

Surgery In the Treatment of Lower Back Pain I

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LOWER BACK PAIN IS A VERY COMMON problem with up to 85% of adults being affected sometime in their life time.¹ Most patients who experience back pain will improve regardless of treatment but a small percentage go on to experience chronic or recurrent episodes of often incapacitating pain.

Surgery has proven to be successful in the treatment of some spinal problems that have been unresponsive to non-surgical treatment. These include sciatica secondary to herniated disc and spinal stenosis. In addition, cases of instability secondary to trauma, infection or cancer have responded well to surgical intervention. There is a group of patients, generally in the 30 to 50 age group who do not carry the aforementioned diagnosis and who will experience chronic recurrent episodes of incapacitating back pain. They often try a myriad of non-surgical treatments without success. Their daily activities are often dictated by their pain. These individuals typically will describe pain across the lower back without leg pain. Their exam shows limited and painful range of motion without neurologic deficit. Routine diagnostic tests including x-rays, CAT scans and even MRI may best show some degeneration within the disc and adjacent facet joints.

Before surgery can be discussed as a treatment option for those without herniated disc or stenosis the source or etiology of their pain must be determined. Over the years numerous structures including sacroiliac joints, intervertebral discs, facet joints, ligaments and muscles have been described as being a source of low back pain. Routine diagnostic studies including x-rays, CAT scan and MRI may appear similar in symptomatic and asymptomatic patients and often do not show significant structural abnormality.² These findings have led MRI studies with greater sensitivity in addition to the development of diagnostic studies that involve injections to either provoke or eliminate pain temporarily in attempt to find the pain-generator structure. These tests do carry a relatively high false positive rate and this must be kept in mind in

attempting to decide the role of surgical intervention.

Indication for surgery in the treatment of low back pain remains controversial.³ However, it appears that there is a small group of individuals who present with chronic or recurrent episodes of pain who fail a minimum of six months of non-surgical treatment who may be candidates for surgical intervention. These individuals will have diagnostic studies that show degenerative changes within the disc and have positive injection studies. In addition, they are not involved in litigation, have no recognizable secondary gain and have a normal psychological profile.⁴

Treatment of low back pain without clear cut structural abnormality remains difficult. Most of these patients will respond to non-surgical modalities but a small group of patients will continue to have disabling back pain affecting their day to day activities.

There are two options regarding surgical treatment. The first being an arthrodesis or fusion and the other being a type of motion sparing procedure. If pain is discogenic in origin it would appear that removal of the disc will eliminate the pain-generator. Unfortunately if one does a complete disc removal, an unstable segment develops, necessitating stabilization or fusion. Fusion may be performed through an anterior or posterior approach.

At times a combined or 360° fusion is recommended.

Numerous studies have been conducted assessing fusion rates and patient satisfaction.⁵ The goal of surgery is to bring about a solid arthrodesis. Patient satisfaction and pain relief does not correlate with a successful fusion. Analysis studies looking at patient satisfaction regarding fusion averages about 68% with fusion rates averaging in the 85 to 90% rate. One of the complications related to spinal fusion is that of adjacent segment disease.⁶ Up to 25% of individuals who undergo a fusion may develop degenerative changes at adjacent levels. A certain percentage of these individuals may become symptomatic enough to warrant further surgical intervention. As a result of these findings motion-sparing technology has evolved. These include flexible polymer rods, nucleus pulposus replacement with injection of disc biochemical polymer compounds and total disc replacement. At this time only total disc replacement is FDA approved.⁷

At first glance total disc replacement seems like an ideal treatment for discogenic back pain. However, results following disc replacement do not appear to be any better than spinal fusion. The long term results are still pending.

Treatment of low back pain without clear cut structural abnormality remains difficult. Most of these patients will respond to non-surgical modalities but a small group of patients will continue to have disabling back pain affecting their day to day activities.

In this group it is imperative to carry out a thorough history and examination in attempt to localize the etiology or pain-generator. If this can be attained a small group of patients can expect a successful outcome with surgical intervention. Fusion appears to still be the gold standard with total disc replacement alternative and possibly the treatment of choice in the future.⁸

Ultimately our goal in the treatment of recurrent or chronic back pain would be to have a minimally invasive method of eliminating the pain-generator allow-

ing these patients to live an active lifestyle without incapacitating pain.

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