Understanding Common Spinal Diseases and Their Symptoms

The spine serves as the central support structure for the human body, providing stability, flexibility, and protection to the delicate spinal cord. Unfortunately, various spinal diseases can compromise the health and function of this crucial system. Understanding these diseases and their symptoms is essential for early detection, proper diagnosis, and effective management. In this article, we will explore some common spinal diseases and delve into the symptoms that can help identify them.

1. Herniated Disc

A herniated disc, also known as a slipped or ruptured disc, occurs when the soft inner core of a vertebral disc protrudes through the tough outer layer. This condition often results from aging, injury, or wear and tear on the spine. Symptoms of a herniated disc may include:

Pain: Depending on the location of the herniation, pain can be localized in the neck, back, or radiate down the arms or legs.

Numbness and Tingling: Pressure on spinal nerves can lead to sensations of numbness, tingling, or a pins-and-needles feeling in the affected areas.

Muscle Weakness: Weakened muscles and difficulty with coordination may occur due to nerve compression.

2. Degenerative Disc Disease

Degenerative disc disease is a natural part of aging where the spinal discs gradually lose their flexibility, shock-absorbing properties, and water content. Common symptoms of degenerative disc disease include:

Pain: Chronic pain in the back or neck, which can become more intense during movement or after prolonged periods of sitting or standing.

Stiffness: Reduced flexibility and range of motion in the spine can lead to stiffness.

Pain Radiation: Pain may radiate to the extremities due to nerve compression.

3. Scoliosis

Scoliosis is a condition characterized by an abnormal curvature of the spine, Symptoms of scoliosis include:

Uneven Shoulders or Hips: One shoulder or hip may appear higher than the other.

Visible Curvature: The spine's curvature might be noticeable when standing upright.

Back Pain: In some cases, scoliosis can lead to back pain, particularly if the curvature is severe.

4. Spinal Stenosis

Spinal stenosis is the narrowing of the spinal canal, which can put pressure on the spinal cord and nerves. Symptoms may include:

Pain: Chronic pain in the back or neck that may extend to the arms, legs, or buttocks.

Numbness and Weakness: Nerves being compressed can result in numbness, weakness, or difficulty walking.

Aggravation with Activity: Symptoms often worsen with certain activities that involve standing or walking.

5. Ankylosing Spondylitis

Ankylosing spondylitis is a type of inflammatory arthritis that primarily affects the spine. Symptoms typically emerge in early adulthood and may include:

Stiffness: Gradual onset of stiffness and pain, especially in the lower back and hips, which tends to improve with movement.

Pain: Chronic pain in the spine and pelvis that can vary in intensity.

Reduced Flexibility: Over time, the inflammation can lead to reduced flexibility and even fusion of spinal joints.

Awareness of the symptoms associated with various spinal diseases is vital for prompt diagnosis and appropriate treatment. If you or someone you know is experiencing persistent back or neck pain,

numbness, weakness, or other concerning symptoms, seeking medical evaluation and advice is essential. Early intervention can lead to better management of spinal diseases and improved quality of life.

Robotic Spine Surgery

Robotic spine surgery is a surgical procedure performed in the world's leading surgical centers with modern medical technologies. Robotic surgery, usually occurring in the back and waist parts of the spine; It is applied in the treatment of spinal disorders such as kyphosis, scoliosis, canal stenosis, lumbar slip and lumbar hernia surgery. Robotic systems, which enable spine surgeries to be performed with high precision and accuracy, minimize the risks that may occur in the treatment of spinal diseases.

The most important advantage of spine surgeries performed with the robotic system is that the surgical procedure is performed with small incisions and that screws are placed on the vertebrae with high accuracy and precision. The most accurate placement of screws and other implants greatly reduces the most feared risks of spinal surgery, such as vascular-nerve injury and paralysis. Thus, it provides a safer and more successful surgical experience for both patients and surgeons. With all these features, robotic technologies are starting a new era in spine surgery.

What is Robotic Spine Surgery?

Robotic spine surgery; It is a minimally invasive surgical procedure that guides the doctor in all sensitive processes from the planning of the surgery to the placement of the implants in the most appropriate position and angle to the spine. Implants such as pedicle screw, rod and cage; It is used in the surgical treatment of various physical disorders such as slipped back, multilevel herniated disc, canal stenosis, scoliosis. This type of spinal implants; It is used for different purposes such as fixing the vertebrae together, correcting the structural defects and curves in the spine, maintaining the gap between the two vertebrae, keeping the vertebrae together and immobilizing a part of the spine.

In order for the results of spine surgery to be successful; It is important that the implants are placed in the spine in the most accurate way in 3D. In order for this process to be planned in 3D and applied in accordance with the plan, extremely precise technical measurements must be made.

With the latest generation MAZOR robot, which we use in robotic spine surgery, special planning is made for the spine structure of each patient before or during the operation. Thus, the screws placed in the spine; it becomes possible to determine the position, angle and dimensions. The robotic system guides the surgeon during the placement of screws into the spine in accordance with the plan with

smaller incisions, without the need for large incisions, and prevents deviations from going out of plan and possible deviations.

The most accurate placement of screws and other implants reduces the most feared risks of spinal surgery such as vascular-nerve injury and paralysis. Thus, more successful results are obtained by performing technically more sensitive and safer surgical procedures.

Robotic Surgery in the Treatment of Spinal Diseases

The state-of-the-art MAZOR robotic system, the spine; It is used in the surgical treatment of problems in different regions such as the back, waist, sacrum and sacroiliac joint. Some of the spinal diseases in which robotic spine surgery is applied are as follows:

- Canal Stenosis (Spinal Stenosis),
- Lumbar Slip (Spondylolisthesis),
- Scoliosis,
- Kyphosis (Humpback),
- Herniated disc,
- Spine Fractures,

Surgery is not always the first choice in the treatment of structural or painful conditions, except for patients with severe neurological dysfunction such as emergency fractures of the spine, weakness in the legs, and urinary incontinence. First of all, non-surgical methods; drug therapy, corset, physical therapy, exercise and spinal injections should be applied. However, surgical treatment is recommended for patients whose complaints do not resolve despite regular treatments. Delay in surgical treatment in spinal diseases can lead to serious problems in patients.

Advantages of Robotic Spine Surgery

In robotic spine surgery screw placement; It has many advantages such as high accuracy, less blood loss and low risk of complications. The advantages of the new generation robotic system MAZOR in spine surgery are as follows:

1. High accuracy: In robotic spine surgery, 99.5% and above accuracy is provided in the placement of pedicle screws or other implants into the spine.
2. Short and fast recovery time: Robotic spine surgery; It enables patients to recover faster and easier even in the most complex spine surgeries. Studies show that patients with robotic spine surgery have shorter hospital stays and a faster recovery process.
3. Less radiation: In robotic spine surgery, patients and healthcare professionals are less exposed to radiation. Especially with the use of the O-Arm device during the surgery, the amount of radiation exposure of the patients is further reduced.
4. Minimally invasive surgical procedure: Small surgical incisions are applied in surgeries performed with the robotic spine surgery system MAZOR. In this way, in surgery; it provides less bleeding and less scarring and rapid recovery after surgery.
5. Shortening of the operation time: In the operations performed with the robotic spine surgery system MAZOR, the time of placing screws in the vertebrae is shortened. In traditional spine surgery, the placement time of a screw is 6-7 minutes on average; In robotic spine surgery, this time is approximately 2 minutes.
6. Surgery planning: Special surgery planning is made for each patient's own spine shape and anatomy.
7. Post-operative pain: After the surgery performed with the robotic spine surgery system, the patients have less pain during the recovery period. During this period, patients experience an easy recovery process by moving more comfortably.
8. Risk of infection: Compared to traditional spine surgeries, the risk of infection in patients after surgery with the robotic spine surgery system MAZOR is lower.
9. Revision surgery: Since robotic spine surgeries are performed with high accuracy, the need for a re-operation called revision surgery is reduced.
10. Risk of complications: MAZOR, the robotic spine surgery system, contributes to the reduction of the risk of muscle weakness or paralysis due to spinal cord or nerve injury, as it enables screw placement to be performed with high accuracy.

Why Is High Accuracy Important in Pedicle Screw Placement?

Accuracy is critical in robotic spine surgeries for two main reasons. The first is an incorrectly inserted screw even a few millimeters; It can cause ongoing back pain, slower healing, and repeat surgery. In addition, incorrect placement of pedicle screws into the spine; It can cause damage to the screw by causing excessive load on the screw.

The second reason is; spine surgeries are performed in close proximity to sensitive nerve structures and spinal cord. The placement of screws placed in the spine in such a way as to cause damage to the spinal cord can lead to paralysis and nerve damage. Depending on the screw size not being adjusted; If the

screws move too far towards the inside, it causes injuries to the internal organs. Robotic spine surgery provides extremely precise screw placement in the spine. The spine is located very close to sensitive structures such as nerve structures, spinal cord and major blood vessels.

How is Robotic Spine Surgery Performed?

In robotic spine surgery, as in traditional spine surgeries, pedicle screws, rods or cage type implants are placed between the two vertebrae. In surgeries performed with MAZOR, the robotic system used in spine surgery; These operations are planned with extremely precise and detailed calculations. In addition, the operations performed by the surgeon during the operation; simultaneous and 3-dimensional follow-up ensures that the surgery is performed with accuracy in accordance with the plan.

In robotic spine surgery; CT (Computerized Tomography) images of the patients before the surgery or X-ray images obtained from the O-Arm device during the surgery are transferred to the MAZOR robot computer. Then, a special 3D surgery plan is created for each patient on the screen; pedicle screws; position, angle and dimensions are determined. Thus, it is ensured that the surgeon foresees the problems that may occur during the operation and that the operation is performed with less incisions.

In this process, the surgeon; It places the determined trajectory, screw size and angle in real time and in 3D. Spine surgeries performed using the robotic spine surgery system MAZOR are performed faster and with higher accuracy. Thus, complications that may occur during or after surgery are significantly reduced. Robotic spine surgeries; It is performed in three different ways as closed, minimally invasive and open.

In spinal surgeries performed with the closed method (endoscopic spine surgery), screw placement is not performed on the spine. However, robotic systems can be used when entering the spine during surgery. In robotic spine surgery performed with a minimally invasive method, 1 cm incisions are made in the areas where pedicle screws will be placed, and operations are performed with minimal incisions.

When Should Robotic Spinal Cord Surgery Be Considered?

Before deciding on robotic spine surgery; physical therapy, exercise, corset, drug therapy and spinal injection treatments can be applied. However, despite all treatments; If you have pain that complicates your daily life, numbness in the legs and conditions that affect your social life, surgery should be considered. Developing due to spinal disorders; In severe symptoms such as weakness in the legs, bowel and bladder control, patients should undergo emergency surgery.

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The fact that patients have knowledge about spine surgery helps to reduce their worries about surgery. It is also effective in managing the pre- and post-operative process in the best way. For this reason, patients who will have spine surgery; It is important for them to get information about robotic spine surgery by researching surgical options, methods and technologies to be used.

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**For more information about MAZOR X Robotic Spine Systems:

http://bitly.ws/SNKu

Patient Testimonials:

http://bitly.ws/SNTb