

Spine Clinics

Ankylosing Spondylitis

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Welcome

Welcome to our July issue. This month, we would like to highlight a complication of a common spinal problem. Ankylosing Spondylitis is a chronic inflammatory condition of the entire spine and results in stiffening and bony union of the vertebrae. Extra care must be afforded to these spine as they are prone to fracture as is illustrated in this patient.

Ankylosing Spondylitis

Case Study

Mr O, an elderly man, was recently admitted for severe low back pain of two months duration. He had chronic low back pain on an off for many years. His pain this time was of such severity that he was able to sit for only a short while. He could barely walk a few meters. Neurological examination was normal. X-ray of his lumbar spine revealed the feature of "bamboo spine" typical of ankylosing spondylosis. There was a fracture through the ossified L5-S1 disc space which was widely opened. Flexion, extension x-ray showed there was considerable instability at the L5-S1 segment.

Mr O underwent a two stage surgery. The 1st stage was posterior L4 to S1 pedicle screw instrumentation. The 2nd stage anterior L5-S1 strut grafting with titanium mesh and fibular allografts was performed 5 days later. Post surgery, Mr O was relieved of his pain and was ambulating.

Pathology of Ankylosing Spondylitis

The basic pathology of ankylosing spondylitis is inflammation followed by ossification of ligaments surrounding the spinal column. The process usually begins in the sacroiliac joint causing sacroiliitis which shows on x-ray as fizziness of sacroiliac joint. The process extends up the spine to a variable extend. At times the whole spine may be involved resulting in a completely rigid spine. The ossification of the spinal ligaments result in



X-ray show feature of ankylosing spondylitis and fracture through I5-S1 ossified disc space resulting in widely opened I5-S1 disc space

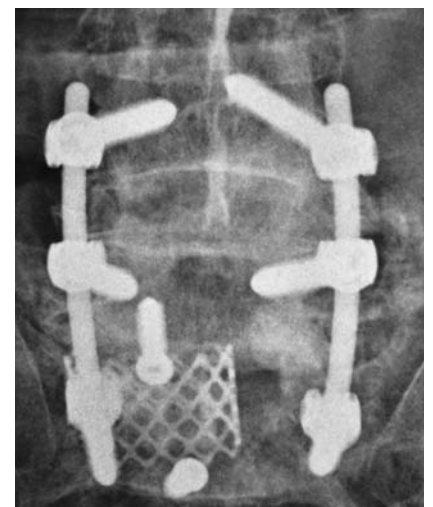
bone bridges across the adjacent vertebrae giving rise to the classical description of bamboo spine noted in the spinal x-ray. The ligaments surrounding the hip joints may at time also become ossified resulting in totally stiff hips. When this occurs, patient becomes severely disabled because he will not even be able to sit upright.

Complications

- A. Spinal Fragility :** The rigid, immobilized vertebrae are shielded from stresses associated with spine motion and hence they become osteoporotic. A rigid osteoporotic spine is prone to fracture, much like a dry stick is prone to breakage.
- B. Difficult Fracture Healing :** If spinal fracture occurs, the bone displacement at the fracture site tends to be severe as all spine motions are concentrated at the fracture site. The excessive motion at the fracture site results in poor fracture healing. Hence the fracture in an ankylosed spine has to be treated with very rigid surgical stabilization. This usually involves two stages anterior and posterior stabilization.
- C. Severe Kyphosis :** Severe kyphotic deformity can result from poor fracture healing due to excessive motion at the fracture site. There is also increased vertebral destruction due to excessive motion. The fracture may eventually heal in such severely kyphotic position that the sufferer can only look at the ground and is unable to look up when he walks. Such a situation requires a very complicated corrective spinal surgery in order to enable the patient to look level ahead.

Diagnosis and Management

The diagnosis of ankylosing spondylitis is based on the clinical history of back pain and spine stiffness, x-ray features of sacroilitis and bamboo spine and laboratory test of positive HLAB27. Males are much more frequently affected than females. In the past, the mainstay of medical treatment is non-steroidal and anti-inflammatory analgesia. There have been many new medications now available for the treatment of ankylosing spondylitis. This is not the subject of my discussion in this article. It is also important that the patients should be actively stretching the spines so as to maintain the maximal mobility.



Two stage posterior followed by anterior surgeries were performed to stabilize the fracture

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Summary

Ankylosing spondylitis is not an uncommon inflammatory condition of the spine resulting in back pain and severe spinal stiffness. The affected spine is prone to osteoporosis and fractures easily and it heals poorly. The fractured ankylosing spine should be stabilized vigorously to ensure stability and optimize healing. Early diagnosis is important as the disease can be controlled with medications.

Orthopaedics International, Neurosurgery International and Sports Medicine International are a group of registered specialist practices comprising 8 orthopaedic surgeons, a neurosurgeon and a sports physician. Operating out of 4 locations within Singapore, we aim to provide patients with comprehensive and professional care for all musculoskeletal, neurosurgical and sports-related conditions. Each specialist brings a range of expertise and sub-specializations to the group, and is also a senior doctor with a minimum of 20 to 30 years of relevant clinical experience behind him. We strongly believe in a team approach, so that every patient of ours will be treated with the highest standards of expertise and care that are available.

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