Congenital external auditory canal atresia, with a conductive hearing loss of 60 dB restricts hearing related social skills also in unilateral cases. The degree of middle ear deformity may make reconstruction surgery impossible or hazardous.

The authors present their image reconstructions with 3D Slicer based on high-resolution computed tomography, which are inevitable to precisely determine the position of the structures of the middle ear and to assist preoperative planning. The consequent reconstruction surgeries of the ear canal were successful and without complication. Hearing improvement reached the level above the social threshold.

The authors highlight that surgical reconstruction of the external auditory canal can be made safe and effective with a reasonably short surgical time, if it is supported by deep anatomical knowledge and thorough preoperative imaging.