Ankylosing spondylitis

Ankylosing spondylitis (AS) is a type of arthritis in which there is long term inflammation of the joints of the spine.

Typically the joints where the spine joins the pelvis are also affected.

Occasionally other joints such as the shoulders or hips are involved.

Etiology

Although the cause of ankylosing spondylitis is unknown, it is believed to involve a combination of genetic and environmental factors.

More than 90% of those affected have a specific human leukocyte antigen known as the HLA-B27 antigen. The underlying mechanism is believed to be autoimmune or autoinflammatory.

Clinical features

Eye and bowel problems may also occur.

Back pain is a characteristic symptom of AS, and it often comes and goes.

Stiffness of the affected joints generally worsens over time.

Diagnosis is typically based on the symptoms with support from medical imaging and blood tests.

Diagnosis

Ankylosing spondylitis diagnosis.

Differential diagnosis

1. early on, AS may resemble rheumatoid arthritis. However, in AS nodules do not form in joints, and rheumatoid factor is absent in the serum

2. metastatic prostate Ca in elderly male patients with sacroiliac pain and blastic changes compatible with sacroiliitis

3. Forestier’s disease and DISH: these overlapping conditions produce exuberant bony overgrowth anterior and lateral to the disc without degeneration and ossification of the disc as in AS. Both spare the facets and SI joints, do not produce flexion deformity, and tend to occur in men > 50 yrs old (older than typical AS)

4. psoriasis, reactive arthritis (Reiter's syndrome), enteropathic (IBD-related) arthritis: the spondylitis with these tends to be milder and less uniform, and SI joint involvement is asymmetrical. Cutaneous findings (erythema nodosum, and pyoderma gangrenosum) are absent in AS.

Complications

Ankylosing spondylitis complications.

Treatment

For patients with ankylosing spondylitis and subaxial cervical spine fractures or dislocations, when surgical stabilization is required, posterior long-segment instrumentation and fusion or a combined anterior/posterior procedure (360° fusion). Anterior stand-alone instrumentation and fusion procedures are associated with a failure rate of up to 50% in these patients [1].

Case series

Twelve thousand nine hundred eighty-eight patients with a diagnosis of AS and 64940 age- and sex-stratified matching subjects without AS were enrolled in the AS and control groups. Incidence probabilities of 6 years congestive heart failure and death in each group were calculated. The Cox proportional hazard regression analysis was used to estimate the hazard ratio. We divided the AS and control groups into subgroups according to sex, age, income, and comorbidities.

During the follow-up period, 102 patients (0.79%) in the AS group and 201 patients (0.32%) in the control group developed congestive heart failure ($p<0.0001$). In addition, 211 (1.62%) subjects in the AS group died during the follow-up period compared to 639 (0.98%) subjects in the control group ($p<0.0001$). The adjusted hazard ratio of congestive heart failure and death in the AS group was 2.28 (95% confidence interval [CI], 1.80-2.89) and 1.66 (95% CI, 1.42-1.95), respectively. The hazard ratios of congestive heart failure and death were significantly increased in all of the subgroups.

The incidence rates of congestive heart failure and death were increased in AS patients [2].

To evaluate surgical outcomes and complications of cervical spine fractures in ankylosing spondylitis (CAS) patients who were treated using either the posterior (P) or combined approach (C).

A single institution database was reviewed for data in the period 1999 to 2015. All CAS patients who underwent posterior or combined instrumented fusion were enrolled. We analyzed demographic data, radiographic results, perioperative complications, and postoperative results.

Thirty-three patients were enrolled (23 in the P group, 10 in the C group). All patients presented with neck pain after a fall. In the P group, mean operative time was 161.1 minutes (100-327 minutes), and mean estimated blood loss (EBL) was 306.4 mL (50-750 mL). In the C group, 90% of patients underwent a staged procedure, typically with posterior surgery first. Mean EBL was 124 mL (25-337 mL). For posterior surgery, mean EBL was 458.3 mL (400-550 mL). EBL of posterior surgery in the C

group was higher but this difference was not significant (p=0.16). Postoperative complication rate was higher in the C group but this difference was not significant (50% vs. 17.4%, p=0.09). In the follow-up period, no late reoperations were performed. Patients who underwent C surgery had a higher rate of neurological improvement but this difference was not significant (p=0.57).

Both P and C provided good clinical results. P surgery had lower EBL, lower postoperative complication rate, and shorter length of stay than C surgery; none of these differences were statistically significant [3].

Data of 45 male patients who had been surgically treated for AS-induced kyphosis were retrospectively reviewed. Changes in sexual activity were evaluated by the international index of erectile function (IIEF), frequency of sexual activity, and time point at which sexual activity began postoperatively. We compared the above-mentioned parameters before and 24 months postoperatively and analyzed the correlation of the changes in the IIEF with the changes in radiological characteristics.

Each domain of the IIEF and the total IIEF were increased postoperatively. Improved sexual function was correlated with changes in spinal sagittal characteristics, among which lumbar lordosis (LL) and the chin-brow vertical angle (CBVA) were the most significant causes ($P<0.05$). Most patients (71.1%) resumed their sexual activity 5 to 12 weeks after surgery. At the 24-month follow-up, the frequency of patients' sexual activity was higher than that before surgery ($P<0.05$).

Surgical correction of spinal deformity may improve sexual function and increase the frequency of sexual activity in men with AS. Spinal sagittal realignment and pelvic rotation may be correlated with improvement of sexual function [4].

Case reports

A 66 year old man fell backwards from the first rung of a ladder sustaining a cervical transverse process fracture of C6 vertebral body and a new diagnosis of ankylosing spondylitis. He was taken for surgical fixation, however his oesophagus was discovered entrapped within the fracture at the time of surgery. Despite the severity of the injury, with surgical reduction, fixation and oesophageal exclusion this patient made a full recovery.

This case demonstrates the severity of injury after minor trauma in the context of ankylosing spondylitis, the capacity for full recovery in oesophageal perforations in spinal trauma, and that clinical suspicion of such injuries allows early diagnosis, treatment and reduced complications [5].

A 60-year-old man with recent AS diagnosis and atrial fibrillation on warfarin presented with 96 h of low back pain and 24 h of leg weakness and urinary retention. CT imaging revealed a bamboo spine and fracture of the posterior elements at L4, while MR revealed a hematoma with thecal sac compression. The warfarin was reversed and the patient taken to the operating room; on laminectomy, however, no hematoma was encountered. The patient then underwent intraoperative ultrasound, durotomy, and evacuation of a thick subdural hematoma, followed by posterior fusion.

This case represents the first report of an AS patient who developed a subdural hematoma requiring

evacuation. Although rare, the clinician should maintain a broad differential and be familiar with this unique pathology, particularly in high-risk patients, such as those with suspected fractures or on warfarin. In patients with back pain and myelopathic symptoms, rapid diagnosis followed by prompt evacuation allows for the best opportunity for neurologic recovery [6].

References

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