

AN ANALYSIS OF SCOLIOSIS EFFECTS ON TRACHEOSTOMY TUBE FIT IN PEDIATRIC PATIENTS

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Background: Objective(s): To describe the effects of location and severity of scoliosis on the trachea in patients with a tracheostomy tube

Materials/Methods: Retrospective review of patients 21 years and younger with a tracheostomy and scoliosis. Age at time of tracheostomy placement, duration of tracheostomy and ventilator dependence, location and degree of scoliosis were obtained. Archived tracheoscopy videos were assessed for tracheostomy tube fit, irritation of the trachea, view of the carina and curvature of the trachea. Patients were divided into 2 groups based on presence of spine curvature from C6 – T3 (limits of trachea) greater than 30 degrees (Group A) and less than 30 degrees (Group B).

Results: A total of 59 patients met inclusion criteria. The median age at time of tracheostomy tube placement was 1.45 years and median trach duration was 10.26 years. 45 patients (76%) were ventilator dependent. 22 patients were in Group A and 37 patients in Group B. 12 /22 (54.5%) Group A patients versus 9 of 37 Group B (32.4%) had an obstructed view of carina ($p= 0.094$), 9 out of 22 (40.9%) Group A patients versus 10 of 37 (32.4%) Group B patients had irritation of trachea ($p= 0.09$), and 13 out 22 (59.1%) Group A versus 14/37 (37.8%) had a notable curve of trachea on tracheoscopy ($p= 0.11$). These values were not statistically significant.

Conclusions: A large percentage of tracheostomy patients with scoliosis are ventilator dependent. Patients with a spine curvature of 30 degrees or greater from C6 to T3 may have a more obstructed view of carina, a higher incidence of tracheal irritation and notable curvature of trachea on tracheoscopy. Further work is needed to analyze the effects of scoliosis and fit of tracheostomy tube at time of direct laryngoscopy and bronchoscopy surveillance in the OR.

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