

OCT-Guided Separation of a Cell Layer with ROWIAK TissueSurgeon: Separation of a Collagen-Rich Layer of Aortic Valve

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Introduction

With optical coherence tomography (OCT) it is possible to image biological tissue without preceding time-consuming preparation. OCT is therefore especially useful for the detection of tissue and cell layers.

Material and Methods

Porcine hearts were obtained from the local slaughterhouse. Aortic semilunar valves were prepared and stored in normal saline until use. Heart valves were placed on a glass slide and fixed by a light metal weight. Samples were imaged by OCT, collagen-rich layers identified and cutting depths defined. Valves were cut with ROWIAK TissueSurgeon and layers manually removed with forceps.

Results

Imaging by OCT allows identification of certain tissue pattern (Fig. 1) and therefore determination of exact cutting lines (Fig. 2) in tissue.

Conclusion

ROWIAK TissueSurgeon equipped with a navigation module offers the unique opportunity to selectively isolate tissue and cell layers.

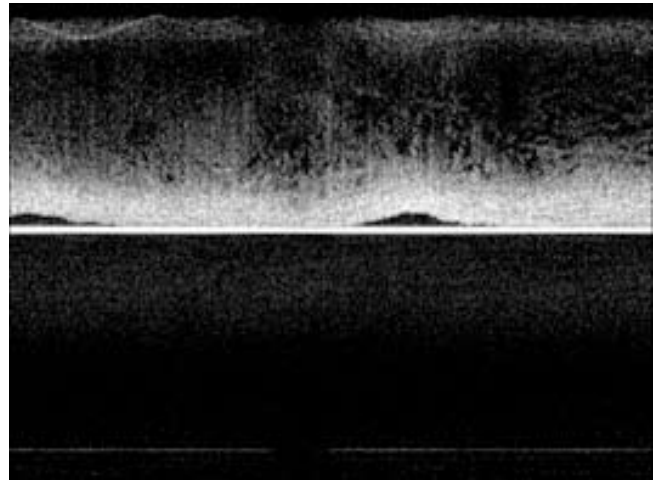


Fig. 1: OCT-image of aortic semilunar valve (before)

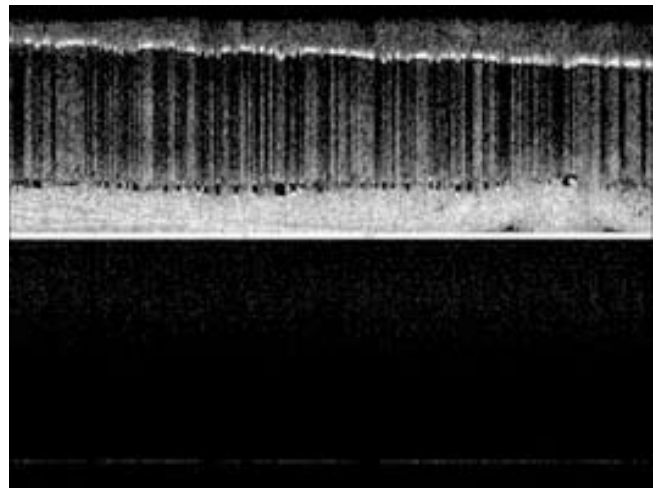


Fig. 2: OCT-image of aortic semilunar valve (after)
Bubbles indicate successful cut



Fig. 3: Collagen-rich layer partially removed.