Case Study

PRESSURE ULCER UNDERMINING

Patient Age / Gender . 85 y/o white female
Ulcer / Wound Type . . Stage IV Pressure Ulcer, 8 month duration
Location . . . . . . Sacrum
History . . . . . . Patient has a history of a non-healing pressure ulcer of the sacrum. Patient had been treated for over 8 months using numerous wound dressings and a turning schedule. The wound was highly draining with foul odor. Patient was sent for evaluation of the wound and to examine for the possibility of osteomyelitis of the sacrum.

DIAGNOSIS

Wound-Mapping® Ultrasonic Scan of the pressure ulcer clearly revealed undermining in and around the wound and deepest proximal to the wound surface. There was no sinus tract noted in this area. The scan is a B-B mode image which allowed approximately 8 cm of soft tissue to be evaluated in each view. The diagnosis of pressure ulcer was obvious, however the amount of undermining discovered clearly told the clinician that the etiology was due to shear forces applied to the sacral region. The underlying cause of this wound was revealed by this non-invasive scanning method. As a result, corrective action was made to the patient treatment regimen.

TREATMENT

Continued examination of the wound and surrounding tissues confirmed that the patient was negative for any bone infection. The cortex of the bone was found to be intact. In this image, a transverse scan of the sacrum, there is no sign of any sinus tract or abscess. The patient and the facility was spared from having to administer weeks of antibiotic therapy typically used to treat osteomyelitis involving pressure ulcers. In this case the wound was debrided and measures to prevent shearing forces were instituted.
SYSTEM DESCRIPTION

The Hitachi Aloka Noblus is a premium portable ultrasound system that supports multiple applications over a wide range of clinical environments. All circuits related to image quality are fully digital which allows for high spatial resolution, high contrast resolution and a wide dynamic range. The removable console contains an internal battery allowing examinations to be performed even when an external power source is not available. Noblus also supports wireless LAN for DICOM communication. A full complement of linear, convex and phased array transducers are available for Noblus allowing the ultimate in clinical flexibility.

CLINICAL USES

Shared Services, Emergency Medicine, Pain Management, Wound Care

APPLICATIONS

Radiology, Interventional Radiology, Obstetrics, Gynecology, Abdominal, Peripheral Vascular, Urology, Musculoskeletal, Pediatrics, Cardiology, Small Parts

POWER REQUIREMENTS

Input: 240/120 V @ 60 Hz
Power Consumption:
(Standard Components): 250W
(Using Cart): 550W

ENVIRONMENT

Temperature: 10 ~ 35° C
Relative Humidity: 30 ~ 85%
(No Condensation)
Atmospheric Pressure: 700 ~1060hP

PHYSICAL DIMENSIONS

CONSOLE

Weight: 19.9lbs (9kg)
Dimensions: 13.8” x 20.2” 15.0”
Display: 15” Non-interlaced HD LCD
Pixels: 1,024 x 768
Display Range of Motion:
Swivel Angle: +/-90 deg.
(Horizontal direction)
Tilt Angle: -90 ~ +30 deg.

CONSOLE WITH CART, PROBE EXTENSION UNIT AND B&W PRINTER

Weight: 88.2lbs (40kg)
Dimensions:
20.5” x 20.4” x 44.3” (Height is 52.2” in fully raised position)

STANDARD IMAGE QUALITY FEATURES

HI Definition Tissue
Harmonic Imaging (HdTHI)
Extends penetration and increases resolution by transmitting a wide band pulse and receiving the second harmonic and sub-harmonic signals across the entire spectrum of the probe bandwidth.

HI Compound Imaging (HI Com)
Is especially beneficial for improving the visibility of luminal structures. HI Com transmits and receives ultrasound beams in various directions and superimposes the resultant images in real time.

Adaptive Imaging (HI REZ+)
Utilizes Hitachi Aloka’s high speed digital processing engine to extract structures and emphasize tissues without reducing frame rate.

Fine Flow
Displays high-definition, high frame rate color doppler images down to fine vessels with minimal blooming.

STANDARD WORKFLOW EFFICIENCY

HI Support
Reduces examination time by allowing time gain compensation, B mode gain, base line, pulse repetition frequency and doppler gain, etc. to be adjusted with a single touch.

On-Board User Manual
User Manual is integrated with the application allowing for convenient user guidance.

Examination Data Management and Storage
Noblus stores full-fidelity images, measurements, and other data internally and can also copy information to USB and USB HDD.

Auxiliary Monitor Support
Noblus includes a DVI-D connector for auxiliary monitor attachment.