Safe needling over the thorax

Cummings M

Introduction

This paper describes the approach taught on BMAS training courses when needling over the thorax.

Techniques

There are three techniques used when needling over the thorax:

- Superficial needling
- Needling at a tangent to the ribcage
- Needling over a rib.

Superficial needling

This refers to subcutaneous needling or to needling a few millimeters into the most superficial muscle layer. The angulation of the needle is not important for safety, unless the patient is left alone, in which case it is wise to ensure that the needle cannot be accidentally pushed through an interspace between the ribs by physical movement or adjustment of clothing.

A typical location for using this technique with a perpendicular insertion (ie directly towards the lung) is targeting trigger points (TrPs) in the upper to middle fibres of trapezius (eg near the point TE15 or TrP 2 in trapezius). Here the easiest way to obtain a local twitch response from the TrP is to needle perpendicularly, and to judge the depth of needling by feeling the transition from subcutaneous fat to muscle, and limiting further insertion to about 10mm into the first muscle layer.

Superficial
subcutaneous needling or needling a few millimeters into the most superficial muscle layer

Needling at a tangent to the ribcage

A tangent is a straight line or plane that touches a curved surface at one point only. The line or plane represents the track of the needle insertion, and the curved surface is that of the ribcage. Needling at a tangent means that the needle will never enter the space between two ribs. This technique is most often used in the upper thorax when needling trapezius trigger points around GB21.

Tangent
a straight line or plane that touches a curve or curved surface at a point, but if extended does not cross it at that point

Needling over a rib

This is probably the most risky technique, but also probably the most reliable way to target TrPs in rhomboids, middle and lower trapezius, iliocostalis thoracis and serratus posterior superior. First the target TrP is identified, and then stabilised

under two fingers. The patient is positioned such that the two fingers are placed either side of a rib, and a direct needle insertion towards the rib is likely to target the TrP. The subject remains still and the practitioner's non-needling (usually non-dominant) hand should not move. Before needle insertion a straight finger of the dominant hand presses down on the target tissue over the rib to check the resistance of the tissues and the firmness of the rib below (sometimes referred to as a solid end-feel – ie at the end of the downward movement the tissues feel solid and unyielding, indicating a bony structure), see Figure 1. Without moving the hand that is stabilising the tissues and fixing them over the rib, a needle is inserted in exactly the same angulation and direction as the straight finger and carefully inserted down to the rib surface, see Figure 2. Having established the depth of the rib surface, needling can be performed at a more shallow depth into the target tissue to achieve one or more local twitch responses (LTRs).

A 30mm needle should be sufficient, and the approximate depth of the rib should be estimated. The depth of needle insertion is calculated by knowing the length of the shaft and subtracting the length still visible above the skin surface (not including the handle). When that depth is reached, if rib contact has not been achieved, the practitioner should stop and recheck the rib position and consider reangling the needle appropriately. In slim subjects the rib depth may be between 10 and 15mm in the middle to low posterior thorax. In subjects of normal weight the rib depth may be 15 to 25mm. The ribcage has a slightly greater depth of muscle in the upper posterior aspect because of the periscapular muscles, but practitioners should take into account the degree of tissue compression, and remember that in this area there are alternative techniques for reaching the deep muscles.

Over a rib

Stabilise the target tissue with a finger either side of a rib
Keep the stabilising hand still throughout
Press onto the target over the rib with a straight finger to confirm the bony end-feel
Estimate the depth of tissue over the rib
Insert the needle in exactly the same direction and angulation as the finger
Stop and recheck *the rib position if rib contact has not occurred when you have inserted the needle to the estimated depth*
Depth of needle insertion is calculated by knowing the length of the needle shaft and subtracting the length still visible above the skin surface (not including the handle)

Figure 1 This illustrates the practitioner stabilising soft tissue over a rib by placing the index and middle finger tips firmly either side of a rib. The middle finger of the dominant hand is used to press downwards to feel the resistance of the rib.

Figure 2 A needle is inserted in the same direction as the finger pressure (in Figure 1) used to confirm the rib position and gently placed onto the rib surface. Needling is then limited to just less than the depth of the rib surface.