length was insufficient (less than 5 mm **[7]**) after implantation of the shortest and the longest neochordae (Fig. 1b). After virtual repair with the shortest neochordae movement of PL was partially restricted, preventing leaflet apposition, while the implantation of the longest neochordae caused the opposite effect – the movement of the PL was not restricted enough and MV prolapse remained.

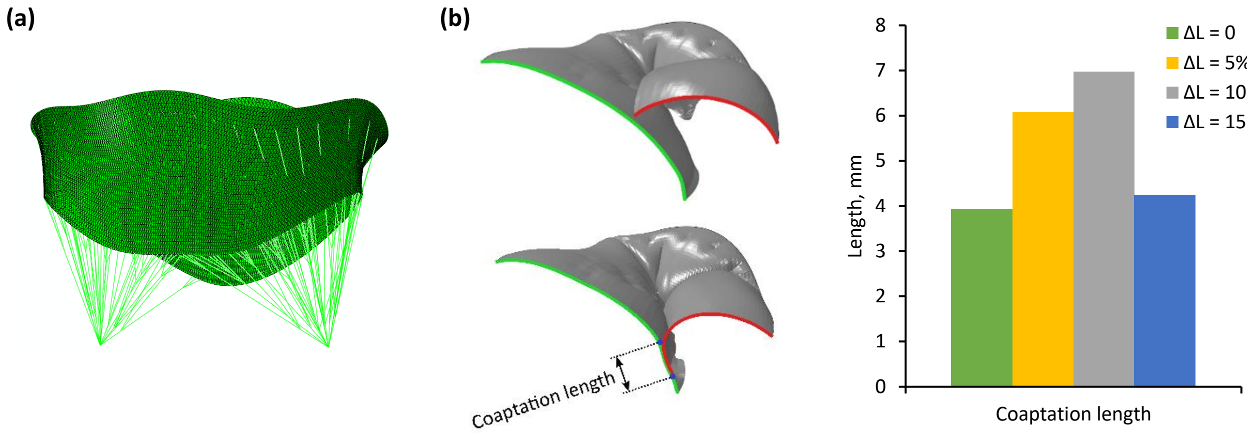

Figure 1. Finite element model of MV leaflets and chordae tendineae **(a)**; evaluation of virtual MV repair in terms of coaptation length **(b)**

4. Conclusions

In the present study, finite element modeling of the outcomes of transapical MV repair with neochordae implantation was introduced. The evaluation of the effect of neochordal length on post-repair MV function showed that the length of implanted neochordae has a significant impact on the correction of MR caused by chordae tendineae rupture.

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