

Diffuse idiopathic skeletal hyperostosis

Synonym: Forestier's disease

What is diffuse idiopathic skeletal hyperostosis?

Diffuse idiopathic skeletal hyperostosis (DISH) is a systemic bone-forming condition characterised by the presence of at least three bony bridges at the anterolateral spine. Ossification at the location of entheses in the peripheral skeleton may also be present, eg, shoulders, elbows, wrists, pelvis, hips, knees, and ankles. ^[1]

Calcification of the longitudinal ligaments (particularly anterior) can often produce the radiological appearance of 'wax dripping from a candle', distinct from the vertebral bodies. The thoracic spine is mainly affected but it can also affect the lumbar and cervical spine, and other areas of the skeleton. The cause is unknown.

How common is diffuse idiopathic skeletal hyperostosis? (Epidemiology) ^[1]

- The prevalence of DISH is reported between 2.9% and 42.0% depending on the classification criteria used, and the presence of risk factors in the studied population.
- The presence of DISH has been associated with older age, male sex, obesity, hypertension, atherosclerosis, and diabetes mellitus.
- Most often, it affects the thoracic spine, especially on the right side. ^[2]

Symptoms of diffuse idiopathic skeletal hyperostosis (presentation)^{[1] [3] [4]}

- Clinical features vary from monoarticular synovitis to dysphagia and even airway obstruction.^[5]
- Is often asymptomatic and discovered by chance on X-rays or CT/MRI scans.
- Symptoms may include pain, stiffness and restricted movements of the affected areas.
- Osteophytes may rarely cause symptoms by mechanical compression or by causing an inflammatory reaction. When an upper segment of the cervical spine is involved, particular at the C3-C4 level, the larynx may be affected. This could be result of hoarseness, stridor, laryngeal stenosis and obstruction.^[6]
- Sometimes vocal fold paralysis may result from injury to the recurrent laryngeal nerve.^[6]

Investigations^{[1] [3]}

- X-rays:
 - Characteristic appearance of 'wax dripping from a candle', distinct from the vertebral bodies.
 - Thoracic vertebrae are involved in 100%, lumbar in 68–90%, and cervical in 65–78% of affected individuals.
- CT and MRI scans are better at detecting associated findings (eg, ossification of the posterior longitudinal ligament of the cervical spine) and complications (eg, spinal cord compressive myelomalacia).

Associated diseases^[7]

- DISH often co-exists with [osteoarthritis](#).
- Associated comorbidities include [obesity](#), [hypertension](#), [diabetes mellitus](#), [hyperinsulinaemia](#), [dyslipidaemia](#), and [hyperuricaemia](#).^[5]

Management of diffuse idiopathic skeletal hyperostosis^[3] ^[4] ^[8]

- Non-steroidal anti-inflammatory drugs (NSAIDs) are prescribed for symptomatic relief.
- Physiotherapy has been used to good effect.
- Ossification around hip and knee joints may require arthroplastic surgery.
- Upper respiratory problems may require initial stabilisation of the airway with tracheostomy, followed by osteophysectomy, which is usually effective.^[6]

Complications of diffuse idiopathic skeletal hyperostosis^[3] ^[4]

- Compression of nerve roots may cause myelopathy.
- Overgrowth of ligamentous calcification may rarely impinge on other structures – eg, the oesophagus. Dysphagia should be treated conservatively, surgical management being reserved for severe and recalcitrant cases.
- Occasionally, osteophytic formation in the cervical vertebrae causes cervical compression symptoms.
- Thoracic spine osteophytes have on rare occasions been found to compress a bronchus, the larynx and trachea, and the inferior vena cava.
- Reduced vertebral column flexibility predisposes to vertebral fracture.

Prognosis^[3]

Life expectancy is usually not affected in any adverse way, unless there are complications and associated joint or soft tissue problems.

Further reading

- [Luo TD, Varacallo M](#); Diffuse Idiopathic Skeletal Hyperostosis. StatPearls, Sept 2022.

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<p>Last updated by: Dr Colin Tidy, MRCP 13/06/2023</p>	
<p>Peer reviewed by: Dr Hayley Willacy, FRCGP 13/06/2023</p>	<p>Next review date: 12/06/2028</p>

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