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L. Burdet
L. Liaudet
M. D. Schaller
A. F. Broccard

Bilateral breast necrosis after prone position ventilation

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Sir, Since the first report in 1976 [1] there has been an increased interest in ventilating patients with acute respiratory distress syndrome (ARDS) in the prone position. This growing interest is due largely to the fact that approximately 70 % of the patients suffering from ARDS show improved oxygenation when turned prone [2]. This is usually a safe maneuver associated with few minor complications that can usually be prevented and/or limited, such as dislocation of intravenous lines and endotracheal tubes, facial edema, and limited pressure sores. We report here an as yet undescribed severe complication due to prone positioning.

A 73-year-old woman was admitted to the ICU for severe pneumonia due to group A *Streptococcus pyogenes*. Her medical history was unremarkable except for breast augmentation with silicone implants 12 years previously. She rapidly developed ARDS, with septic shock and multiple organ dysfunction requiring major hemodynamic support (fluid, dobutamine, and norepinephrine) and mechanical ventilation with high level of positive end-expiratory pressure. Despite this she presented even more severe refractory hypoxemia, which led us to turn her prone. Due care was taken to limit pressure on her breast implants. The patient was kept prone for 24 h for two reasons. There was continuous improvement in PaO_2/FIO_2 during this time and we were concerned that given her hemodynamic instability and high FIO_2 requirement turning back to the supine position might be poorly tolerated. Oxygenation improved significantly during that period: PaO_2/FIO_2 was 66 mmHg before turning prone, 91 mmHg after 6 h of prone position ventilation, and 149 mmHg after 24 h. At that time her hemodynamic values were more stable, and she was turned back supine. Bilateral skin necrosis over the breast implants was present (Fig. 1). As a result, extensive skin excision and removal of the breast implants were required. She slowly recovered from her shock and ARDS, could be extubated after 21 days, and was discharged from the ICU 2 days later.

Fig. 1 Bilateral breast necrosis after 24 h of prone position ventilation

In the prone position the pressure is distributed generally rather homogeneously over the anterior chest wall, and the breasts tend to be displaced to the side, which helps explain why breast necrosis does not usually occur. To our knowledge, only one localized nipple necrosis has been reported [3]. In the patient described here, the breast implants had become chronically surrounded by fibrous tissue, preventing their lateral displacement. The skin and subcutaneous tissue were therefore compressed between the implants and the mattress for a prolonged period of time compromising their perfusion, likely already jeopardized by the shock and its treatment (norepinephrine).

In conclusion, although turning prone is a useful therapeutic adjunct to mechanical ventilation of patients with ARDS, complications as reported here cannot always be anticipated or prevented. Breast implants should be viewed as a relative contraindication to prone positioning, especially when the implants are fixed by fibrous tissue. If implemented, position should be changed frequently, if possible, and chest support should target maximal relief of pressure on breast implants.

References

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L. Burdet · L. Liaudet ·
M. D. Schaller (✉) · A. F. Broccard
Critical Care Division,
Department of Internal Medicine,
University Hospital, 1011 Lausanne,
Switzerland
E-mail: marie-denise.schaller@chuv.-hospvd.ch
Phone: +41-21-3 14 16 32
Fax: +41-21-3 14 13 84