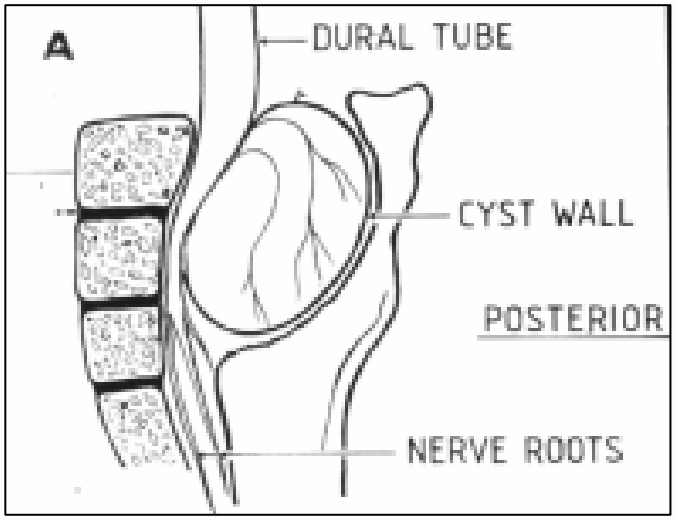
HyperMED Tarlov Cysts

Tarlov cysts are spinal nerve root lesions filled with spinal fluid, found most often at the sacral level through MRI scanning. Tarlov cysts can be asymptomatic or cause a serious neurological disorder called Tarlov disease.



Benefits of Hyperbaric Oxygenation (HBOT) – Case Study

HBOT pioneered by HyperMED NeuroRecovery Australia - Dr Mal Hooper for the treatment and management of Tarlov cysts has been innovative. Many patients with failed back surgery often have the finding of Tarlov when MRI investigation is taken below the level of the disc operated i.e. L5/S1 level. In many patients CT scan will not afford diagnosis particularly if the images do not go further than the operated site which is the level CT scan and MRI are limited. Tarlov cysts are typically sacral cysts and *below* the L5/S1 level.

Hyperbaric Oxygenation is a method of breathing 100% oxygen at levels greater than normal atmospheric pressure. HBOT dissolves greater amounts of oxygen into the brain and spinal cord structures. The cerebral spinal fluid oxygen levels are greatly elevated which immediately reduces chronic inflammatory hypoxic induced irritation. Opportunistic infections also do not replicate and associated DNA activity (apoptosis) in markedly reduced.

HBOT is safe and non invasive; providing an effective measure to control Tarlov pain and in certain instances - reduction in the size of the Tarlov cyst.

Example: Ms K Coates who has suffered a 30-year history of complex back and leg pains. Ms Coates grew up on the family farm riding horses, mustering cattle, performing heavy farm work and for relaxation she competed in horse riding events and played competitive polo cross. Ms Coates had a long history of horse related falls and injuries. Ms Coates has sought a multitude of treatment and therapies receiving numerous doctor's consultations and referrals. She has a history of manipulation, physiotherapeutic supports and even cortisone injections leaving her condition getting progressively worse. Over more recent years she also complains of pins and needling and weakness in her legs. Ms Coates has requested an MRI of her back but informed by her various doctors that MRI was not indicated and her condition could be 'fixed'.

Eventually MRI revealed a large tear of the L4/5 disc and a large Tarlov sacral cyst. Manipulation is contraindicated and incidentally cortisone injection to the 'inside of her sacroiliac joints' obviously resulted in aggravation of the Tarlov cysts.

Hyperbaric Oxygenation was commenced and within 40-hours of intensive saturation Ms Coates reported that she was pain free for the first time in many years! All parameters of clinical assessment improved. The constant swelling she felt across her sacral spine that pre-empted her episodic back pain ceased. HBOT combined with specific immune stimulating injections and appropriate physical therapy including whole body vibration resulted in dramatic reduction of her back and leg pain.

Hyperbaric Oxygen Therapy Benefits

- Mobilizes the patients own circulating stem cells providing a fertile neurovascular platform for further stem cell related therapies and implantation (American Journal Physiology - Heart and Circulatory Physiology Nov 05)

- Elevates the amount of dissolved Oxygen into compromised and damaged tissue structures. Accelerates recovery and promotes stabilization of individuals suffering complex and progressive neurodegenerative illness and disease

- Enhances immune capabilities - increasing white blood cell (WBC) and Natural Killer Cell (NK) function; accelerating wound healing and infection control. This has a 'killing' effect which dramatically raises the potential to fight chronic infection and overcome delayed healing

- Accelerates new tissue formation (fibroblast and collagen synthesis) essential for repair – ligaments, disc, muscle and bone structures

- Increases blood flow into retarded tissue by fostering new blood vessel capillary growth into the damaged and compromised areas. This is called neovascularization

- Activates damaged and non-functional neurons (nerve cells). This is extremely important in chronic injury including spinal cord, brain injury and neurologically impaired patients. Chronic swelling and inflammation deprives vital Oxygen, which results in nerve cells becoming abnormally low in metabolic function. In fact, in many spinal cord and brain injured patients', nerve cells are not completely severed but remain intact. However, the nerve cells are 'non-functional' because of the massive swelling that ultimately results in progressive scar formation because of Oxygen deprivation. Studies have demonstrated by raising the amount of Oxygen efficiency into the damaged area scar formation is reduced, blood flow is improved and dormant, non-functional and damaged nerve cells can be reactivated. Obviously, the best outcome is to start with aggressive HBOT in the early stages of injury

- Reinstates normal lymphatic drainage creating a 'clearance' effect reducing chronic swelling which causes painful inflammation

- Many prescribed drugs, antibiotics and immune stimulating vitamins and amino acids require Oxygen and are in fact greatly enhanced with benefits of Hyperbaric tissue Oxygenation

- HBOT changes cellular metabolism by altering Oxygen deprivation towards Oxygen efficiency at a cellular level; changing the cellular substrate from an anaerobic metabolism (energy poor) into an aerobic metabolism (energy rich). This has a net clearance effect enabling the body at a cellular level to detoxify and reverse the radical accumulation of toxins that ultimately mutate into abnormal cells (including cancer cells)

- Significantly reduces the ability of chronic infections including bacterial, viral and cancer cells to replicate and proliferate. Chronic infections do not survive in a high Oxygenated environment

Back ground

Tarlov cysts are spinal nerve root lesions *filled with spinal fluid*. Tarlov cysts can be asymptomatic or cause a serious neurological disorder called Tarlov disease. A propensity for developing Tarlov cysts may be passed through the mother or father. A cyst will typically remain asymptomatic until the onset of the disease stage is initiated by an event such as an accident, heavy lifting, fall, or, hypothetically, another disease such as one of the many forms of Herpes, Chlamydia, Rickettsia, Mycoplasma and other opportunistic infections. Most often, however, the "trigger" is unknown.

The onset of symptoms may be gradual or sudden, mild or severe. The progression and severity of symptoms differs widely. Typically, Tarlov cysts in the disease stage cause symptoms in the distribution of the affected nerve root, initially pain, and, later, dysfunction. Without successful treatment, Tarlov disease may result in disability and require major lifestyle changes.

Tarlov cysts differ in structure. A cyst might incorporate nerve elements or be free of them. A cyst can be valved or non-valved. A valved cyst has a structure in its neck that makes it easier for cerebrospinal fluid (CSF) to enter the cyst than to leave it. In a non-valved cyst, CSF flows freely between the cyst and the dural tube. Patients often describes 'swelling that comes and goes'

Tarlov cysts are typically on posterior roots; anterior cysts are rare. Multiple Tarlov cysts are not uncommon. Although a large cyst can cause symptoms by pressing on an adjacent structure, symptoms may also be caused by hydrostatic forces of the cerebrospinal fluid. The pulsating spinal fluid exerts pressure on nerves in the cyst or cyst wall, thus causing the cyst to expand, stretching nerve elements and causing or increasing symptoms. Therefore, cysts even smaller than one centimeter can be highly symptomatic. Manipulation in contraindicated.

Common symptoms include sciatica and pain in the sacral area, and buttocks. The legs and feet may or may not be involved. Symptoms can be opposite-sided. Tarlov cysts can also cause pain and disorders in the organs of elimination and reproduction, hypoesthesia, paresthesia, and pain in the thigh from lack of blood supply (neurogenic claudication). The postures of sitting, standing, walking, and bending are typically painful, and reclining flat on the side is usually the only posture that offers relief. Pain from Tarlov cysts is similar to pain from herniated lumbar discs and some gynecological disorders.

Are Tarlov cysts a kind of cancer?
No. Symptomatic Tarlov cysts are morbid enlargements that continue to grow, which, according to some medical dictionaries, qualifies them to be classed as tumors. Although Tarlov cysts continue to grow, they do so, however, because of the pressure of spinal fluid within them, not through uncontrolled cell division as in the case of a neoplasm or cancer. Like cancer, Tarlov cysts can cause severe pain and damage distant organs such as the bladder and the brain by affecting the flow of cerebrospinal fluid and nerve energy. Therefore, although Tarlov disease is not a form of cancer, and although its progression is typically slow, Tarlov disease should be taken with great seriousness.

Can Tarlov disease cause death?
Tarlov disease must be taken with great seriousness, because Tarlov disease can advance to the stage of constant severe pain. If not successfully treated, a person in this stage of the disease can die from the stress of the suffering, from the pain medications (hepatitis), or from suicide.

What are the disability impacts of symptomatic Tarlov cysts?
Different Tarlov cyst sufferers respond differently to various postures and activities, and there is no typical onset or rate of progression of the disease. Most have difficulty sitting, but a very few can sit all day. Some are relieved by standing or walking, though the great majority are made worse. Some experience severe pain at onset, but the symptoms are mild at onset in other cases.

Many persons with Tarlov cysts report that they are able to exceed their usual postural or activity limits for a time, but they then "pay for it" by experiencing a delayed flare. For example, after exceeding their quota earlier in the day, they will later in the day experience pain that is so severe that, even with narcotic pain medication, they cannot sleep. Flares can last for days, weeks, and even months

A doctor might write, correctly, "The patient showed no sign of distress during the visit," and the patient will be denied disability benefits because of that statement, even though, in fact, the patient was afterward housebound and bedridden for several days or weeks, because the amount of sitting and walking involved in the doctor's visit exceeded his or her personal quota.

How to get a diagnosis?
MRI investigation is provides accurate identification however MRI machines vary. Typical MRI is 1.5 Tesla however the advanced 3.0 Tesla Functional BOLD (Blood Oxygen Level Dependency) give more accurate information identifying sites of tissue hypoxia.

What are the surgical options?
Surgery is NOT recommended due to bladder and bowel complications.

Do Tarlov cysts cause bladder problems?
Tarlov disease often leads to retention, chronic subacute urinary tract infection (UTI) and other bladder problems, including interstitial cystitis, with or without felt symptoms. Symptoms might be falsely ascribed to age, gender (in the case of women), or other causes, rather than to the Tarlov cyst.