

diffusion weighted imaging (DWI). Three-dimensional imaging with a T1-weighted spoiled gradient-echo sequence was performed for contrast enhanced sequences. Special protocols have been developed for patients with different breast pathology and breast implants, allowing for a shorter imaging time.

Conclusion: Breast MRI is a useful modality for detailed evaluation of breast lesions. An awareness of proper imaging techniques can be useful for adjusting technical factors and applied sequences to the clinical setting as well as for shortening the imaging time.

EVALUATION OF SPINAL INSTABILITY USING EOS X-RAY IMAGING SYSTEM: ONE OF THE LATEST TECHNOLOGY ADVANCEMENTS

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Introduction. Spinal instability is commonly used to describe greater than normal range of motion (or “hypermobility”) between two vertebral segments that results in pain or compromised neurologic function. The condition is often linked to degenerative changes in the spine; however, the diagnosis frequently poses a variety of challenges as the pain can be caused by a variety of other factors. Furthermore, establishing a distinct cause relationship between spine mobility and pain in many patients may prove nearly impossible. EOS X-ray imaging system is a low-dose, 3D imaging system manufactured by EOS imaging (formerly known as Biospace Med, Paris, France). The imaging system relies on the high sensitivity of a special detector (a multi-wire chamber invented by Georges Charpak, for which he was awarded the 1992 Nobel Prize) to produce high-quality images with less irradiation than standard imaging techniques. While EOS imaging may have many potential applications, it has been reported as being most useful in relation to those conditions that require imaging that is weight-bearing, full body, simultaneous postero-anterior and lateral, three-dimensional (3D), and/or where radiation exposure is a concern.

Aim. In this study we aimed to evaluate the spinal instability in a cohort of patients who underwent both whole spine static imaging and functional probes (posterior — anterior and lateral mobility assessment) using an EOS X-ray imaging system.

Material and methods. The study included 114 patients (82 females and 32 males) aged 18-60 years old with suspected spinal instability. All patients underwent whole spine static imaging as well as functional probes consisting of flexion–extension and side-bending X-rays for posterior — anterior and lateral mobility assessment using an EOS X-ray imaging system. The data were correlated with clinical symptoms and available clinical records.

Results and discussion. The static images revealed morphological changes consistent with lumbar spine instability in 93 from 114 (81.6%) patients. From these, 55 (59.1%) patients and changes consistent with cervical spine instability in 21 from 114 (18.4%) patients. A total of 55 from 93 (59.1%) patients with detected lumbar spine instability on static images demonstrated additional abnormalities on functional probes involving posterior — anterior and lateral mobility assessment.

Abnormal functional probes showed also a good correlation with reported clinical symptoms, suggesting that EOS imaging represents a suitable modality for evaluating patients with suspected spinal instability. Other common indications may include kyphosis, scoliosis, deforming dorsopathies and congenital deformities of the spine, hips or lower extremities. Reducing radiation dose may be particularly beneficial for children who need to be imaged frequently, such as children with spinal deformities. Thus, EOS delivers a radiation dose that is 6 to 9 times less than a standard X-ray film and 20 times less than a basic computed tomography scan. The technique allows capturing simultaneous frontal and lateral head-to-toe images of patients in the upright, weight-bearing position with an outstanding image quality. True to size images (1:1 scale) for surgical planning and monitoring of bone and joint diseases can be also obtained. Although EOS imaging is considered by many users to be the future gold standard of X-ray imaging of the skeleton due to its many advantages (mainly 3D reconstruction with a low radiation dose), it should be remembered that the modality is not currently used for assessing injuries or conditions that can be evaluated with general radiography, such as bone fractures, evaluation of lung nodules or examinations involving fluoroscopy, angiography, and mammography. Traditional X-rays are still the standard of care in such situations.

Conclusion. The study demonstrated that EOS X-ray imaging represents a suitable modality for evaluating patients with suspected spinal instability. Functional probes involving posterior — anterior and lateral mobility assessment obtained by this system provide additional information and show a good correlation with clinical symptoms. In the Republic of Moldova this is the first EOS X-ray imaging system — its impact on the quality of radiology and medical imaging services is still under evaluation and this may become more evident in the coming years.

IMAGING OF BREAST IMPLANTS: ABNORMAL FINDINGS REVEALED BY BREAST ULTRASOUND AND CONTRAST ENHANCED BREAST MRI

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Introduction. With the evolution of implant devices and surgical options, the radiologists are facing new challenges related to the diagnosis of implant-related complications.

Aim. The study aimed to assess the role of breast ultrasound and magnetic resonance imaging (MRI) in the evaluation of patients with breast implants.

Material and methods. The study included 19 consecutive female patients who presented for evaluation of their breast implants and underwent both breast ultrasound and breast MRI examinations. The findings were reported according to the Breast Imaging Reporting and Data System (BI-RADS) classification.

Results and discussion. Contrast enhanced MRI revealed a higher number of breast abnormalities (42.1% exams ranking as BI-RADS II category and 10.5% as BI-RADS III category) compared to breast USG