Setup of Operation Room and Patient Position

Breno Frota Siqueira, Junseok Bae, and Sang Soo Eun

Introduction

A number of approaches have been developed aimed at approaching the thoracic spine with minimal or no manipulation of the dural sac [1–11].

In this chapter, we will discuss the positioning of the operating room and the patient for a better understanding of the reader. There are some positions for certain surgical techniques and locations in the thoracic spine (usually different accesses for high, medium, and low thoracic levels).

Generally, the operating room setups are (Fig. 1):

1. Surgeon faces the side of the patient to be operated on.
2. Nurse to surgeon's right.
3. Table with surgical instrumentals in the nurse's direct room.
4. Anesthesiologist positioned on the left side of the surgery usually near the patient's head.
5. C-arm, your monitor, and x-ray technician are positioned in front of the surgeon.
6. Video equipment and its monitor, also positioned in front of the surgeon. An assistant nurse stands next door in the operating room.

B. F. Siqueira · J. Bae (✉)
Department of Neurosurgery, Wooridul Spine Hospital, Seoul, South Korea
e-mail: jsbaemd@gmail.com

S. S. Eun
Department of Orthopedics, Chungdam Wooridul Spine Hospital, Seoul, South Korea

Patient Position for Transforaminal Endoscopic Thoracic Discectomy (TETD)

The patient is positioned face down on a radiolucent operating table and on a Wilson frame, with the side to be operated facing the surgeon. The arms are supported on arm boards over the head. As only mild sedation and local anesthesia are used, the extremities, buttocks and shoulders can be prevented from jerking with tape if necessary (Fig. 2).

The marking of the level to be operated and the point of entry into the skin is made with the aid of C-arm images in the visualization and axial profile, corroborating the preoperative planning previously measured by computed tomography or magnetic resonance. Using the axial image of the level to be operated on, draw a line from the center of the protrusion through the edge of the facet joint and extending to the skin, joining another line drawn from that point to the midline (spinous process) (Fig. 3). Consider the anatomical shape of rib and watch for lung and aorta. The angulation is approximately 45° and approximately 5–6 cm from the midline (Figs. 4 and 5).

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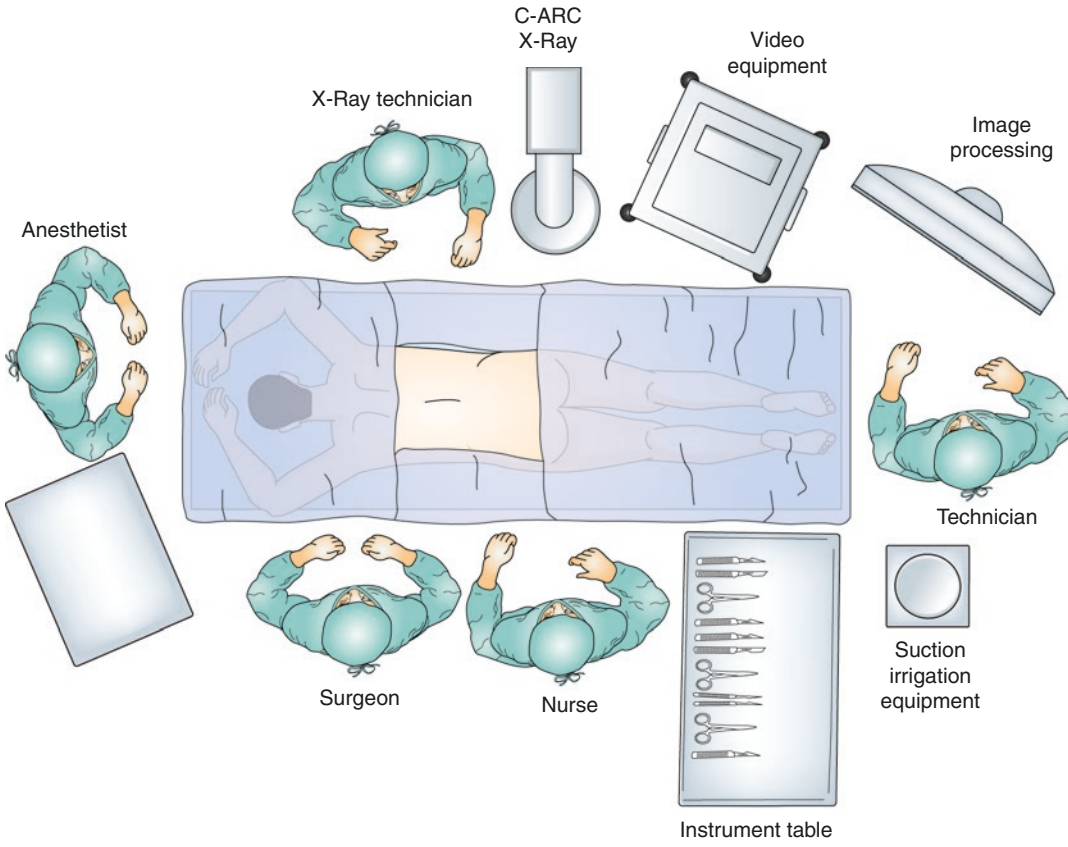

Fig. 1 Schematic drawing of operation room with medical staffs

After the patient's position, the surgeon faces the side to be operated on, the assistant nurse stands on the surgeon's right side and next to her the table with the instruments. Video tower, C-arm, and laser generator are on the other side of the patient, facing the surgeon (Fig. 6).

Transthoracic Minimally Invasive Discectomy

After performed general anesthesia, the patient is positioned in lateral decubitus with the side to be operated upward. The neck is supported and held in a neutral position. The upper shoulder and elbow are flexed at 90° and held by an armrest. Hips and knees are flexed and a pillow is placed between the lower limbs. Additional adhesive tapes may be used to stabilize the patient's position and prevent excessive movement.

One padded roll is placed under the armpit and another between the knees that are semi-flexed (Fig. 7). The upper arm is positioned on a Krause support to expose the chest wall (Fig. 8).

With C-arm, axial and lateral images are checked to ensure that the patient and spine are perpendicular to the operating table. Intervertebral disc level are marked on the skin. Monitoring of the somatosensory evoked potential and spinal cord motor are installed.

The table is folded in slightly to facilitate access to thoracic spine (Fig. 9).

Summary

In summary, as shown in this chapter, the operating room layout and patient positioning for the proposed surgery, are of paramount importance to the efficiency of the procedure and its consequent results.

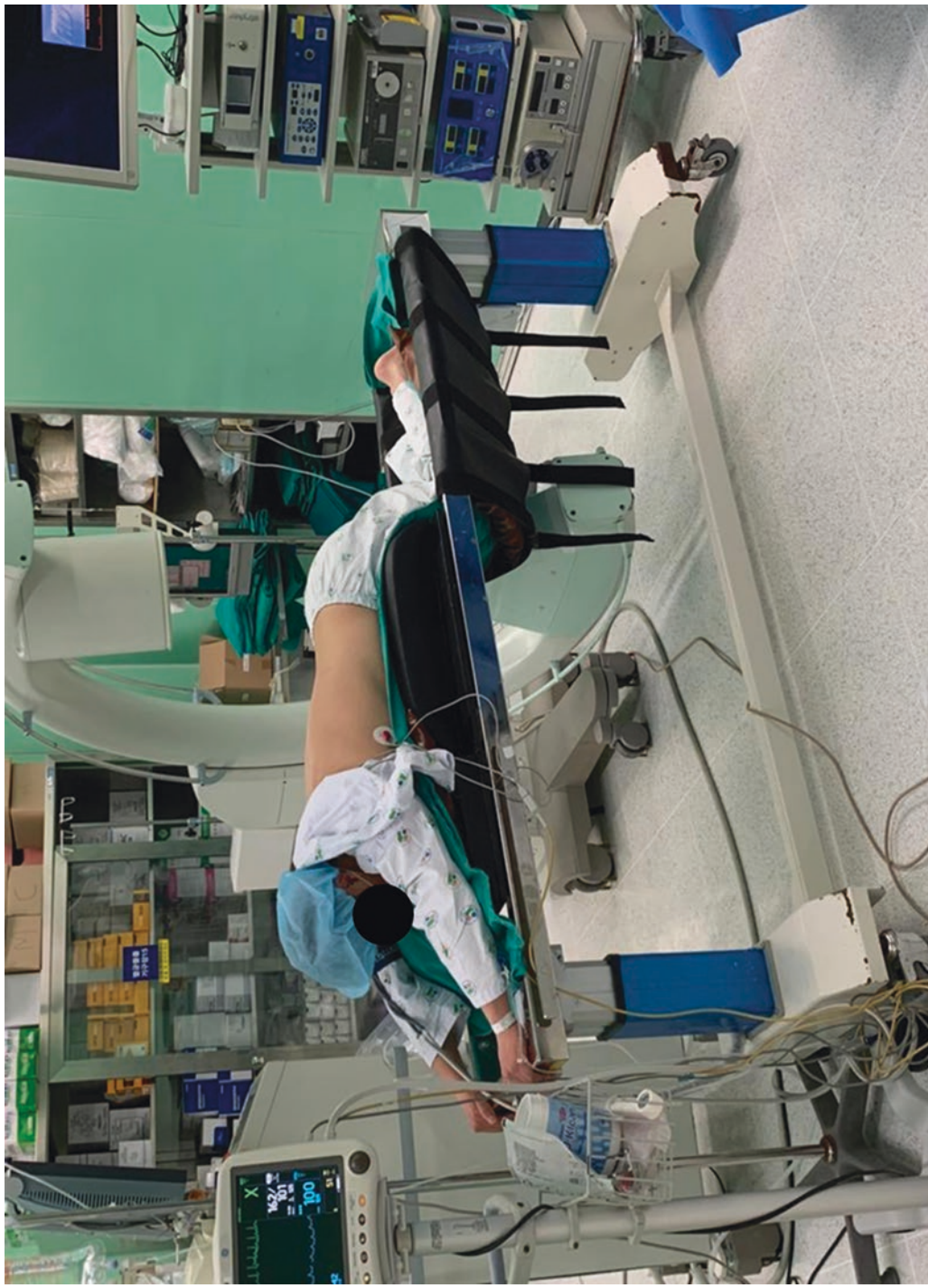

Fig. 2 Patient position on TETD

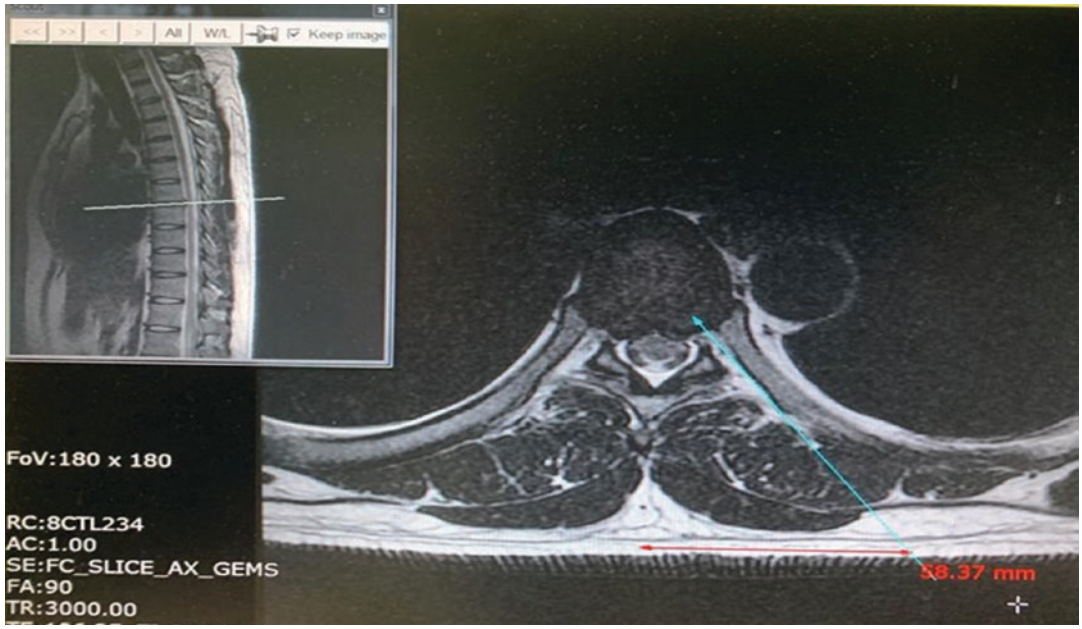

Fig. 3 Preoperative trajectory is drawn on MRI axial image

Fig. 4 Skin entry point is drawn with C-arm guidance

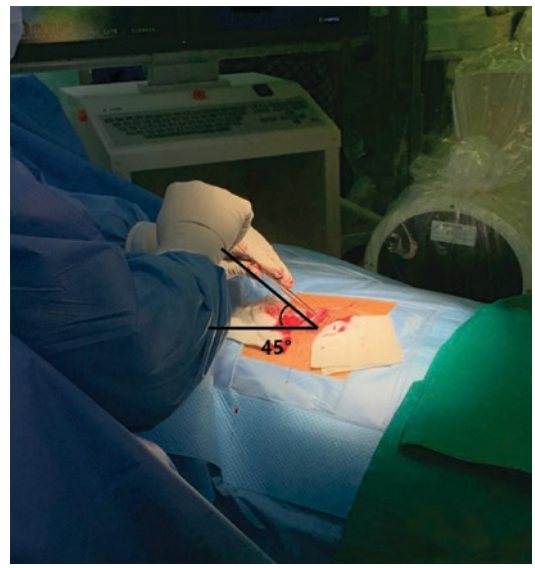

Fig. 5 Working channel is inserted with 45° angle

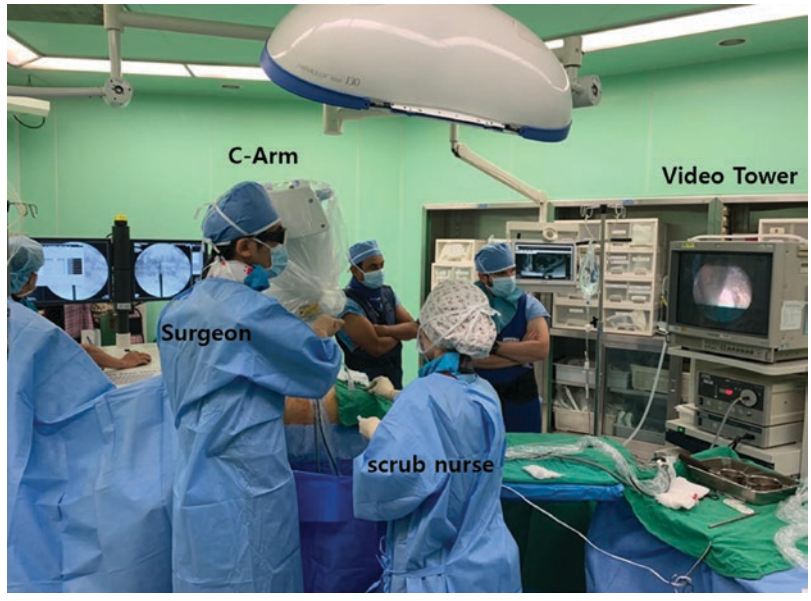

Fig. 6 Positions of medical staff during TETD

Fig. 7 Position of patient for transthoracic approach

Fig. 8 Position patient's upper arm for exposure of chest wall

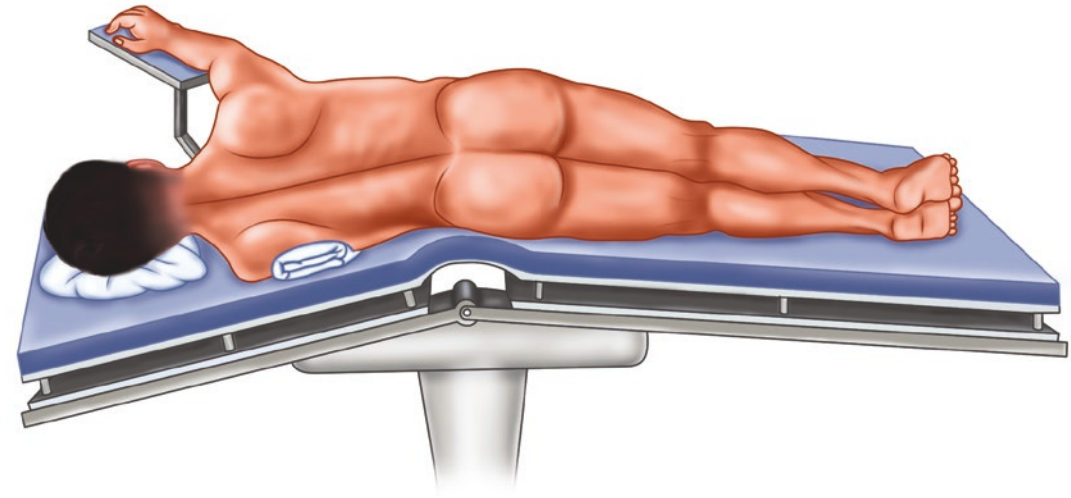

Fig. 9 Operation table is folded to expose the thoracic spine to ease the surgery

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