

DYNAMIC VISUALIZATION II USER'S VOICE

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Digital Radiography

Advantage of new Dynamic Visualization II Image Processing - Enhancing image contrast of all body parts for accurate diagnosis



Dubai Police Health Center (the Center) is a comprehensive primary radiology diagnostic center located in the heart of Dubai Police Headquarters. Serving all arms of Dubai Police and Dubai Air Force employees and their family members as well as detainees of the Dubai Prison Centers, it aims to provide accurate healthcare and diagnosis by investing in the latest medical equipment and skilled staff. The Center has been using FUJIFILM general x-ray equipment since 2011 and recently upgraded to new image processing Dynamic Visualization II (DYN II) in October 2018. Performing over 150 general x-rays per day, the Center conducted an evaluation to see whether the DYN II image processing had any benefits for accuracy and efficiency in diagnosis when directly compared to the conventional image processing.

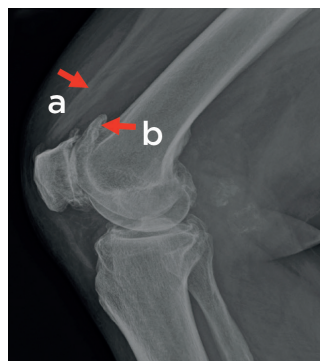
What is your first impression of the new DYN II image processing compared to the conventional processing?

Dr. Parakot: First of all, it is extremely easy to define the

bone structure as the image contrast and sharpness has greatly been improved. We can now clearly distinguish joint spaces and the bony trabeculae pattern. In addition, the soft tissue such as fat planes, skin lines and muscle shadows are better visualized so it is easy to see the relationship between body parts and whether the anatomy has abnormalities.

Please explain what you focus on when reporting orthopedic images?

Dr. Parakot: In the knee joint image, for example, we focus mainly on fat planes and bony details, as the disruption of the fat planes (a) is the sign of trauma while the details in the bone are indicative of the degree of severity if pathology is present as seen in (b). In C-spine, we focus on the alignment of the spine, intervertebral joint spaces and the spinous processes. As it is very important to know bony detail and the relationship with its surrounding structures, it is most beneficial to have both bone and soft tissue structures in a single image with appropriate image contrast and sharpness.



Key evaluation areas in the knee joint include “(a) soft tissue” and “(b) Osteophytes” when evaluating trauma and degenerative disease



C-spine demonstrating clear detail in C7/T1 junction, spinous processes and alignment

On what body parts do you prefer the DYN II image processing?

DYN II is definitely preferred on all body parts. Both bony details and soft tissue are visualized with appropriate contrast in the same image. In LAT C-spine image, the C7/T1 junction, which was superimposed by shoulders and was difficult to observe, is now easily seen with DYN II. On abdominal images, we can see all soft tissue structures, shadows and organs clearly. In a foot x-ray image with conventional processing, we normally needed to manually adjust the image contrast to see the toes with an appropriate contrast, and then again I had to adjust the contrast to visualize the mid tarsal bones. This DYNII processing shows both toes and tarsal bones without any contrast adjustment. It is easier for me to diagnose anatomy and pathology anomalies with a uniform contrast across all body structures and body parts.

Do you see any other benefits with the DYN II image processing?

Dr. Parakot: Image contrast is normally suboptimal when diagnosing obese patients. We spend approximately one minute in adjusting contrast to evaluate the image. One minute for 50 patients means we spend 50 minutes a day in adjusting contrast before we start reporting. With DYN II we don't need to adjust the image contrast even with obese patients and thereby our reporting is now more efficient than before.

What is your overall impression of the new DYN II image processing?

Dr. Parakot: There is great improvement in contrast and detail of bone and soft tissue alike. Superimposed structures and joint spaces are easily seen. Diagnosis of obese patients is easier as contrast homogeneity is maintained. We also can save time when reporting as we don't have to manually adjust contrast for each image. With the contrast and detail improvement, DYN II makes diagnosis easier and more accurate.



Foot x-ray demonstrating uniformity across tarsal bones while visualizing skin line and soft tissue



Obese patient pelvis images with DYN II processing (Right) and the conventional image processing (Left)



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