The Gleaner

Twin Reversed Arterial Perfusion Syndrome: the role of ultrasound in diagnosis and management

Yamoah KK, et al.
*Ultrasound* 2009; 17 (4): 227–30

While the TRAP syndrome is well known to fetomaternal medicine specialists, it is a rare occurrence, so it is good to see a succinct article like this to remind us of the importance of ultrasound in diagnosis and management. The perinatal mortality rate for the pump twin is 50%. So if you diagnose monochorionic twins and see growth discordance and the possibility of an acardiac twin is raised, look for arterial blood flow toward rather than away from the acardiac twin and the diagnosis is made. Ultrasound has also played a significant role in interventional treatment which needs to be done in a tertiary centre with enough laser ablation experience.

Risky business: applying risk/benefit analysis consistently in entertainment ultrasound

De Crespigny L, Douglas T, Wilkinson D and Savulescu J
*Ultrasound Obstet Gynaecol* 2009; 34: 613–5

Nice to see one of our most famous Australian sonologists and his Oxford colleagues tackling the thorny question (De Crespigny has previously written in the ASUM journal on entertainment ultrasound.) They argue that the professional organisations’ (including ASUM’s) concerns over bioeffects in non-medical entertainment ultrasound are hypocritical as we do diagnostic ultrasound at the drop of a hat and there are no guidelines discouraging the frequent scanning by obstetricians in low risk pregnancies. They suggested that entertainment ultrasound may increase bonding and may reduce the risk of a fetus being aborted but produce no evidence to support that view.

It is interesting to note that in the AIUM Sound Waves Newsletter of January 2010 that there is mention of AIUM Past President Joshua Copel being successful in supporting efforts to establish legislation banning obstetric ultrasound from being performed without a medical reason in the State of Connecticut. The debate will continue!

First trimester fetal nasal bone audit: evaluation of a novel method of image assessment

McLennan A, Schluter PJ, Pincham V, Hyett J
*Ultrasound Obstet Gynaecol* 2009; 34: 623–8

And another Australasian contribution in the same issue of ISUOG Journal (one of the authors is from Auckland). Those of you who read these snippets may remember that it was noted here recently that nasal bone assessment was upon us and we need to accept that and be prepared to do it properly. McLennan and his colleagues suggest that subjective nasal bone assessment needs to be replaced by objective methods.

The use of a scoring system for qualitative assessment of NT measurement led to their development of a similar system for nasal bones.

St Peter’s amanuensis

Value of US correlation of a thyroid nodule with initially benign cytologic results

Kwak JY, Koo H, Youk JH, Kim MJ, Moon HJ, Son EJ, Kim EK. *Radiology* 2010; 254: 292–300.

Thyroid nodules represent a common management problem, frequently assessed with ultrasound. However, there is a large overlap between benign and malignant ultrasonographic features, thus necessitating correlation with FNAB. In this retrospective study, histology results in over 6000 thyroid nodules were compared to ultrasonographic findings. As you’d expect, the authors found that benign ultrasonographic features plus a negative FNAB have a very high (> 99%) chance of being truly benign on follow-up. In contrast however, the likelihood of a thyroid nodule being truly benign was < 80% in patients with sinister ultrasonographic features and a negative FNAB. In view of this discordance, the authors rightly conclude that repeat FNAB should be undertaken in patients with an abnormal ultrasound and initially negative FNAB. There were some limitations in the study related to its retrospectivity and potential reproducibility issues with regard to histology review, but the bottom line is that you shouldn’t necessarily believe FNAB results when a nodule looks “odd”.

Color Doppler imaging evaluation of proximal vertebral artery stenosis

Hua Y, Meng XF, Jia LX, Ling C, Miao ZR, Ling F, Liu JB. *AJR* 2009; 193: 1434–8.

Apparently, stenosis of the vertebral arteries has a greater potential for stroke than carotid artery lesions, possibly related to its more vulnerable anatomy. This was a retrospective study of selected patients (n = 247) with posterior circulation symptoms (eg giddiness, cerebellar signs) who underwent a duplex ultrasound and DSA (digital subtraction angiography). The fact that they selected certain patients usually indicates a degree of referral bias. The authors were able to locate the origin of the vertebral artery with standard equipment (2–2.5 MHz probe) “under the clavicle” and assessed vessel lumen size, spectra and velocities. Subsequently, they defined the best criteria for varying degrees of stenosis. Worth a look, but I’m not convinced that finding the origin of the vertebral artery is easy. Well, at least not in the patients I usually see.

Can focused ultrasound with a diagnostic US contrast agent favourably affect renal function?

Sica DA. *Radiology* 2009; 253: 577–8.

This is a neat editorial to a related paper in the same issue, which highlights an interesting potential application of microbubble based ultrasound contrast agents. In rabbits, kidneys exposed to contrast agents experienced increases in renal function and urinary flow rate. Clearly an interesting concept, but still in its infancy. Watch this space.
Comparative effectiveness research: what it means for radiology
Pandharipande PV, Gazelle GS. *Radiology* 2009; 253: 600–5.

What is it? Put simply, there is a growing awareness that health outcomes need to be improved by lifting the quality of research designs, both in imaging and non-imaging spheres. As far as ultrasound is concerned, the American Institute of Medicine called for better research into the benefit of obstetric ultrasound in “normal” pregnancies, carotid IMT measurement for cardiovascular risk profiling and a comparison of the “effectiveness of diagnostic imaging performed by radiologists and nonradiologists”. Although not a primary objective, research into cost-effectiveness was also welcome. It’s clear that outcomes research is the next big thing in the USA. To an extent, Australia has witnessed similar imperatives through the Medical Services Advisory committee (MSAC) process for some years. I think the onus on us to prove that what we do and how we do it actually benefits the patient is alive and well.

The ultrasound appearance of the patellar tendon attachment to the tibia in young athletes is conditional on gender and pubertal stage
Ducher G, Cook J, Lammers G, Coombs P, Ptazsnik R, Black J, Bass SL. *J Sci and Med in Sport* 2010; 13: 20–3.

An interesting study from Australian authors. Osgood-Schlatter disease (OSD) is a condition associated with pain related to friction or overuse of the patellar tendon. The authors performed ultrasound in 44 competitive tennis players and showed that the traditional diagnosis based on “large hypoechoic regions with or without ossification” may in fact be a normal variant related to cartilaginous development. Consideration of age, gender and pubertal stage appear to be critical in avoiding diagnostic errors. In general, boys’ tendons tend to have a more immature appearance for a longer time than girls’ tendons.

Evaluation of anterior talofibular ligament injury with stress radiography, ultrasonography and MR imaging
Oae K, Takao M, Uchio Y, Ochi M. *Skeletal Radiol* 2010; 39: 41–7.

These authors performed stress radiography, ultrasonography and MRI in 34 patients who had an ankle sprain. Their results were compared to arthroscopy (automatically, I’m thinking referral bias and by now I hope you are too!). Thirty of the 34 patients had an injury to the anterior talofibular ligament and US and MRI had an accuracy of 91 and 97%, respectively (both were much higher than x-ray (67%)). Ultrasound was less successful in predicting the exact location of the injury (63% versus 93% for MRI) compared to arthroscopy. The authors concluded that ultrasonography was a satisfactory test, but that false positive studies could occasionally occur because of “partial tears” or degenerative disease not seen at surgery.

Are kinking and coiling of carotid artery congenital or acquired?
Beigelman R, Izaguirre AM, Robles M, Grana DR, Ambrosio G, Milei J. *Angiology* 2010; 61: 107–12.

OK, hands up those of you who’ve undertaken carotid ultrasound and found a carotid artery that looked like a Ferris wheel? And how many of you wondered why? In this study, the authors reviewed carotid arteries in 885 patients ranging in age from 1 day old to 90 years and concluded that vessel tortuosity is not due to carotid artery disease per se, but to embryological development. Oh and I discovered a new word for it: “Dolichoarteriopathy”. Somehow, I don’t think it’ll catch on.

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