

Press release

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Basic information

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Main supervisor: Jesper Hjortdal, MD PhD DMSci
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Title of dissertation: Femtosecond laser surgery and tissue implantation for treatment of corneal refractive errors

Date for defence: 06/09-2019 at (time of day): 14.15 Place: Conferene room J116-111, Entrance J, J110, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

Press release (Danish)

Laserkirurgi og vævsimplantation som kirurgisk behandling af brydningsanomalier i hornhinden.

Et nyt ph.d.-projekt fra Aarhus Universitet, Health, har på laboratoriebasis evalueret to nye laserkirurgiske ingreb for langsynethed og blandet bygningsfejl. Ph.d.-projektet havde desuden til formål at optimere en laserkirurgisk behandling for nærsynethed, kaldet small incision lenticule extraction (SMILE). Projektet er gennemført af Iben Bach Damgaard, der forsvare det d. 06/09 2019.

Ved SMILE for nærsynethed skæres en intrastromal vævslinse med femtosekund laser, der ekstraheres igennem et 2-4 mm hul for at aflade hornhinden. Den overskydende vævslinse kasseres under normale omstændigheder, men kan potentielt benyttes til behandling af andre brydningsanomalier. Ph.d.-projektet havde til formål at undersøge på laboratoriebasis, hvorvidt SMILE-vævslinsen kan indsættes i en intrastromal lomme i hornhinden som behandling af langsynethed. Endvidere præsenteres intrastromal lenticule rotation som en ny potentiel laserkirurgisk indgreb for blandet bygningsfejl, der især ses ved tidligere hornhindetransplanterede patienter.

Tidligere studier har rapporteret en biomekanisk svækkelse af hornhinden som en sjælden men alvorlig komplikation til laserkirurgi, der i værste tilfælde kan medføre synstab. Som et delprojekt blev det undersøgt hvorvidt hornhindens biomekaniske stabilitet bedre bevares ved at fjerne SMILE-vævslinsen i hornhindens dybere lag, der i mindre grad bidager til dens stabilitet.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 06/09 kl. 14.15 i Konference lokale J116-111, Aarhus Universitetshospital, Palle Juul-Jensens Boulevard, Aarhus N. Titlen på projektet er "Femtosecond laser surgery and tissue implantation for treatment of corneal refractive errors". Yderligere oplysninger: Ph.d.-studerende Iben Bach Damgaard, e-mail: iben.b.damgaard@clin.au.dk, tlf. +45 25522506.

Bedømmelsesudvalg:

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Press release (English)

Femtosecond laser surgery and tissue implantation for treatment of corneal refractive disorders.

A new PhD project from Aarhus University, Health, aimed to examine two new laser refractive techniques for treatment of hyperopia and mixed astigmatism. Furthermore, the PhD project aimed to improve an well-established surgical procedure for myopia and myopic astigmatism, known as small incision lenticule extraction (SMILE). The project was carried out by Iben Bach Damgaard, who is defending her dissertation on 06/09 2019.

In SMILE for myopia and myopic astigmatism, an intrastromal lenticule is cut using femtosecond laser. The lenticule is extracted through a 2-4 mm incision to flatten the anterior corneal curvature. The SMILE-derived lenticule is normally discarded after the procedure, but could potentially be used for treatment of other refractive disorders. The PhD project aimed to examine intrastromal implantation of SMILE-derived lenticules as a feasible treatment of hyperopia. The PhD project furthermore presents intrastromal lenticule rotation as a new feasible technique for treatment of astigmatism, which is commonly seen following penetrating keratoplasty. Previous studies have shown corneal biomechanical weakening following keratorefractive surgery, that in rare cases leads to loss of visual acuity. As a part study, the PhD project aimed to examine whether it is biomechanically more favorable to remove the lenticule deeper within the corneal stroma, that contributes to a lesser degree to the biomechanical stability.

The defence is public and takes place on 06/09 at 14.15 in Conference room J116-111, Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N. The title of the project is "Femtosecond laser surgery and tissue implantation for treatment of corneal refractive errors". For more information, please contact PhD student Iben Bach Damgaard, email: iben.b.damgaard@clin.au.dk, Phone +45 2552 2506

Assessment committee:

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