

## Replication (letter to the editor)

### *Réplica à carta ao editor.*

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#### **REPLICATION**

In their Letter to the Editor, "How to reduce pleural drainage complications using an ultrasound-guided technique", the authors attest that the method has demonstrated benefits in the fields of medical urgency and emergency.

The study carried out by Mendes and Hirano<sup>1</sup> aimed to identify post-trauma thoracic drainage complications treated at HC Unicamp (Discipline of General Surgery and Trauma) and sent from other sites. ATLS<sup>2</sup> guidelines were applied to those traumatized patients who had their first initial care conducted there.

In a study<sup>3</sup> in which most patients (85%) were referred from low-complexity hospitals with post-trauma thoracic drainage to a Reference Center, intercostal artery injury was described as one of the complications, and the authors found that, in these cases, the technique for traumatized patients recommended in ATLS<sup>2</sup> protocol was not followed. A trocar was used for insertion of the drain.

Salamonsen *et al.*<sup>4</sup> carried out a study in non-traumatized patients using ultrasound Doppler mode to locate vessels in the intercostal space, which should be avoided during thoracentesis. But the method was described in prone position, performed by medical specialists and the examined sites were in the back from the posterior axillary line. This study identified the presence of the posterior intercostal artery (PIA)

in 86% of the evaluations. Therefore, the study is not related to the recommended site for thoracic drainage in traumatized patients, which is the fifth intercostal space between the mid and anterior axillary line<sup>2</sup>. PIA is around 3mm in diameter near its origin in the aorta and, as located before, it becomes closer to the lower costal border of the intercostal space<sup>5</sup>, being more protected.

Authors<sup>6,7</sup> demonstrate that the ultrasound examination helps to determine the intercostal space favorable for thoracic drainage, reducing the occurrence of complications in the intra-hospital care. However, on a day-to-day basis, trauma referral centers receive patients through Pre-Hospital Care or less complex units (such as UPAs in Brazil), where ultrasound equipment may not be available, a scenario that may contribute to iatrogenic complications.

Concerning thoracic drainage after trauma, Mendes and Hirano<sup>1</sup> demonstrated a general complication rate of 26.5%. And when they analyzed those performed at the Reference Center, the rate was 17.9%. Patients who had the first initial care at this center followed the protocols<sup>2</sup> and were submitted to eFAST, followed by multislice computed tomography (CT) evaluation. In this study, major complications were diagnosed/suspected by CT, since they had already been referred with previous thoracic drainage.

Jenkins *et al.*<sup>8</sup> evaluated the use of ultrasound to confirm drain placement within

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the pleural space. This study defines the correct drain placement when it is seen transposing the parietal pleura, but it does not state in the method if this evaluation is done during the procedure. Another detail, if the ultrasound evaluation occurred simultaneously during the drain introduction through the chest wall, the associated identification with the used surgical material could be described in the results. The metal forceps can be shown in the ultrasound examination image<sup>9</sup>.

There is no doubt that ultrasound has gained space both in diagnostic aid and in medical procedures, contributing to a better prognosis and less occurrence of complications. Compared to simple chest X-ray, ultrasound provides better confirmation of the drain in the intercostal space after the procedure.

But there are two limitations to the method: equipment availability and learning curve. Regardless of this, the technology added to the new knowledge (researched or shared) aims to provide a quality service, which makes important the knowledge of global and local epidemiology for the elaboration of institutional protocols. Medical procedures can cause a number of complications which must be prevented, and, for this, it is necessary to know them.

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