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CLINICAL IMAGES

Hands-free continuous transthoracic echocardiography and transcranial Doppler using a 3D-printed transducer holder connected to a hydraulic arm

Victor Sampaio de Almeida [a,b,*], **Vinicius Sampaio de Almeida** [c], **Guilherme Oliveira Campos** [a,b], **Rodrigo Leal Alves** [a,b]

[a] *Hospital São Rafael, Salvador, BA, Brazil*
[b] *Instituto D'Or de Pesquisa e Ensino (IDOR), Salvador, BA, Brazil*
[c] *Universidade Federal da Bahia (UFBA), Salvador, BA, Brazil*

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A transducer holder to perform continuous echocardiography has been recently described and the device has a major potential for use in anesthesiology.[1,2] To improve daily practice, we developed a hydraulic arm coupled to a 3D-printed device capable of holding any commercially available ultrasound transducer (Fig. 1). Thus, the device enables the continuous assessment of cardiac output during surgery[3] (Fig. 2). Furthermore, the arm has successfully allowed effective continuous transcranial Doppler monitoring (Fig. 3).

* Corresponding author.
E-mail: victorsampaio14@hotmail.com (V.S. de Almeida).

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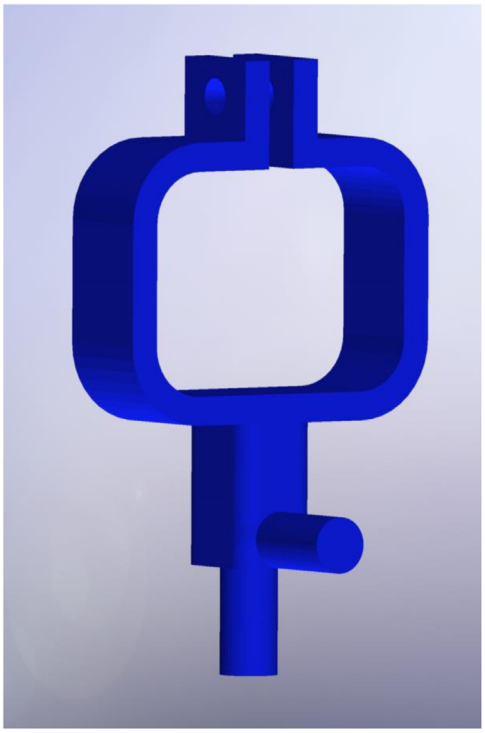

Figure 1 Technical project for 3D printing of the device that connects the hydraulic arm to the ultrasound transducer.

Figure 2 Use of the device to capture echocardiography imaging from the apical 5-chamber window and the alignment of the Doppler to measure flow through the left ventricular outflow tract.

Figure 3 Use of the device for transcranial Doppler through the temporal window with pulsed Doppler of the middle cerebral artery.

Conflicts of interest

The authors declare no conflicts of interest.

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