

A simple assessment of cervical range of motion, using indigenous technique (modified analog clinometer)

Sir,

If we have an inquisitive and critical look at the contemporary literature, we will find different gadgets and appliances have been used to assess the cervical range of motion (CROM),^[1-3] in patients before laryngoscopy and intubation is executed. However, each of these gadgets is either cumbersome, costly and thus difficult to employ practically, such as X-ray assessment^[4] or of moderate accuracy using goniometer.^[5] In the assessment of airway, CROM is important because the lack of CROM is associated

with difficult laryngoscopy, intubation and even bag-valve-mask (BVM) ventilation. In order to correctly measure CROM, we have used an indigenous inexpensive appliance called analog clinometer. The device instantaneously provides with the correct measurements of CROM in the neutral, full extension and full flexion views.

This metallic non-expensive device (10\$ to 35\$ USD) is primarily designed to be used by architects to assess slopes. We have modified it by adding a disposable wooden spatula so it can be used in the assessment of neck flexion and extension range – by putting the spatula between molar teeth or between gums in edentulous patients. Even in limited mouth opening, this device can be utilised properly, as the attached wooden spatula needs just a tiny space equal to 2 to 3 mm to be advanced between molar teeth. However, it has limited utility among small children,

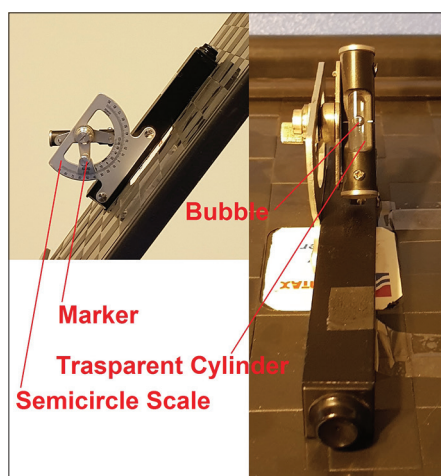


Figure 1: Shows how a clinometer is utilised to measure the degree of a slope

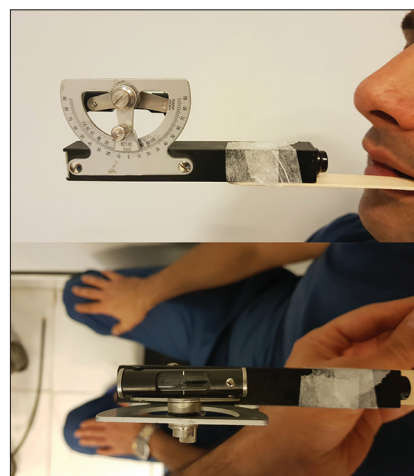


Figure 2: A spatula attached to the analog clinometer and then modified analog clinometer placed between the upper and lower last molars in the neutral position, with the mouth fully closed

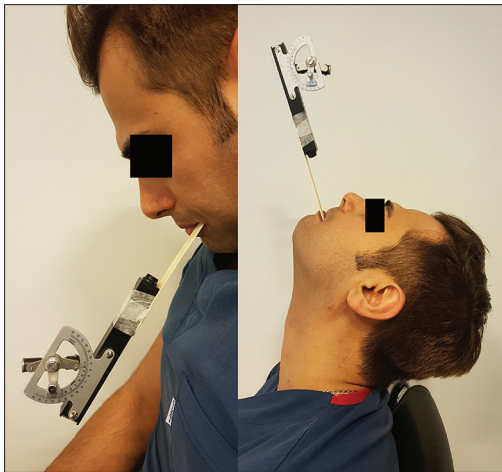


Figure 3: The patient in a full extension and flexion of the neck and the modified analog clinometer showing angles of 72° and 58°, respectively

non-cooperative patients and patients who have arch bars on their teeth.

The clinometer has a semicircle scale from -90° to +90° and a movable marker attached to a bubble containing small transparent cylinder. When the clinometer is put on a slope, by moving the marker, the user adjusts the cylinder to keep the bubble in the middle, so the marker will point the exact degree of that slope [Figure 1]. Since it is made of metal and plastic, environmental variables such as barometric pressure, temperature and humidity cannot affect its performance. We used GEO-ALLEN/OEM YR-27 made in China clinometer. Figure 2 depicts the clinometer with an attached dental spatula placed between the last upper and lower molars with the patient in neutral position. Figure 3 reflects the patient in full extension, the bubble reveals an angle of 72° and full flexion, an angle of 58°, respectively. The sum of the angles in extension and flexion gives us a figure of 130°, reflecting that the CROM is adequate for laryngoscopy and intubation.

Compared to the other appliances mentioned above, our new indigenous technique helps in measuring the CROM within less than a minute with a high degree of accuracy and low cost. However, in order to test its true validity and reliability, the device should be tested with the other currently available tools for the assessment of CROM.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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