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Continuous rising numbers of obese critical care patients pose many challenges to the healthcare workers, especially during the COVID-19 pandemic. Among them, proning may be one of the most labour-intensive tasks. Prone positioning is performed manually in hospitals where mechanical lifting aids are unavailable; however, the exact method of manual proning is not explicitly described in the literature.

Here, we present a case of a morbidly obese patient with COVID-19 pneumonitis in the intensive care unit (ICU) with a step-by-step guide of the manual proning technique. Our approach is simple and feasible, as only readily available tools, such as bed sheets and friction-reducing sheets, are used.

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The application of this technique for proning of our morbidly obese patient was deemed too dangerous for the staff owing to the weight of the patient and the personnel body mechanics when reaching over a wide bariatric bed. Therefore, a new manual proning technique was proposed with the following goals:

I. to completely avoid lifting.

II. to straighten out the body of the patient and avoid a semi-prone position with the panniculus lying sideways to make head turns possible both ways.

III. to use pillows as thoracopelvic support. Whilst we did not expect to achieve a full abdominal suspension, our hope was that the elevation of the chest and pelvis would relieve some of the abdominal pressure and improve the lung ventilation.

The schematic sequence of the used proning technique can be seen in Fig. 1. After a 16-h proning session, a significant improvement in the gas exchange was observed: SpO2 91% and PaO2 67 mmHg on FiO2 of 0.6. Over the following days, the patient was successfully proned two more times with the same methodology. The time needed to achieve prone position for this patient shortened from approximately 1 h to 30 min with subsequent proning sessions. The proning team did not report any injuries.
Despite the initial improvement of the patient’s condition, 1 week later, respiratory failure worsened again and, sadly, after 9 days of ICU stay, the patient passed away.

3. Discussion

To our knowledge, this is the first published detailed description of manual proning of a morbidly obese patient.

Despite a widespread use of the prone position for patients with acute respiratory distress syndrome during the COVID-19 pandemic, the practical aspects of the technique did not receive a wide scientific interest. The most common methods have recently been summarised by Wiggerman et al., however, specific instructions regarding obese patients remain scarce.

There is a significant risk of musculoskeletal injury to the staff during repositioning of patients, which is likely even higher during proning. Thus, using a ceiling lift or a proning bed should always be the first choice for obese patients. In hospitals where lifting aids are not available, it is relied on the staff to do this strenuous labour. Some centres deem the manual proning of an obese patient too dangerous, while others report it as safe and feasible. De Jong et al. described a similar manual proning approach in morbidly obese patients. However, important practical aspects were not mentioned in the publication. It is unclear whether the patient was straightened or kept semiprone with the panniculus lying sideways and how the thoracopelvic supports were positioned underneath the patient.

Skin integrity damage in prone position is one of the most common complications; therefore, 2-hourly head turns are recommended to prevent facial injuries. For this to be feasible, the patient needs to be positioned straight with a neutral spine. However, in morbidly obese patients, obtaining such a position may be difficult owing to patient’s panniculus, and thus, only a semi-prone position can be typically achieved, as can be seen in the publication by De Jong et al. Attempting to do a head turn towards the other side may be dangerous owing to an extreme degree of rotation of the neck.

Another consideration is the intra-abdominal pressure, which is often increased in individuals with high body mass index. This is associated with impaired respiratory mechanics, which can be further exacerbated by prone position. As such, abdominal suspension with thoracopelvic support should be used to prevent compression of the lung bases by the visceral abdominal mass. However, positioning of the pillows is usually achieved by lifting the patient, which, in the case of a morbidly obese individual, poses an unacceptable risk to the staff’s health.

Our case report and the illustrated proning technique aim to address these practical questions of prone position of obese patients. We have successfully used simple tools to place a morbidly obese patient in a straight prone position as well as adjust thoracopelvic supports while completely avoiding lifting.

This technique may be used as an alternative to mechanical lifting aids in low-resource settings.

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The author wrote the manuscript and prepared the illustrations.

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Conflict of interest

None.

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