Meibomdrüsen – Teil 1:
Anatomische und physiologische Grundlagen

Meibomdrüsen – Teil 2:
Pathophysiologie

Meibomdrüsen – Teil 3:
Diagnostik und Therapie

Literatur

[1] Greiner JV, Glonek T, Korb DR, et al. Volume of the human and rabbit meibomian gland system. s.l. : Adv Exp Med Biol, 1998.

[2] Bron AJ, Tripathi DM, Tripathi BJ. Wolff's anatomy of the eye an orbit. s.l. : Chapman & Hall Medical, 1997.

[3] Duke-Elder S, Wybar KC. The Anatomy of the Visual System. s.l. : Henry Kimpton, 1961.

[4] Oyster, Clyde W. The Human Eye: Structure and Function. 2009.

[5] Foulks GN, Bron AJ. Meibomian gland dysfunction: a clinical scheme for description, diagnosis, classification and grading. s.l. : Ocul Surf , 2003.

[6] Knop E, Knop N. Meibom-Drüsen Teil I: Anatomie, Embryologie und Histologie der Meibom-Drüsen. s.l. : Ophthalmologe, 2009.

[7] Knop E, Knop N, Zhiviv A, et al. The lid wiper and muco-cutaneous junction anatomy of the human eyelid margins: an in vivo confocal an histological study. s.l. : J. Ant, 2011.

[8] Knop E, Knop N, Millar T, Obata H und Sullivan DA. The International Workshop on Meibomian Gand Dysfunction: Report of the Subcommittee on Anatomy, Physiology and Pathophysiology oft the Meibomian Gland. s.l. : Investigative Ophthalmology & Visual Science, 2011.

[9] Knop E, Knop N. Anatomical and Developmental Background of the Meibomian Gland. s.l. : Tiffany JM ed, 2000.

[10] Gorgas, A und Volkl, K. Peroxisomes in sebaceous glands. IV Aggregates of tubular peroxisomes in the mouse Meibomian gland. s.l. : Histochem J, 1984.

[11] Bron JM, Tiffany AJ. The meibomian glands and tear film lipids. Structure, function and control. s.l. : Adv Exp Med Biol, 1998.

[12] Olami Y, Zajicek G, Cogan M, Gnessin H und Pe'er J. Turnover an migration of meibomian gland cells in rats' eyelids. s.l. : Ophthalmic Res, 2001.

[13] Doughty MJ, Naase T, Donald C, Hamilton L, Button NF. Visualisation of „Marx's line" along the marginal eyelid conjunctiva of human subjects with lissamine green dye. s.l. : Ophthalmic Physiol Opt, 2004.

[14] Green-Church KB, Butovich I, Wollcox M, et al. The International Workshop on Meibomian Gland Dysfunction: Report of the Subcomittee on Tear Film Lipids an Lipid-Protein Intreraction in Health and Disease. s.l. : Investigative Ophthalmology & and Visual Science, 2011.

[15] Peters K, Millar T. The role of different phospholipids on tear break up time using a model eye. s.l. : Curr Eye Res, 2002.

[16] Shine WE, McCully JP. Polar lipids in human meibomian gland secretions. s.l. : Curr Eye Res, 2003.

[17] Bron AJ, Tiffany JM, Gouveia SM, Yokoi N, Voon LW. Functional aspects of the tear film lipid layer. s.l. : Exp Eye Res, 2004.

[18] Tiffany JM, Marsden RG. The influence of composition on physical properties of meibomian secretion. The Preocular Tear Film in Health, Disease and Contact Lens Wear. s.l. : Dry Eye Institute, 1986.

[19] Knop E, Knop N. Meibom-Drüsen Teil IV: Funktionelle Interaktionen in der Pathogenese der Dysfunktion (MGD). s.l. : Ophthalmologe, 2009.

[20] Chew CK, Jansweijer C, Tiffany JM, Dikstein S, Bron AJ. An instrument for quantifying meibomian lipid on the lid margin: the meibometer. s.l. : Curr Eye Res, 1993.

[21] Barishak YR. Embryology of the eye and its adnexae. Dev Ophthalmol : s.n., 1992.

[22] Knop E, Ludescher M, Knop N,. The Meibomian glands – a „hair without a hair shaft" – cytokeratin expression of the Human Meibomian glands. Ophthalmologe : s.n., 2010.

[23] Knop, E., Ludescher, M. und Knop, N. Keratinization of the Human Meibomian Gland and Its Contribution to Meibomian Gland Dysfunction (MGD). s.l. : Investigative Ophthalmology & Visual Science, 2010.

[24] Knop E, Knop M, Brewitt H, et al. Meibomdrüsen Teil III. Meibomdrüsen Dysfunktion (MGD) – Plädoyer für ein eigenständiges Krankheitsbild und wichtige Ursache für das Trockene Auge. s.l. : Ophthamologe, 2009.

[25] Choo PH. Distichiasis, trichiasis and entropion: advances in management. s.l. : Int Ophthalmol Clin, 2002.

[26] Obata H. Anatomy and histopathology of human Meibomian gland. s.l. : Cornea 21, 2002.

[27] Sullivan BD, Evans JE, Dana MR, Sullivan DA. Impact of androgen deficiency on the lipid profiles in human meibomian gland secretions. s.l. : Adv Exp Med Biol, 2002.

[28] Cermak JM, Kreuzer KL, Sullivan RM, Dana MR, Sullivan DA. Is complete androgen insensitivity syndrome associated with alterations in the meibomian gland and ocular surface? s.l. : Cornea, 2003.

[29] Worda C, Nepp J, Huber JC, Sator MO. Treatment of keratoconjunctivitis sicca with topical androgen. s.l. : Maturitas, 2001.

[30] Auw-Headrich C, Feltgen N. Estrogen receptor expression in meibomian glands an its correlation with age an dry-eye parameters. s.l. : Graefes Arch Clin Ex Ophthalmol, 2003.

[31] Sullivan DA, Jensen RV, Suzuki T, Richards SM. Do sex steroids exert sex-specific and/or opposite effects on gene expression in lacrimal an meibomian glands? 2009.

[32] Sullivan DA. Tearful relationships? Sex, hormones, the lacrimal gland, and aqueous-deficient dry eye. s.l. : Ocul Surf, 2004.

[33] Schaumberg DA, Sullivan DA, Buring JE, Dana MR. Prevalence of dry eye syndrome among US women. s.l. : Am J Ophthalmol, 2003.

[34] Seifert P, Spitznas M. Immunocytochemical and ultrastructural evaluation of the distribution of nervous tissue an neuropeptides in the meibomian gland. s.l. : Graefes Arch Clin Exp Ophthalmol, 1996.

[35] Perra MT, Serra A, Sirigu P, Turno F. Histochemical demonstration of acetylcholinesterase activity in human Meibomian glands. s.l. : Eur J Histochem, 1996. 36. Tiffany JM. The normal tear film. s.l. : Dev Ophthalmol, 2008.15 MGD-Bericht

[37] Craig JP, Blades K, Patel S. Tear lipid layer structure an stability following expression of the meibomian glands. s.l. : Ophthalmic Physiol Opt, 1995.

[38] Bron AJ, Tiffany JM. The Tear film lipid layer forms a pleated sheet on eye closure. s.l. : Ophthalmic Research, 2003.

[39] Geerling G, Finis D,Garreis F, Hampel U, Knop E, Knop N, Paulsen F, Schrader S,. Meibom-Drüsen-Dysfunktion – Aktuelle Diagnose und Therapieoptionen. s.l. : Uni-Med, 2015.

[40] Knop E, Knop N. Tränenfilmstörungen als Zivilisationskrankheit – Erhöhte Anforderungen an Diagnostik und Therapie der MGD. s.l. : Ophthalmologische Nachrichten, 2012.

[41] Ehlers N. The precorneal film. Biomicroscipic, histological and chemical investigations. s.l. : Acta Ophthalmol, 1965.

[42] Kessing SV. A new division of the conjunctiva on the basis of x-ray examination. s.l. : Acta Ophthalmol Copenh, 1967.

[43] Knop N, Korb DR, Blackie CA, Knop E. The lid wiper contains goblet cells and goblet cell crypts for ocular surface lubrication during the blink. s.l. : Cornea, 2012.

[44] Korb DR, Blakie CA. Meibomian gland diagnostic expressibility: correlation with dry eye symptoms and gland location. s.l. : Cornea, 2008.

[45] Norn M. Expressibility of meibomian secretion. Relation to age, lipid precorneal film scales, foam, hair and pigmentation. s.l. : Acta Ophthalmol, 1987.

[46] Arita R, Itoh K, Inoue K, Amano S. Noncontact infrared meibography to document age-relatet changes of the meibomian glands in a normal population. s.l. : Ophthalmology, 2008.

[47] Sullivan BD, Evans JE, Dana MR, Sullivan DA. Influence of aging on the polar and neutral lipid profiles in human meibomian gland secretions. s.l. : Arch Ophthalmol, 2006.

[48] Krenzer KL, Dana MR, Ullmann MD, Cermak JM, Tolls DB, Evans JE, Sullivan DA. Effect of androgen deficiency on the human meibomian gland an ocular surface. s.l. : J Clin Endocrinol Metab, 2000.

[49] Mathers WD, Lane JA. Meibomian gland lipids, evaporation, and tear film stability. s.l. : Adv Exp Med Biol, 1998.

[50] Cope C, Dilly PN, Kaura R, Tiffany JM. Wettability of the corneal surface: a reappraisal. s.l. : Curr Ey Res, 1986.

[51] Jones L, Downie L, Korb D, Benitez-del-Castillo J, Dana R, Deng S, Dong P, Geerling G, Yudi Hida R, Liu Y, Yul Seo K, Tauber J, Wakamatsu T, Xu J, Wolffsohn J. DEWS II-Bericht für Management und Therapie. 2017.

[52] Nichols KK, Foulks GN, Bron JA, Glasgow BJ, Dogru M, Tsubota K, Lemp MA, Sullivan DA. Report of the International Workshop on Meibomian Gland Dysfunktion. s.l. : Théa Pharma, 2011.

[53] Paulsen F, Kaiser D, Auffarth GU, Sel S. Blepharitis. In Pleyer U (ed) Entündliche Augenerkrankungen. s.l. : Springer, 2014.

[54] Blackie C.A., et al. Nonobvious obstructive meibomian gland dysfunction. s.l. : Cornea, 2010.

[55] Ng A, Bitton E, et al. Demodex infestation of the eyelash. s.l. : Contact Lens Spectr , 2014.

[56] Lacey N, Kavanagh K, Tseng SC. Under the lash: Demodex mites in human diseases. s.l. : Biochem (Lond), 2009.

[57] Gao YY, Di Pascuale MA, Li W, et al. High prevalence of Demodex in eyelashes with cylindrical dandruff. s.l. : Investig Ophthalmol Vis Sci, 2005.

[58] Cheng AM, Sheha H, Tseng SC. Recent advances on ocular Demodex infestation. s.l. : Curr Opin Ophthalmol, 2015.

[59] Paulsen F. Functional anatomy of ocular surface and tearfilm and the pathophysiological Developments in the cours of disease. s.l. : Ocular Surface Disorders. Alcon, 2014.

[60] Baudouin C, Aragona P, Messmer EM, Tominson A, Calonge M, Boboridis KG, Akova YA, Geerling G, Labetoulle M, Rolando M,. Role of hyperosmolarity in the pathogenesis and management of dry eye disease: proceedings of the OCEAN group meeting. s.l. : Ocul Surf., 2013.

[61] Liu S, Richards SM, Lo K, HAtton M, Fay A, Sullivan DA. Changes in gene expression in human meibomian gland dysfunction. 2011.

[62] Green-Church KB, Butovich I, Willcox M, Borchman D, Paulsen F, Barabino S, Glasgow B. The Meibomian Gland Workshop Study Report: Meibomian gland contribution the the tear film. s.l. : Invest Ophthalmol Vis Sci., 2011.

[63] Bron A, et al. DEWS II Pathophysiologiebericht. 2017.

[64] Tomlinson A. The international workshop on meibomian gland dysfunction: report of the diagnosis subcommittee. s.l. : Invest Ophthalmol Vis Sci, 2011.

[65] Nelson JD, Shimazaki J, Benitez-del-Castillo JM. The international workshop on meibomian gland dysfunction: report of the definition and classification subcommittee. s.l. : Invest Ophthalmol Vis Sci, 2011.

[66] Maïssa C, Guillon M, Simmons P, Vehige J. Effect of castor oil emulsion eyedrops on tear film composition and stability. s.l. : Cont Lens Anter Eye, 2010.

[67] Craig JP, Purslow C, Murphy PJ, Wolffsohn JS. Effect of a liposomal spray on the preocular tear film. s.l. : Cont Lens Anter Eye , 2010.

[68] Zhang W, Wang Y, Lee BT, Liu C, Wei G, Lu W. A novel nanoscale-dispersed eye ointment for the treatment of dry eye disease. s.l. : Nanotechnology, 2014.

[69] Murakami DK., Blackie CA., Korb DR. All Warm Compresses Are Not Equally Efficacious. s.l. : American Academy of Optometry, 2015.

[70] Lee H., Kim M., Park SY., Kim EK., Seo KY., Kim Ti. Mechanical meibomian gland squeezing combined with eyelid scrubs and warm compresses for the treatment of meibomian gland dysfunction. s.l. : Clin Exp Optom , 2017.

[71] Thode AR., Latkany RA.,. Current and Emerging Therapeutic Strategies for the Treatment of Meibomian Gland Dysfunction (MGD). s.l. : Springer, 2015.

[72] Bron AJ, Tiffany JM. The contribution of meibomian disease to dry eye. . s.l. : Ocul Surf , 2004. [73] Bitton E, Lacroix Z, Léger S. In-vivo heat retention comparison of eyelid warming masks. . s.l. : Cont Lens Anter Eye , 2016.

[74] Moore JE. Sharma A. 'Eyepeace' is an effective new 'massaging tool' for treatment of evaporative dry eye due to obstructive meibomian gland disease. s.l. : The Eyepeace, 2015.16 MGD-Bericht

[75] Korb DR, Blackie CA. Debridement-scaling: a new procedure that increases Meibomian gland function and reduces dry eye symptoms. s.l. : Cornea, 2013.

[76] Finis D, Schrader S, Geerling G. Meibomian gland dysfunction. s.l. : Klin Monatsblätter für Augenheilkd. Mai, 2012.

[77] Calder PC. N-3 polyunsaturated fatty acids and inflammation: from molecular biology to the clinic. s.l. : Lipids, 2003.

[78] Zhao YE, Wu LP, Hu L, Xu JR. Association of blepharitis with Demodex: a meta-analysis. s.l. : Ophthalmic Epidemiol, 2012.

[79] Kheirkhah A, Casas V, Li W, Raju VK, Tseng SC. Corneal manifestations of ocular demodex infestation. . s.l. : Am J Ophthalmol , 2007.

[80] Carson CF, Hammer KA, Riley TV. Melaleuca alternifolia (Tea Tree) oil: a review of antimicrobial and other medicinal properties. . s.l. : Clin Microbiol Rev , 2006.

[81] Gao YY, Di Pascuale MA, Li W, Baradaran-Rafii A, Elizondo A, Kuo CL. In vitro and in vivo killing of ocular Demodex by tea tree oil. s.l. : Br J Ophthalmol , 2005.

[82] Tighe S, Gao YY, Tseng SC. Terpinen-4-ol is the Most Active Ingredient of Tea Tree Oil to Kill Demodex Mites. s.l. : Transl Vis Sci Technol , 2013.

[83] Yokoi N, Bron AJ, Georgiev GA. The precorneal tear film as a fluid shell: the effect of blinking and saccades on tear film distribution and dynamics. s.l. : Ocul Surf , 2014.

[84] Uchino Y, Uchino M, Yokoi N, Dogru M, Kawashima M, Okada N. Alteration of tear mucin 5AC in office workers using visual display terminals: The Osaka Study. . s.l. : JAMA Ophthalmol , 2014.

[85] Fenga C, Aragona P, Cacciola A, Spinella R, Di Nola C, Ferreri F. Meibomian gland dysfunction and ocular discomfort in video display terminal workers. s.l. : Eye (Lond), 2008.

[86] Cardona G, Gómez M, Quevedo L, Gispets J. Effects of transient blur and VDT screen luminance changes on eyeblink rate. s.l. : Cont Lens Anter Eye 2014, 2014.

[87] Blehm C, Vishnu S, Khattak A, Mitra S, Yee RW. Computer vision syndrome: a review. s.l. : Surv Ophthalmol, 2005.