

Online supplement 3B: MRI analysis protocol**Image quality**

Bad: major artefacts and blurring, not suitable for analyses

Poor: moderate artefacts and blurring, partially suitable for analyses

Moderate: minor artefacts and blurring, suitable for analyses

Good: no artefacts or blurring, suitable for analyses

Excellent: no artefacts or blurring, excellent delineation of all structures

Artefacts

Coil, general motion or respiration related

Static images

Vocal cord thickening: protrusion of the vocal cords into the airway lumen at the vocal cords

Arytenoid prolapse: protrusion of the arytenoids into the airway lumen at the vocal cords

Vocal cord deviation: deviation from the triangular shape between anterior commissure and vocal cords

Airway deformations: disruption of the circular airway lumen (an A-frame deformation due to previous tracheal cannula placement or other deformations, such as due to esophageal atresia)

Displacement of cartilage grafts: protrusion of the cartilage grafts into the airway lumen

Fibrosis/chronic edema: tissue thickening or hyperintense signal on T2 weighted imaging

Dynamic images

Correct performance of the 2D dynamic maneuvers: any vocal cord abduction during inspiration and any vocal cord adduction during phonation

Correct performance of the 3D dynamic maneuvers: any vocal cord movement

Complete abduction: opening of the vocal cords into a triangular shape with a symmetrical 90 degree angle

Complete adduction: parallel closing of the vocal cords

Inspiration area: area between the vocal cords during inspiration measured on the axial 2D dynamic image

Phonation area: area between the vocal cords during phonation measured on the axial 2D dynamic image

Difference in area: area between the vocal cords during phonation divided by the area between the vocal cords during inspiration x 100%