

Clinical Image

Superb Micro-Vascular Imaging (SMI): Seeing the Contrast in Ultrasound without Really using it

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A 38 years old female was admitted in the hospital because of raised body temperature of 40°C since 2 days and right flank pain since 3 days.

Ultrasound of kidneys showed a 1.7 cm hyper-echogenic lesion in the right kidney. Power color tool didn't show any vessels in this lesion but when we applied the Superb Micro-vascular Imaging (SMI) mode of the recently developed ultrasound system (Toshiba's Aplio 500 ultrasound system), the lesion showed small vessels that confirmed the diagnosis of lobar Nephronia and ruled out infarct or abscess of kidney (Figure 1).

Because SMI is a new tool CT was done for confirmation and that showed the lesion (Figure 2).



Figure 1: Ultrasound of right kidney showing 1.7 cm echogenic mass (white arrow) and the small vessels (red arrows) in the lesion after using SMI technique.



Figure 2: Contrast CT of kidneys showing hypo-dense lesion in the right kidney (white arrow).

The patient was treated successfully with I.V antibiotics.

We can see that SMI showed clearly small vessels in the lesion and is similar to the use of contrast in Ultrasound.

SMI tool is promising as shown in our case especially in countries like Israel where the use of contrast in ultrasound is not yet approved. And also because of the high prices of ultrasound contrast in front of a very simple tool.

We believe that SMI will be of additional value in a long list of pathology where the vascular pattern is essential for the diagnosis and where a power colour failed to do it.

We believe also that SMI can substitute contrast in many ultrasound studies and can also reduce the use of CT in defining some lesions like lesions in the liver [1,2].

Conclusion

1. SMI is a ultrasound promising tool in differential diagnosis of lesions
2. SMI is superior to power Doppler in visualization of small vessels
3. SMI should be used first before the use of contrast in ultrasound

References

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