

IVA in Clinical Practice: Investigating Unexplained Kyphosis

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Low bone mineral density and existing vertebral fractures are the two primary risk factors for future osteoporotic fractures. However, most vertebral fractures lack symptoms and go unrecognized due to the cost, radiation dose, and inconvenience of conventional spine radiographs. The Hologic Delphi™ bone densitometry system with Instant Vertebral Assessment™ (IVA) overcomes such limitations, providing a comprehensive osteoporosis evaluation. At just 1/100 the dose of a conventional x-ray exam, IVA produces high-resolution images of the spine to identify vertebral deformities. These images can be obtained during the same office visit for a routine bone density test, making it a convenient, point-of-care tool to identify a key risk factor for osteoporotic fracture.

In August of 2001, Hologic installed its 500th Delphi at the Colorado Center for Bone Research. Dr. Miller, the Center's Medical Director, finds IVA to be especially valuable for those patients with normal or osteopenic BMD, who also have a vertebral fracture. These patients might not receive adequate evaluation and treatment based upon their BMD results alone, putting them at high risk to fracture again. Dr. Miller illustrates the impact of IVA in clinical practice with the following case study of unexplained kyphosis.

Case Study

Background

A 43-year old woman, 5' 1" tall and 122 lbs, with a maternal history of hip fracture presents for a routine bone density test. She had a hysterectomy without ovariectomy four years ago. She has no menopausal symptoms, no back pain, and is taking no medications. Her daily calcium and vitamin D intake is supplemented (600 mg calcium and 400 IU vitamin D). While she seems healthy, she has an apparent kyphosis.

BMD and IVA Results

She received BMD testing by DXA on a Delphi bone densitometer. Her BMD is normal to borderline osteopenic.

<u>Site</u>	<u>T-score</u>
Lumbar Spine (L1-L4)	-0.2
Femoral Neck	-1.3
Total Hip	-1.1

Because of the apparent kyphosis, she received an IVA scan. The resulting image (shown here) provides evidence of significant interior wedging from T5-T8, with a grade 2 compression fracture at T5 and grade 1 fractures at T6, T7, and T8.

Her NTx levels are elevated. Further test results indicated celiac disease and chronic calcium malabsorption.

Conclusion

This patient had none of the classic symptoms of vertebral deformities: back pain, noticeable height loss, or low BMD. The use of IVA during a routine bone density exam showed several vertebral deformities and resulted in a diagnosis of osteoporosis, independent of her normal to osteopenic BMD results.

