Birth of „Echoscopy“—The EFSUMB Point of View

Thanks to the miniaturization provided by the rapid evolution of information technology, in recent years it has become possible to reduce the size of ultrasound scanners to hand-held battery-supplied devices, which easily fit in the pocket of white coats. EFSUMB has questioned about the use and role of such scanners (see also EFSUMB case of the month July 2012 at www.efsumb.org). Despite the relatively high quality, clearly the size of the screen is smaller than that of conventional scanners and the resolution limited with less options for changing the type of probes. Nonetheless, the advantages of such miniaturized scanners are clear and straightforward. They can easily be used bedside to extend the physical examination, to integrate or replace the stethoscope.

Prior to this maximum miniaturization of scanners, over the last decade it became possible to utilize portable scanners, namely scanners that can be utilized with battery power also including all conventional and Doppler ultrasound features and occasionally offering contrast-enhanced technology with high quality. These equipments may be utilized as hand-held, but are better managed with small wheel cars to be brought bedside. Such equipments are easily utilized in emergency settings, since they can be very quickly switched on and utilized bedside, differently from top quality big scanners. The advent of such portable scanners, which can be easily utilized in clinical settings such as the emergency unit or clinical divisions, opened the way to the concept of point-of-care ultrasound, namely „ultrasoundography performed bedside and interpreted directly by the clinician.” (C. Moore, J Copel. NEJM 2011; 364: 749–57). Direct performance of ultrasonography by the clinician in charge of the patient has the added value to more rapidly follow new diagnostic hypothesis and support immediate therapeutic decisions. Point-of-care ultrasonography is not aimed at replacing comprehensive ultrasonography, but at giving the physicians immediate access to clinical problems for rapid and direct solutions. Point-of-care ultrasonography requires adequate knowledge of ultrasoundography by the operator for the respective clinician situations and a scanner capable for this setting.

However, it is important to point out that a certain number of issues that can be solved bedside are easy to be clarified and do require neither comprehensive knowledge of ultrasonography by the operator or high-performing scanners. To definitively and clearly distinguish these two situations, EFSUMB hereby proposes to utilize two different names for the two settings. In the first one, usually termed echography or ultrasonography, either performed bedside or in the ultrasound lab, an assessment of the region related to the suspected disease is performed to search for pathology, usually assessing more than one organ (e.g. various abdominal organs, or assessment of the thorax, or the neck, etc.). A full report of the examination is always required and images of all examined organs are normally collected. In the second instance, termed Echoscopy, only one answer, usually in the terms of yes or no, is required to solve a specific clinical question (please see table below). The answer can be reported in the clinical journal of the patients as an extension of the physical examination and does not require a full report, provided that it is specified that the exam was an Echoscopy performed bedside. To this aim pocket-sized ultrasound scanners are well suited, like also bigger and non-portable equipment. Some of the most common clinical scenarios which can be solved bedside with a basic level of ultrasound knowledge and with pocket size scanners, and which thus fall under the definition of Echoscopy according to the EFSUMB point of view, are the following:

1. Echoscopy with any marketed ultrasound scanner, pocket size ones included
2. Point of care ultrasound
3. Comprehensive advanced ultrasound with high-end equipment, moved on wheels to the bedside.

Table 1

<table>
<thead>
<tr>
<th>Clinical Situation</th>
<th>Clinical Question</th>
<th>Echoscopy answer</th>
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</thead>
<tbody>
<tr>
<td>Abdominal enlargement.</td>
<td>Free abdominal fluid?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Obesity or ascites?</td>
<td>Presence of pleural effusion?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Area of Pulmonary dullness at percussion</td>
<td>Pericardial effusion?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Tachycardia, low cardiac tones, low voltages on EKG</td>
<td>Pulses in epigastrium at palpation</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Pulsating mass in epigastrium at palpation</td>
<td>Aortic aneurysm?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Marked decrease or lack of urinary bladder output</td>
<td>Bladder overdistension?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Worsening of renal function</td>
<td>Hydronephrosis?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Jaundice</td>
<td>Dilated intrahepatic biliary tree?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Suspected mass at abdominal palpation</td>
<td>Mass confirmed?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Fluid aspiration required</td>
<td>Fluid confirmation and location prior to aspiration / drainage</td>
<td>Choice of the puncture site</td>
</tr>
<tr>
<td>Reduction of urinary output in patients with urinary catheter</td>
<td>Catheter correctly placed in the urinary bladder?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Enlarged spleen?</td>
<td>Measure spleen length, longer than normal?</td>
<td>YES or NO</td>
</tr>
<tr>
<td>Suspected cholecystitis</td>
<td>Large gallbladder stones?</td>
<td>YES or NO</td>
</tr>
</tbody>
</table>

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