

Imaging in Developmental Dysplasia of the Hip: When Less Is More

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This month's E-publishing section includes two articles dealing with imaging in developmental dysplasia of the hip (DDH). The clinical diagnosis of DDH in newborns and infants and the confirmation of a concentric reduction during treatment are both challenging. Imaging techniques have been advocated in both situations to facilitate confirmation of correct diagnosis and adequate reduction. However, the indications for imaging and the type of imaging remain controversial.

The association of congenital muscular torticollis (CMT) with DDH is well established. As primary care physicians have become aware of this association, the orthopedist is being asked more frequently to rule out the presence of DDH in patients with CMT. Is imaging necessary in these situations? Minihane and colleagues addressed this question in their retrospective study of 292 patients with CMT. An abnormal hip exam included clinical instability, Galeazzi sign, asymmetric abduction or thigh folds, abnormal position of the greater trochanter (Klisis line and Nélaton's line), or a palpable click. Imaging was performed in 188 patients, with 66% having ultrasound and 34% radiographs. Sixteen patients (8.5%) were found to have instability or dysplasia. All 16 patients had an abnormal physical exam of the hip. None of the patients with a normal physical exam had abnormal imaging studies. The authors concluded that an infant presenting with CMT does not require routine hip imaging in the presence of a normal hip exam. This conclusion has implications that could



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reduce costs for unneeded imaging and avoid unnecessary radiation exposure. However, it must be emphasized that the authors performed a very thorough hip exam. A normal exam was not limited to the absence of an abnormal Ortolani or Barlow maneuver. In addition, bilateral DDH in the infant older than 6 weeks may be hard to diagnose on physical exam because the Ortolani and Barlow maneuvers may be normal and the findings of limited abduction, thigh folds, and clicks may be symmetric. In such situations, it is important to accurately determine the position of the greater trochanter if DDH is to be diagnosed on physical exam without imaging. The authors add that it would be prudent to obtain hip imaging if there is any concern about the quality of the examination, such as might happen with, for example, an uncooperative child.

Determination of reduction in DDH after application of a hip spica cast is generally determined with use of computed tomography (CT). This practice has many shortcomings, including: coordinating surgical scheduling with radiology scheduling, transferring the patient to the radiology department after recovering from anesthesia, exposing the children to a relatively high radiation dose, and having to return to the operating room if the hip is not reduced. Wolff and colleagues have solved some of these problems. They report the successful use of intraoperative 3-D fluoroscopy after hip spica cast application to determine hip reduction in DDH. They found the images to be of sufficient quality while using about a third of the radiation exposure that would result from a limited CT scan of the hip. Since the images were obtained in the operating room while the patient remained under anesthesia, there was no need for return trips to the operating room for treatment of inadequate reductions. Orthopedic surgeons may also find 3-D fluoroscopy useful in situations other than DDH, such as the treatment of complex fractures. ■

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