



Aviso, Ultrasound Platform

Case presentations with the new 10 MHz B-scan probe

April 2013 - Case N°1: Choroidal Nevus

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Follow-up ultrasound examination of a minimally elevated choroidal nevus slightly elevating.

The examination is performed through the lid with the new 10MHz B-scan probe from Quantel Medical. This longitudinal scan of 10:00 demonstrates an elevation in the normally concave fundus (Figure 1). Analysis of the lesion demonstrates different levels of internal reflectivity. The anterior component is slightly more reflective than the posterior component. The interface between posterior globe wall and highly reflective orbital signals remains clearly defined. The nasal transverse scan shows the same characteristics (Figure 2).

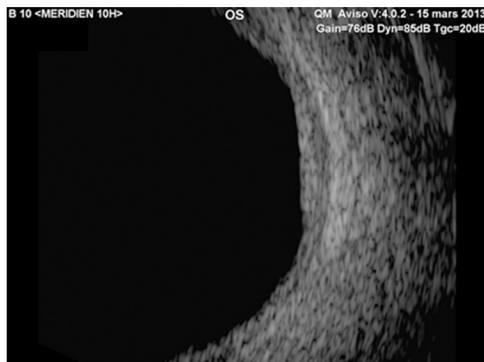


Figure 1: Longitudinal scan of 10:00 meridian with 10 MHz probe (image from exam performed through the lid).

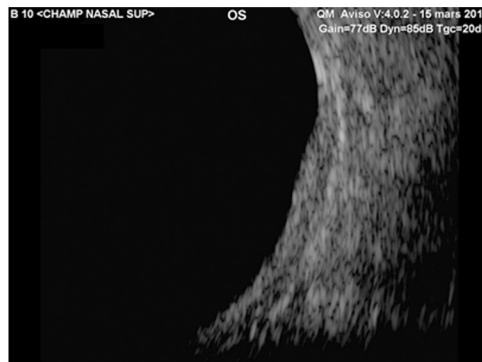


Figure 2: Transverse scan of nasal quadrant with 10 MHz probe (image from exam performed through the lid).

When exams are performed through the conjunctiva, image resolution is improved. The retina appears as two thin hyper reflective parallel lines at the vitreoretinal interface when sound beam is maximally perpendicular. In addition, Tenon's Space between sclera and anterior orbit is even more clearly seen with reduced gain. (Figures 3 and 4)

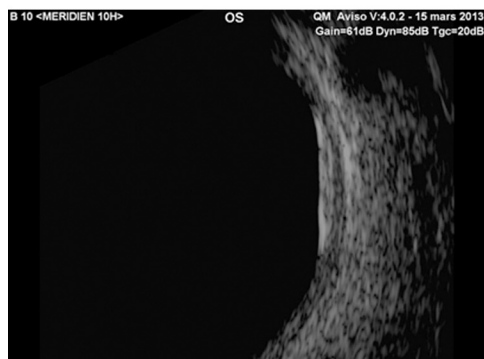


Figure 3: Longitudinal scan of 10:00 meridian with 10 MHz probe (image from exam performed through the conjunctiva).



Figure 4: Longitudinal scan of superonasal quadrant with 10 MHz probe (image from exam performed through the conjunctiva).



The exam is repeated with a 20 MHz posterior B-scan probe that provides higher image resolution and internal structure detail. To avoid sound attenuation by eyelids, higher frequency probes are applied directly to the anesthetized conjunctiva. Analysis is improved as compared to a traditional 10 MHz Posterior exam because higher resolution allows structures to be more clearly defined (Figures 5 and 6) and measurements are also correspondingly more precise (Figure 7).

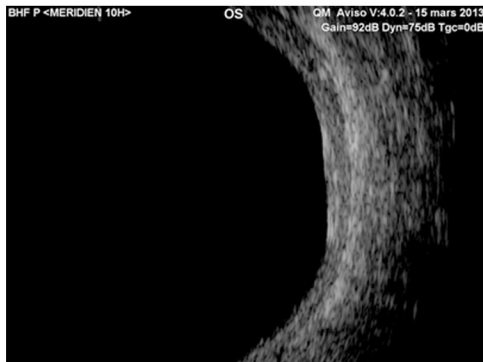


Figure 5: Longitudinal scan of 10:00 meridian with 20 MHz probe (image from exam performed through the conjunctiva).

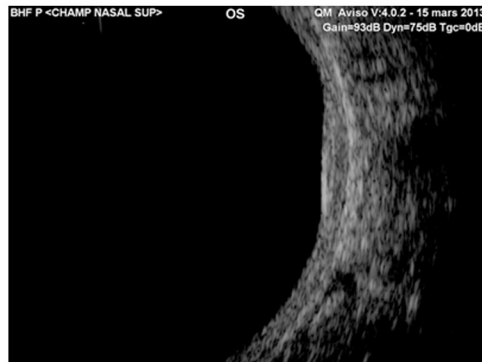


Figure 6: Longitudinal of superonasal quadrant with 20 MHz probe (image from exam performed through the conjunctiva).



Figure 7: Longitudinal scan of superonasal quadrant with calipers, using 20 MHz probe (image from exam performed through the conjunctiva).

Conclusion:

Even with exams performed through the lid, the new 10 MHz B-scan probe reveals the ultrasound characteristics needed to diagnose a benign choroidal nevus.

The excellent engineering of this probe produces improved resolution both axially and laterally providing better analysis of small choroidal elevations.

When exams are performed by direct contact with the conjunctiva, image clarity is more evident.

Differentiation of tissue borders and internal structure is so clear high resolution that the image is similar to one obtained with the high frequency posterior B-scan probe.

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