

## Journal of Spine-Volume 6, Issue 4

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Rec Date: July 03, 2017; Acc Date: July 10, 2017; Pub Date: July 13, 2017

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### Editor's Note

Extending from the base of the skull to the coccyx, the spine plays an extremely important role as the central support of the skeleton and as a protective shield for the spinal cord. It is also very flexible and allows torque and rotation for power in throwing, running, and jumping from limbs attached to its axial construct. The Journal of spine publishes valuable articles on spine research. Articles in this issue presents some important research on technologies for spine decompression and repair.

Minimally Invasive approaches to the spine is an area of recent interest. Advancement mitigates the adverse effects of detaching, degenerating skeletal muscle and normal anatomy that does not have to be accepted to access the spine for decompression and repair.

The thoracic spine is an example where disc herniations are difficult to decompress without significant surgical morbidity. Disc compression can come with significant surgical morbidity. In a study, Chuanli et al. [1] have found out that, thoracic disc herniations, a relative rare disorder, can be decompressed safely with percutaneous minimally invasive decompression. The method is called percutaneous endoscopic thoracic decompression (PETD). With the help of 3-dimensional printing, where the individual's anatomy is reconstructed at the herniation level PETD can effectively decompress thoracic disc herniations. This is a highly accurate and method that adds to a growing number of percutaneous procedures under local anesthesia. This technique uses high resolution, mobile working channel endoscopic that helps the surgeon to reach the targeted area safely, efficiently, and easily.

In this Journal volume, the issue focuses on research for painful degenerative disorders of the lumbar spine. These new techniques have increased patient safety, surgical effectiveness, decreased operation time, loss of blood and hospital stay. It also allows early recovery. Al-Tamimi [2] made a comparative study, where the author compared Fenestration Discectomy and Hemilaminectomy and Discectomy. The postoperative outcomes were same but Fenestration Discectomy was observed as superior as the operation duration is less, patient had to stay in the hospital for a less duration and the overall recovery of the patient is better.

Lumbar disc prolapse may cause severe back pain as it affects the spinal nerves forming the sciatic nerve root. The patient may gradually develop symptoms of pain, numbness, and weakness. Lumbar discectomy is one of the more common operations for these symptoms. These studies could help the patient to undergo a safer and more efficient surgery. Swamy et al. [3], in their study, found that levels of disc prolapse at different levels of spine have no significant difference in functional outcome after discectomy. Patients having lumbar herniation at L2-L3, L3-L4, L4-L5 or L5-S1 levels were evaluated in the pre and post-operative stages. There were no significant differences in the functional outcomes. All the patients

showed similar end results. It was concluded from this study that, mechanical factors of disc herniation do not have any influence in the outcome of the patient recovery.

During spine surgery, it is preferable that the patient can respond and is within his or her conscious state. Therefore, experienced surgeons prefer local anesthesia rather than general anesthesia. Yeung et al. [4], found out that giving local anesthesia has many advantages compared to the general anesthesia. Local anesthesia allows the patient to stay in his conscious state and this enables the endoscopic surgeon to locate the targeted area where the pain is generated. Patient can respond and provide feedback during surgery, which gives more efficient and safer endoscopic spine surgery. If the level of sedation causes the patient to go into the unconscious state and risk in the operation increases. Conscious sedation, rather than general anesthesia also has an added benefit of early recovery from anesthesia post operation.

Some of the spine disorders are rare, and not generally suspected. Instead, many of his cases gets diagnosed while undergoing imaging evaluations for some other suspected disorders. In a case report Fonseca and Ratilal [5] reported that Spinal arachnoid cysts also known as arachnoid diverticula, are benign lesions present in the spinal axis, but can cause symptoms from spinal cord or nerve root compression. These types of cysts generally need a surgery but since these are rare and mostly asymptomatic, a thorough scan is recommended for diagnosis. In this case report, a 49-year-old woman had a progressive cervical pain and distal paraesthesia of the upper limbs with an intramedullary arachnoid cyst in the mid-cervical spine. It was diagnosed by magnetic resonance imaging (MRI).

Many of lumbar fusion surgeries, considered a "gold standard" by traditional surgeons are followed by an adverse consequence known as adjacent segment disease (ASD). It is a notable condition that may cause instability, listhesis, stenosis, herniated nucleus pulposus, scoliosis, hypertrophic facet arthritis, and vertebral compression fracture. It may cause back pain that gradual decrease in causes a decrease quality of life. Wohlfeld et al. [6], have observed that various spine surgical techniques are used to prevent or correct spine deterioration due to ASD. Posterior Lumbar Interbody Fusion (PLIF) using the VariLift L device helps in significant reduction of clinical symptoms. This technique helps in the decompression of the neural structures and helps in the restoration of lordosis and foraminal patency. It results in high fusion rate without supplement fixation.

Compared to the traditional spine surgical approaches, endoscopic spine surgery is effective as it allows minimal invasions and surgical visualization to target the pain source. Even though, the current surgical technologies are successful in correcting the deformations or the complications of spine disorders, there is a need for new surgical skills based on endoscopic documentation and visualization. Yeung [7], has reported that, endoscopic foraminal access will increase the

scope of minimally invasive surgery to the lumbar spine without affecting the dorsal muscle column. Upcoming technologies involving robotics are also expected to evolve the technology to the extent that spine surgery will be safer, decrease the length of the learning curve, and an exciting part of technology affecting and enhancing the cost effective and safety of surgical spine care, not just for hardware implantation, but for endoscopic spinal procedures.

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