Still a role for the chest radiograph – humble but helpful!

On 8 November 1895, Wilhelm Conrad Röentgen imaged his wife's hand and changed the history of medicine. Because he was uncertain of the nature of the rays that produced the image, he gave them the name 'X-rays'. This discovery represents one of the most significant advances in science, affording man the ability to look through skin and muscles in a non-invasive fashion. Within a year of his original description, around one thousand publications had appeared on the subject. He received the first Nobel Prize for Physics in 1901 for his revolutionary discovery, which heralded the age of modern physics and revolutionised diagnostic medicine. X-rays are currently an indispensable part of any hospital establishment, and the chest X-ray or chest radiograph remains the most commonly performed type of imaging.

In this issue of *AJTCCM*, Patnayak *et al.*[1] describe the utility of the chest radiograph in a retrospective hospital-based study to predict the severity of COVID-19 disease. They demonstrated a significant correlation between the chest radiograph on admission and oxygenation based on a predesigned proforma severity scoring system, as well as predicting the need for ventilatory support. The authors conclude that the chest radiograph scoring system is a useful screening tool in this setting that has important clinical implications, and as a consequence may limit morbidity and mortality.

Several others have demonstrated and reported similar utility and benefit of the chest radiograph in this context, including the association with severity and need for intubation and mechanical ventilation.[2-10]

Despite major technological advances in chest imaging, including elements such as pragmatic point-of-care ultrasound, the chest radiograph remains an essential tool in our daily clinical armamentarium. Mastering interpretation of the chest radiograph enhances one's clinical acumen, and its utility in the clinical context for the astute clinician is protean. Clinicians who are comfortable with interpretation of the chest radiograph are at an infinite advantage. Additionally, when used in combination with some of the more recent advances in imaging, clinical insights may be further complemented, potentially aiding and improving patient management and outcomes. Various authorities and supervisory boards and institutions have recently emphasised the need for chest radiograph interpretation to be considered as a core competency.[11] However, data have indicated lack of competency at all levels and that it is an under-recognised element in the field.[11] This important component of our daily clinical armamentarium is extremely useful and should be seen as an essential competency for the practising clinician, and a valuable adjunct in our quest to offer and deliver sound and excellent clinical care.

The chest radiograph may be used to assist in the diagnosis of many conditions and a variety of disease entities that involve the bones and structures contained within the thoracic cavity, and on occasion those contained within the abdomen. Although the interpretation of chest radiographs goes beyond the scope of this commentary, a very useful initial approach as an *aide-mémoire* to identify any potential problems in an appropriate clinical setting may be considered as ABCDEF:

A: airways, including hilar adenopathy or enlargement

B: breast shadows, **b**ones (e.g. rib fractures, lytic bone lesions, rib crowding suggestive of volume loss, bony anomalies)

C: cardiomediastinal **c**ontour (includes **c**ardiac silhouette, assessment of **c**ardiac and **c**hamber size, **c**entral structures), **c**ostophrenic angles (e.g. presence of pleural effusion/s)

D: diaphragm (position of hemidiaphragms, evidence of free air under the diaphragm suggestive of perforation of an abdominal viscus)

E: edges (e.g. pneumothorax, pleural thickening, plaques, apices for fibrosis), e**x**trathoracic tissues

F: fields (lung parenchyma: divide into upper, mid and lower zones and compare each side), evidence of **f**ailure (alveolar air space disease, prominent vascularity, pleural effusions).

Chest radiographs have impacted on countless lives and will continue to do so well into the future. They remain an integral and key part of modern medicine more than 100 years after their introduction. There is indeed still a very important role for this humble but extremely helpful clinical adjunct!

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