

Degenerative Lumbar Scoliosis (De-Novo Scoliosis)

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The way an orthopedist may approach a degenerative spine may vary with the way he benefited from teaching during his training, but all of us will agree that we are dealing with two main types of adult scoliosis. An adolescent Scoliosis which is generally pre-existing to become known as an Adolescent Scoliosis in the adulthood (ASA) but there is also a new kind of scoliosis in the adulthood resulting from a spinal degeneration known as “Degenerative De-Novo Scoliosis” (DDS).

De-Novo Scoliosis comes as a consequence of spinal deformity and degeneration seen with age, generally after the 60’s but rarely seen before the age of 40, although in patients with no known history of scoliosis, it may become difficult to differentiate it from a degenerative idiopathic scoliosis. Nowadays, scientists believe that 40% of people over the age of 60’s may suffer from De-Novo Scoliosis.

The term “Degenerative Scoliosis” is defined as a lateral curvature of the spine, generally seen in adult patients due to degeneration of the discs and degenerative arthritis involving the facet joints. It is typically seen in the lumbar spine of the elderly patients. I chose to bring the light on this topic today, because most of my friends are presently in the age to develop such pathology and because also, more recently one of them was treated for extensive low back pain and discomfort but needed surgical treatment with hardware stabilization. He is recuperating well, but I would like to expose the way to approach a patient with a “de-Novo-Scoliosis”.



Degenerative Scoliosis has been called by many: “de-novo-scoliosis” or adult degenerative scoliosis because of the consequent lateral curvature that one with the pathology,

will develop in his/her adult life. More, on this condition, a degeneration of the discs is primordial while there is also an extensive facet joint degeneration, consequent of the instability of the spinal segments. (De-Novo-Scoliosis) The lumbar spine is typically involved with a loss of the lumbar lordosis and the patients may complain of low back pain and radicular symptoms to the legs. This is more common in patients older than 60 and especially in women.

Most forms of scoliosis are not usually associated to severe pain unless there is an association with an old trauma with fracture and subsequent deformity. De Novo Scoliosis is fundamentally a wear and tear of the spine which can also be related to osteoporosis, degenerative disc disease, compression fracture but often spinal stenosis.

De-Novo-Scoliosis is often determined while a patient is being evaluated for chronic low back pain. They may present with debilitating low back pain and/or radicular symptoms to the lower extremities. There may be a spinal imbalance as well as a constitutional deformity discovered during the physical examination or during a lumbar radiograph or other imaging studies. History and Physical may also determine any other condition which may have contributed to the scoliosis. In any way, the pain due to this adult scoliosis has no relation to the size of the curve of 25 degrees or even a 60 degrees deformation or the amount of pain and disability.

Clinical history may bring lights on any condition which have contributed to the development of the scoliosis. In any way, the pain due to the adult scoliosis has no relation to the size of the curve of 25 degrees to even 60 degrees. Many studies have not been able to demonstrate a relation between the spine deformity and the amount of pain and disability. A good examination to rule out scoliosis is certainly more effective.

Extensive pain is generally the symptom that brings a patient to seek for medical help in the office or the emergency room. Unfortunately, many of us still believe that Scoliosis does not cause pain after having routinely examined young children and young adult patients with idiopathic scoliosis not demonstrating any discomfort in spite of an excessive curve deformity. This has allowed many physicians to also look at Degenerative lumbar scoliosis (De Novo Scoliosis) like an adult scoliosis similar to the juvenile form of congenital scoliosis and they have neglected the proper investigations. Many studies have demonstrated that at least 40% of patients suffering from adult form of scoliosis (De-novo-scoliosis) are experiencing chronic low back pain and may benefit from specialized treatment/.

Sadly, many cases with adult scoliosis may not have been properly investigated for their low back pain because simply, the scoliotic component was diagnosed as the cause of pain. Such patients with experience significant low bac pain and stiffness while the spinal degeneration progresses and the intervertebral discs become narrower creating nerve compressions especially at the foraminae. They may also present with constant sciatica. Discomfort to the legs especially pins and needles or and even numbness in the legs. Facet joint hypertrophy and subsequent spinal stenosis will have patients experiencing heaviness in the legs, pain and difficulty in walking.

Pain and disability in adult scoliosis are not always associated with the size of the curve but more with the location of the curve. So, an individual with a single lumbar curve or a thoraco-lumbar curve tend to have more pain than the one who has a good postural balance or a well-balanced double curve. The bent-forward posture (head and chest in front of pelvis, is often the primary determinant of the severity of pain and symptoms. Finally, adults whose chest or head are tilted laterally may experience more pain than others who have a better alignment. Individual with Osteoporosis or degenerative disc disease or vertebral compression fractures or spinal stenosis are at higher risk for De-novo-scoliosis.

It appears that two components are able to explain the symptoms: a subtle deformity and a spinal stenosis. The individual who experiences pain due primarily to the spinal deformity, do not seem to have relief while bending forward or trying to reach the floor. In this position you should expect a widening of the canal and a subsequent decrease in pressure over the nerve roots. In an erect position, axial back pain can be dependent of lateral or rotational subluxation as well as a sagittal malalignment of the lumbar spine.

Any radicular symptoms of pain, may be associated to a central or lateral recess or a foraminal disc budging or a protrusion, with a subsequent marked stenosis. How should we treat the “de-novo-scoliosis” or degenerative lumbar scoliosis...? In order to offer an effective treatment, it is important to differentiate the symptoms related to a degenerative spine to symptoms related to the De-novo-scoliosis with its progression of deformity. This means that unless treatment addresses the postural alteration and the deformity, it will be difficult to obtain any improvement in the symptoms.

Treatment always starts with a conservative approach with anti-inflammatory medication, Gabapentin medication and physical therapy. Useless to say that a back rehabilitation with adequate medication will have to precede any surgical procedure. If symptoms persist, selective nerve root blocs can be also initiated but when the back pain and the radicular symptoms worsen, to a point the patient is unable to ambulate or develop intractable leg pain, such patient may become the first one to require a surgical treatment to relieve the symptoms.

De-novo-scoliosis, or adult degenerative scoliosis has to deal with the spinal deformity that can cause debilitating symptoms to the lower back pain and extremities. It's often discovered during an investigation into back pain and is more common in females and adults over 60. If surgical treatment is the last option, patient should be referred to a spine specialist who deals with spinal deformities.

Advances in non-surgical treatments have demonstrated improvement in pain while individuals are learning how to self-correct their abnormal posture, and added brace support to better the position and reduce pain and the quality of life. If conservative treatment fails to relieve pain especially when leg pain is incapacitating and impend on walking and daily living activities, Surgery may become necessary with a spine specialist able to deal with scoliosis. One will have to evaluate risks and benefits from the surgical treatment. A lot of controversies exist on the role of surgical treatment in this pathology. The level of fusion to provide relief and correct the spinal deformity, the kind of instrumentation remains critical factors to avoid creating more deformity. Such procedure is better done by a spine specialist, comfortable with the procedure.

One has to differentiate between the symptoms caused by the degeneration of the spine compared to the one causing the deformity itself and its progression. So unless the treatment addresses the postural alteration, the pain and symptoms will not improve. We have learned in the recent non-surgical treatment to alleviate pain for any patient with adult scoliosis starting with self-correction of an abnormal posture and stretching the lower back with subsequent custom-braces support to reduce pain.

In case of failure in the conservative treatment, a surgical approach is the last option especially when leg pain becomes incapacitating, impending on the ability to ambulate. At this stage, surgery is complex with significant risk requiring a skilled spinal surgeon.

An adult with De-novo-scoliosis and spinal stenosis often require a decompressive procedure in which the roof of the vertebral column at the affected area is removed to free the compressed nerve from the offending material (disc, bone... etc) prior to performing the fusion.



De-novo scoliosis is most commonly associated with chronic low back pain but in three-quarter of the cases will present there are neurological symptoms to the lower extremities. It looks often, like there is a segmental area of lateral listhesis with a poor prognostic factor with progression of sagittal and frontal deformity. One can understand why the rate of complications related to spinal surgery in patients with De-novo-scoliosis and a segmental listhesis is so high.

Conservative treatments are strongly recommended in the early stages, followed by a selective decompression, with short segments fusion with or without a long-instrumented reduction as indicated. A patient with a fixed deformity with

neurological pain and deficit may benefit from a selective decompression without a fusion but if there is significant back pain at early stages of the deformity, as a short segment fusion may become the treatment of choice. In advanced degenerative de novo scoliosis, a long-segment reposition and fusion with alignment correction will be required by a skilled surgeon. In spite of a meticulous approach, the rate of persistent back pain with or without deformities may persist.

I wrote this page to enlighten some of my friends especially Jeanco, who underwent surgical treatment for his De-Novo-Scoliosis. He is presently performing well in a rehabilitation program. I hope this will allow him to feel more comfortable and make him understand better that the deformity at his lower back has precipitated the surgical treatment. I wish also to my residents and fellows the will to pursue a Spine fellowship. For sure, all operative treatment in any De-novo-scoliosis which requires surgical treatment can be successful in experienced hands.

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