment

Before treatment can start, a clear idea is needed of which kind of treatment would be best. Options:

- Surgical removal
- Radiotherapy
- Chemotherapy

Surgery is often performed on spinal tumours in order to obtain tissue for diagnosis, [biopsy] relieve pressure on the spinal cord, and stabilize the spine if necessary.
Surgery alone is usually curative for benign tumours.

Metastatic tumours and some gliomas are also treated with postoperative radiation therapy.
and frequency of radiotherapy (e.g. radiation) is carefully calculated to destroy cancer cells while preserving healthy cells. Chemotherapy drugs can be administered orally or intravenously.

Surgery may be indicated when:

- Pain is unresponsive to non-operative treatment.
- Neurologic deficit progresses.
- A specimen is needed (open biopsy).
- The tumour requires debulking (reduce size) to decompress neural elements (e.g. nerves)
- Vertebral destruction exists
- Spinal stabilization is necessary.

Aggressive tumours may require surgical resection (partial removal) or excision (complete removal).
Others require non-surgical treatment that may include bracing, radiation, and chemotherapy.
Some tumours require both surgery and non-operative treatment.
Analgesics are given for pain.

Intramedullary tumours are uncommon spinal tumours (10% of all spinal tumours), and occur most often in the cervical spinal cord. These are often associated with a dilated fluid cavity called a **syrnix.**

If pain is difficult to manage, a pain management specialist may be consulted.
Steroids may be prescribed to reduce oedema (swelling) that can occur around tumours.
Radiation and/or chemotherapy may shrink tumours.
The dose and frequency of radiotherapy (e.g. radiation) is carefully calculated to destroy cancer cells while preserving healthy cells.

Chemotherapy drugs can be administered orally or intravenously.

Surgery may be indicated when:

- Pain is unresponsive to non-operative treatment.
- Neurologic deficit progresses.
- A specimen is needed (open biopsy).

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- The tumour requires debulking (reduce size) to de-compress neural elements (e.g. nerves)
- Vertebral destruction exists
- Spinal stabilization is necessary.

Surgery

The primary goals in surgery are to reduce pain caused by the spinal tumour, restore or preserve neurologic function, and provide spinal stability.

Surgery may include tumour resection (partial removal) or excision (complete removal). When the tumour is removed (partially or completed) pain and neurologic problems may clear up.

Recovery

Usually when the treatment period has ended, the symptoms clear up. Analgesics are given to control post-operative pain and cancer pain. Cancer pain may be difficult to control (e.g. 'break through pain').

Any surgery, radiation treatment, or chemotherapy can drain the patient nutritionally. Therefore, a proper diet is important to regain strength, lost weight, and a measure of health. A professional nutritionist can provide guidance.

Depending on the extent of the surgery and the patient's medical status, a course of physical therapy may be prescribed. Through exercise and modalities the patient can build strength, endurance, and flexibility

Trials, Treatment & Symptoms

USA Radiation Necrosis http://emedicine.medscape.com/article/1157533-overview

USA Temozolomide Information http://www.temodar.com/temodar/patients.jsp

UK The British Brain and Spine Organisation - for resources http://www.brainandspine.org.uk/information/publications/brain_and_spine_booklets/index.html