

Dry Needling – the Life-Threatening Risk of Iatrogenic Pneumothorax

C. Swarbrigg, B. Dalton, M. Sheehy, S. Glynn

Respiratory Department, Regional Hospital Mullingar, Westmeath, Ireland.

Dear Editor,

Dry needling is a treatment procedure which has become an increasingly popular tool used by qualified physiotherapists over the last decade. It involves using a fine needle, which is placed into myofascial trigger points to break down taut skeletal muscle bands. Iatrogenic pneumothorax is a known risk of this treatment, however few publications have documented pneumothorax as an adverse effect of dry needling.

Dry needling targeting posterior upper thoracic structures such as the trapezius, supraspinatus, infraspinatus, levator scapulae and rhomboid muscles is associated with a higher risk of iatrogenic pneumothorax. Needling those areas carries an increased risk of reaching the pleura, especially where there is reduced subcutaneous tissue¹. Nonetheless, the literature surrounding dry needling and its associated complications is sparse and largely composed of individual case reports.

Since 2016 the Respiratory Department in Regional Hospital Mullingar has treated six separate cases of iatrogenic pneumothorax following dry needling to upper thoracic structures. The patients included five women and one man, all with low-normal Body Mass Index (BMI). One of the patients, a 24-year-old female, presented with bilateral pneumothoraces, the first reported case of its kind. She required a needle aspiration on the right due to worsening dyspnoea and an increase in the size of the apical pneumothorax. The others were treated conservatively with oxygen therapy and chest x-ray follow-up, all resolving within two weeks.

All 6 of our patients presented to either a chartered or registered physiotherapist with musculoskeletal issues in the upper thoracic region. For musculoskeletal issues, depth of needle insertion varies from 10-60mm, where a depth of 10-20mm has been estimated to be sufficient to reach the pleura on post-mortem examination². In addition, all had low or normal BMI readings, with low muscle mass, underlining the need for increased care to be taken when dealing with these high-risk populations.

Dry needling, despite its popularity, is a relatively new technique and thus a large gap in the literature still exists. This in turn leads to a lack of understanding of the risks involved at both a public and professional level. An increased focus must be placed on highlighting such risks to the patient undergoing the procedure, to allow a truly informed decision to be made. In addition, preventative techniques such as awareness of the local anatomy, rib-blocking and the utilisation of ultrasound for skin-to-rib measurement should be employed, particularly in these high-risk patients.

As mentioned, our case on bilateral pneumothoraces is distinctive amongst the literature as the only published case of its nature. At the time, it received attention from national press and a significant amount of feedback from both lay people and healthcare workers in the social media realm. This underpins the interest in the practice of dry needling and again the need for an open and transparent conversation on the true risks involved.

Dry needling is an important and ever-growing aspect of physiotherapy and a procedure deemed helpful by a great deal of patients seeking treatment. Nonetheless, in our centre, we witnessed the most severe of complications on 6 separate occasions. It is imperative that we as healthcare providers continue to strive for improved patient safety by assessing the risks involved and improving the measures taken to prevent them.

Corresponding Author:

Dr. Chloe Swarbrigg,
Regional Hospital Mullingar,
Westmeath.
E-Mail: chloeswarbrigg@gmail.com

References:

1. Nishie M, Masaki K, Kayama Y, Yoshino T. Bilateral Pneumothorax After Acupuncture Treatment. *BMJ Case Reports*. 2021;14(3):e241510. doi: 10.1136/bcr-2020-241510.
2. Piker ET, White A, Ernst E, Pera F, Filler TJ. Traumatic Complications of Acupuncture. Therapists Need to Know Human Anatomy. *Archives of Family Medicine*. 1999;8(6):553-8. doi: 10.1001/archfami.8.6.553.