Introduction:
SARS-CoV-2 infection may progress to acute respiratory failure (ARF), cardiac injury, renal failure and liver dysfunction. Myocardial depression in sepsis represents a major predictor of unfavourable outcome, leading to a mortality rate close to 70%. Sepsis-induced cardiomyopathy (SIC) is characterized by a global but reversible myocardial dysfunction with left ventricular (LV) dilatation and depressed LVEF (1). While LVEF calculation is easy to acquire, it remains variable with beat to beat and highly dependent on loading conditions. Speckle tracking echocardiography (STE) is a recent imaging technology allowing early detection of LV dysfunction, prior to decrease in LVEF (2).

Methods:
We investigated a COVID-19 patient with severe ARDS (P/F ratio <100) and septic shock. A TTE was performed to assess LV function and standard echocardiographic variables. QLAB cardiac analysis was performed to assess strain imaging.

Results:
Standard echocardiographic parameters were calculated: LVEF 59.7%, LVFS 37%, LVOT VTI 22cm, SV 56ml, CO 7.2 L/min, E 107cm/sec, E’ 12cm/sec, TAPSE 15mm, S’ 11cm/sec, RVFAC 46%. Average strain in apical views (4-chamber, 2-chamber, 3-chamber) and global longitudinal strain (GLS) were calculated: LV strain (4-Ch) -13.4%, LV strain (2-Ch) -15%, LV strain (3-Ch) -12.4%, LV global systolic strain -13.6%.

Conclusion:
We illustrated STE findings in a COVID-19 patient admitted with hypoxemic ARF and septic shock. While LVEF was normal with the Simpson’s biplane method, average strain in 4-Ch view was -13.4% and GLS was -13.6%, indicating reduced LV longitudinal function. In this regard, STE may improve prognostication over LVEF to assess LV systolic function in critically-ill patients with SARS-Cov-2 infection.

References:
Bull’s eye plot obtained after myocardial strain imaging in a patient with severe SARS-CoV-2 infection. Apical segments are highly contractile (red colour) while anteroseptal and anterolateral segments (blue colour) are hypokinetic. Calculated strain in apical 4-chamber view was -13.4% and GLS was -13.6%, indicating reduced LV longitudinal function. LVEF was normal (Simpson biplane: 59.7%).