De novo ear reconstruction with PCL(polycaprolactone) scaffold and diced cartilage

The unique 3-dimensional structure of the outer ear makes it one of the structure that is very difficult to reconstruct .Despite many techniques described in the literature in recent decades, it is still very challenging to create the ideal cartilage shape with existing techniques. Autologous techniques are usually insufficient to create the ideal helix and antihelix shape. In this study, we describe a new technique in which cartilage tissue and PCL(Polycaprolactone) material are used together in ear reconstruction. After the patient's ear model was transferred to the computer software, we created a PCL-based ear scaffold with the help of a 3d bioprinter.

After we diced the cartilage which was taken from the rib, we combined it with the pcl scaffold. Than a fascial graft was adapted to cover the outside of the cartilage&pcl complex. After we placed the complex to the newly formed pocket. We kept the drains minimum 3 to 5 days in order to allow the skin to adhere tightly to the newly formed pcl scaffold. Although the application of this technique seems to be relatively multi-component and complex, we believe that it is a very useful method for creating the ideal cartilage shape in ear reconstruction.

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