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DISH and Stenosis

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Diffuse idiopathic skeletal hyperostosis (DISH) is a degenerative disorder of unknown etiology that frequently occurs in patients over 60. The distinguishing characteristic of this disorder is the presence of excessive ligamentous calcification and ossification of ligaments in the spine and extraspinal locations (Figure 1). For those of you who graduated when I did or before, this disorder was often inaccurately called Forrester's disease. It was initially thought this disorder may be a type of ankylosing spondylitis (AS) which it is not, and the two should not be confused as their etiologies are entirely different.

DISH has strict diagnostic criteria which distinguishes it from degenerative disc and joint disease and ankylosing spondylitis. The following criteria have been established: 1) flowing calcifications and ossifications along the anterolateral aspect of at least four contiguous vertebral bodies with or without osteophytes; 2) preservation of disc height in the involved areas and an absence of excessive disc disease; 3) absence of bony ankylosis of facet joints and absence of sacroiliac erosion, sclerosis, or bony fusion, however narrowing and sclerosis of facet joints are acceptable.

DISH occurs most commonly in the thoracic spine (97% of cases). It presents as laminated calcification and ossification along the anterolateral aspect of the vertebral bodies, continuing across the intervertebral disc spaces, which are relatively preserved. Ossification may extend to involve both the right and left lateral aspects of the vertebral column, but is more common and exuberant on the right side, presumably due to the inhibiting effect on ossification by a left sided, pulsating descending thoracic aorta.

Lumbar spine abnormalities in DISH are almost as frequent as thoracic spine abnormalities. Lumbar spine changes include hyperostosis along the anterior aspect of the vertebral bodies. With progression, cloud-like increased bone density and pointed body excrescences develop. Additional findings that can occur are close apposition of spinous processes or ossification of interspinous ligaments, mild to moderate disc space narrowing, and apophyseal joint space narrowing and sclerosis. Due to the ossification of the calcification

and ossification of ligaments which can include the joint capsule, foraminal and central stenosis can occur at any spinal level.

In the cervical spine, bony prominence may become so extensive that a thick bony plate is formed anteriorly and may cause dysphagia. Alterations can occur on the posterior aspect of vertebral bodies, most often in the cervical spine. These radiographic features include osteosclerosis of the posterior vertebral margin, posterior vertebral osteophytosis, and calcification or ossification of the posterior longitudinal ligament. Cervical myelopathy and cord compression has been associated with patients demonstrating bony proliferation along the posterior aspect of the vertebral bodies.

Extraspinal manifestations of DISH are not uncommon and may even be present in absence of significant spinal changes. These extraspinal changes consist of hyperostosis at sites of tendon and ligament attachment to bone, para-articular osteophytes, and ligament ossification. Generally in the peripheral skeleton, periosteal spurs arising at the site of osseous attachment of the tendon are more prominent than true calcification of the tendon itself. These ossifications extend into the fibers of the tendon, particularly the Achilles' tendon and plantar aponeurosis, triceps, and quadriceps tendons.

In my experience a majority of patients with DISH have clinical symptoms which include: stiffness, restricted motion, and tendinitis. The discomfort is intermittent and nonradiating, stiffness occurs most often in the morning upon arising and dissipates within an hour of mild activity. The discomfort can return in the late evening and become aggravated by sitting or cold, wet weather. These complaints are initially apparent in the thoracolumbar spine. Several years after the initial onset of symptoms, stiffness and pain can progress to involve other areas of the spine, including the extremities. The disorder can progress to the point of causing significant neurologic involvement, however the radiographic changes should also indicate probable stenosis. These patients generally respond well to chiropractic treatment, (with the exception of patients with significant spinal stenosis), but they require care on a continuing basis due to the chronicity of the symptoms.

Other diseases can also be present along with DISH, we are allowed unfortunately, to have more than one disorder at a time. The most common disorders are spondylosis deformans and rheumatoid arthritis.

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