



**Supplementary Fig. 3.** Comparison of relative humidity distributions in five representative coronal planes. The bilateral relative humidity is shown on five representative planes from the anterior part to the posterior part. In the baseline model, the relative humidity inside the MS was almost undisturbed. In the MMA, MMA+IMA, and MEGA models, the average relative humidity of the right MS was over 97% (i.e., 99.7%, 97.4%, and 98.4%, respectively). In the EMM model, the entire volume of the MS was affected by the airflow penetration, and the resulting spatial average of the relative humidity in the right MS dropped to 89.8%. MMA, middle meatal antrostomy; IMA, inferior meatal antrostomy; MEGA, mega-antrostomy; EMM, endoscopic medial maxillectomy; MS, maxillary sinus.