ENDOTRACHEAL/TRACHEOSTOMY TUBE POSITION ON PORTABLE CHEST XRAY

The preferred location of an endotracheal tube (ETT) is 3–7 cm above the carina, with the head and neck in a neutral position. Attention should be given to the neck position when evaluating the endotracheal tube on a radiograph; flexion of the neck from the neutral position can cause up to 2 cm of advancement of the tube, and extension of the neck can cause up to 2 cm of retraction of the tube.1 2

The ETT should project within and occupy approximately 50% or more of the tracheal lumen. If it does not and is located lateral to the trachea then esophageal intubation is likely. This may be associated with gastric distention if there is no nasogastric tube present.

Depending on the radiographic exposure, the carina can be difficult to identify. In the majority of patients (> 90%), the carina is at the approximate level of T6±1. Therefore, even when the carina is not visible, it can be assumed that a tube tip positioned at the level of T3 or T4 is safe. 3

Alternatively, the inferior aspect of the aortic arch is above the carina in 94% of patients, and a line drawn tangentially to the right from the inferior margin of the aortic arch should be 3–5 cm below the endotracheal tube tip.4 [4]

For tracheostomy tubes, the tip should project over the T3-T4 level and, as with an ETT, should project within and occupy approximately 50% or more of the tracheal lumen. The position of the neck is not as important since tracheostomy tubes do not significantly migrate with movement of the neck.

COMPLICATIONS REQUIRING CF REPORTING

1) Intubation of right or left main stem bronchus.
2) Tip less than 2 cm from the carina.
3) Suspected or obvious esophageal intubation.
4) Tracheostomy tube abnormally angulated, the tip projects outside the tracheal lumen and/or lies above the T3 level.

For further review of this topic and for updating of your current knowledge of various complications, please visit this website:

http://eradiology.bidmc.harvard.edu/LearningLab/respiratory/Pouliot.pdf
REFERENCES


