



Epidural Gas Pseudocyst: An Uncommon Cause of Sciatica

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Vacuum phenomenon (also called Knutsson's sign) is a well-described radiological sign of intervertebral disc degeneration. It was initially presumed that following fissuring in the degenerated disc substance, a vacuum would develop when the walls of the fissure cavity gaped,¹ which would appear lucent on plain radiographs. However, it is now accepted that this radiological appearance is due to the accumulation of gas (mainly nitrogen) in the disc space. It is speculated that the development of negative pressure within the disc space following disc degeneration and resorption causes a pressure gradient (negative within the disc space) and gases dissolved in the neighboring tissues enter this space by diffusion.²

We encountered a 50-year-old woman with a history of pacemaker implantation who presented with sudden onset low back pain and right lower limb radiculopathy. Neurological examination was normal except for restricted straight leg rising and absent right ankle jerk. As magnetic resonance imaging (MRI) could not be done due to the pacemaker, a computed tomography (CT) scan of the lumbosacral spine was done and showed hypodensity in the L5-S1 disc space with intraspinal hypodensity along the path of the exiting S1 root on the right side (–Fig. 1A–C). She was treated with medications and rest and her radiculopathy decreased. A repeat CT scan done after 3 weeks showed no intraspinal hypodensity and decrease in the hypodensity in the lumbar intervertebral disc space.

Intradiscal air is common in degenerative spinal disease and is reported to occur in 46% of patients over the age of 40

on CT imaging.³ Our case had the additional finding of extrusion of the gas into the intraspinal space (called a “gas pseudocyst”) and this caused radiculopathy—an occurrence uncommonly reported in the literature.^{2–5} It has been speculated that the upper and lower vertebrae act “like pistons”³ to push the trapped intradiscal gas into the spinal canal on weight bearing through an annular rent.²

Surgery is indicated in cases where conservative treatment fails and in such cases an epidural pseudocyst has been found intraoperatively, manipulation of which releases the gas bubbles.^{2,3} When surgery is indicated, some authors state that root decompression along with a thorough discectomy and excision of the posterior longitudinal ligament⁴ is adequate but others opine that a vacuum phenomenon in the disc is an indicator of “vertical instability” and advocate fusion if these patients undergo operative intervention.⁵

The primary imaging modality for a patient with sciatica is an MRI (following an initial assessment with plain roentgenograms). However, with increasing longevity of patients with implanted pacemakers or metallic cardiac valves, in whom MRI is not possible, CT scans (with or without myelogram) will be done in a growing number of cases. Air is better appreciated in CT scans and surgeons need to be aware of this entity as they are likely to encounter it more frequently.

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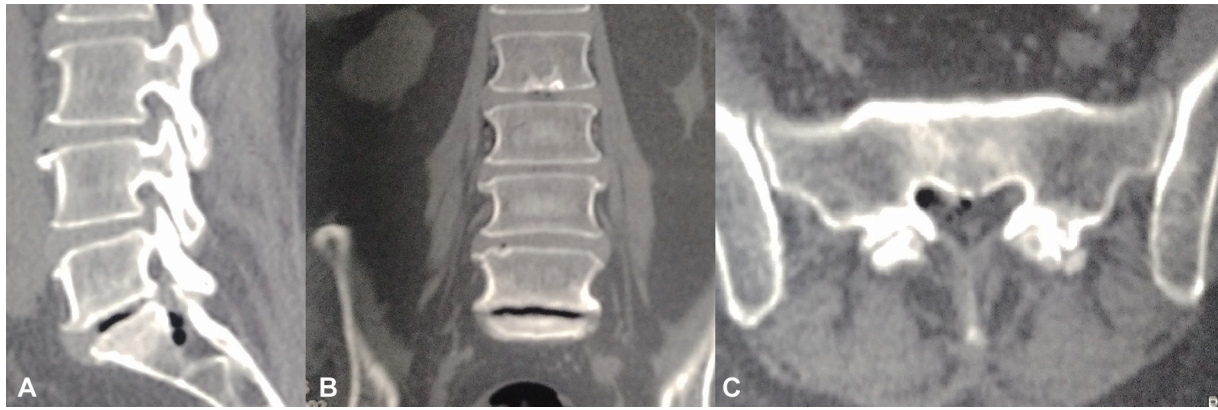


Fig. 1 Computed tomographic (CT) scan of the lumbosacral spine showing (A) vacuum phenomenon in the L5-S1 intradiscal space and gas pseudocyst in the canal along the S1 root; (B) coronal images showing hypodensity in the L5-S1 disc space; and (C) axial images showing the gas in the lateral recess on the right side.

Conflict of Interest

None declared.

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