

BIBLIOGRAPHIE

La microscopie spéculaire in vivo pour l'évaluation objective de l'endothélium cornéen humain

- [1] Vogt A. Die Sichtbarkeit des lebenden Hornhautendothels. Graefes Arch Clin Exp Ophthalmol 1920;101:123–44.
- [2] Irvine AR, Irvine Jr AR. Variations in normal human corneal endothelium. A preliminary report of pathologic human cornea endothelium. Am J Ophthalmol 1953;36:1279–85.
- [3] Stocker EG, Schoessler JP. Corneal endothelial polymegasthism induced by PMMA contact lens wear. Invest Ophthalmol Vis Sci 1985;26:857–63.
- [4] Doughty MJ, Oriowo OM, Cullen AP. Morphometry of the corneal endothelium in glassblowers compared to non-glassblowers. J Photochem Photobiol B 2002;67:130–8.
- [5] Doughty MJ, Fonn D, Nguyen T. Assessment of the reliability of calculations of the coefficient of variation of normal and polymegasthous corneal endothelium. Optom Vis Sci 1993;70:759–70.
- [6] McCarey BE, Edelhauser HF, Lynn MJ. Review of corneal endothelial specular microscopy for FDA clinical trials of refractive procedures, surgical devices, and new intraocular drugs and solutions. Cornea 2008;27:1–16.
- [7] Maurice DM. Cellular membrane activity in the corneal endothelium of the intact eye. Experientia 1968;24:1094–5.
- [8] Yee RW, Mastuda M, Edelhauser HF. Wide-field endothelial counting panels. Am J Ophthalmol 1985;98:596–7.
- [9] Doughty MJ. Evaluation of possible error sources in corneal endothelial morphometry with a semi-automated non-contact specular microscope. Cornea 2013;32:1196–203.
- [10] Patel SV, McLaren JW, Bachmen LA, Bourne WM. Comparison of flex-center, center, and corner methods of endothelial cell analysis. Cornea 2010;29:1042–7.
- [11] Thuret G, Deb-Joardar N, Zhao M, et al. Agreement between two non-contact specular microscopes: Topcon SP2000P versus Rhine-Tec. Br J Ophthalmol 2007;91:979–80.
- [12] Jonuscheit S, Doughty MJ, Ramaesh K. In-vivo confocal microscopy of the corneal endothelium: comparison of three morphometry methods after corneal transplantation. Eye 2011;25:1130–7.
- [13] Doughty MJ, Jonuscheit S, Button NF. Assessment of the reliability of endothelial cell density estimates in the presence of pseudoguttata. Graefes Arch Clin Exp Ophthalmol 2012;50:111–21.
- [14] Doughty MJ. Further analysis of the predictability of corneal endothelial cell density (ECD) estimates when polymegasthism is present. Cornea 2017;36:973–9.

La microscopie spéculaire peut-elle être un outil utile ?

- [15] Maurice DM. Cellular membrane activity in the corneal endothelium of the intact eye. Experientia 1968;24:1094–5.
- [16] Maurice DM. A scanning slit optical microscope. Invest Ophthalmol 1974;13:1033–7.
- [17] Laing RA, Sandstrom MM, Leibowitz HM. In vivo photomicrography of the corneal endothelium. Arch Ophthalmol 1975;93:143–5.
- [18] Bourne WM, Kaufman HE. Specular microscopy of human corneal endothelium in vivo. Am J Ophthalmol 1976;81:319–23.
- [19] Okumura N, Matsumoto D, Okazaki Y, et al. Wide-field contact specular microscopy analysis of corneal endothelium post trabeculectomy. Graefes Arch Clin Exp Ophthalmol 2018;56:751–7.
- [20] Tanaka H, Okumura N, Koizumi N, et al. Panoramic view of human corneal endothelial cell layer observed by a prototype slit-scanning wide-field contact specular microscope. Br J Ophthalmol 2017;101(5):655–9.
- [21] Tan DT, Dart JK, Holland EJ, Kinoshita S. Corneal transplantation. Lancet 2012;379:1749–61.
- [22] Kinoshita S, Koizumi N, Ueno M, et al. Injection of cultured cells with a ROCK inhibitor for bullous keratopathy. N Engl J Med 2018;378:995–1003.
- [23] Garcerant D, Hirschschall N, Toalster N, et al. Descemet's stripping without endothelial keratoplasty. Curr Opin Ophthalmol 2019;30:275–85.
- [24] Moloney G, Petsoglou C, Ball M, et al. Descemetorhexis without grafting for Fuchs endothelial dystrophy-supplementation with topical ripasudil. Cornea 2017;36:642–8.

[25] Macsai MS, Shiloach M. Use of topical Rho kinase inhibitors in the treatment of Fuchs dystrophy after Descemet stripping only. Cornea 2019;38(5):529–34.

Microscopie confocale in vivo

- [26] Minsky M. Memoir on inventing the confocal scanning microscope. Scanning 1988;10:128–38.
- [27] Bohn S, Sperlich K, Allgeier S, et al. Cellular in vivo 3D imaging of the cornea by confocal laser scanning microscopy. Biomed Opt Express 2018;9:2511–25.
- [28] Bochert R, Zhivov A, Kraak R, et al. Contribution to comprehension of image formation in confocal microscopy of cornea with Rostock cornea module. Br J Ophthalmol 2005;89:1351–5.
- [29] Weiss JS, Møller HU, Aldave AJ, et al. IC3D classification of corneal dystrophies - edition 2. Cornea 2015;34:117–59.
- [30] Labbé A, Khammari C, Dupas B, et al. Contribution of in vivo confocal microscopy to the diagnosis and management of infectious keratitis. Ocul Surf 2009;7:41–52.
- [31] Guthoff RF, Zhivov A, Stachs O. In vivo confocal microscopy, an inner vision of the cornea - a major review. Clin Experiment Ophthalmol 2009;37:100–17.
- [32] Guthoff RB, Stave J. Atlas of confocal laser scanning in-vivo microscopy in ophthalmology. Berlin-Heidelberg: Springer-Verlag; 2006.
- [33] Zhivov A, Stachs O, Stave J, Guthoff RF. In vivo three-dimensional confocal laser scanning microscopy of corneal surface and epithelium. Br J Ophthalmol 2009;93:667–72.
- [34] Patel DV, McGhee CNJ. Contemporary in vivo confocal microscopy of the living human cornea using white light and laser scanning techniques : a major review. Clin Experiment Ophthalmol 2007;35:71–88.
- [35] Hollingsworth J, Perez-Gomez I, Mutalib HA, Efron N. A population study of the normal cornea using an in vivo, slit-scanning confocal microscope. Optom Vis Sci 2001;78:706–11.
- [36] Grupcheva CN, Craig JP, Sherwin T, McGhee CN. Differential diagnosis of corneal oedema assisted by in vivo confocal microscopy. Clin Experiment Ophthalmol 2001;29:133–7.
- [37] Yeh SI, Liu TS, Ho CC, Cheng HC. In vivo confocal microscopy of combined pre-descemet membrane corneal dystrophy and fuchs endothelial dystrophy. Cornea 2011;30:222–4.
- [38] Chiou AG, Kaufman SC, Beuerman RW, et al. Confocal microscopy in cornea guttata and Fuchs' endothelial dystrophy. Br J Ophthalmol 1999;83:185–9.
- [39] Dong WL, Zou LH, Pan ZQ, Wang L. Morphologic characteristics of cornea in Fuchs endothelial dystrophy observed by confocal microscopy. Zhonghua Yan Ke Za Zhi Chin J Ophthalmol 2004;40:465–70.
- [40] Fayol N, Labbé A, Dupont-Monod S, et al. Contribution of confocal microscopy and anterior chamber OCT to the study of corneal endothelial pathologies. J Fr Ophtalmol 2007;30:348–56.
- [41] Kobayashi A, Yokogawa H, Yamazaki N, et al. In vivo laser confocal microscopy after Descemet's membrane endothelial keratoplasty. Ophthalmology 2013;120:923–30.
- [42] Rokita-Wala I, Mrukwa-Kominek E, Gierek-Ciaciura S. Changes in corneal structure observed with confocal microscopy during Fuchs endothelial dystrophy. Klin Oczna 2000;102:339–44.
- [43] Mustonen RK, McDonald MB, Srivannaboon S, et al. In vivo confocal microscopy of Fuchs' endothelial dystrophy. Cornea 1998;17:493–503.
- [44] Hecker LA, McLaren JW, Bachman LA, Patel SV. Anterior keratocyte depletion in Fuchs endothelial dystrophy. Arch Ophthalmol 2011;129:555–61.
- [45] Aggarwal S, Cavalcanti BM, Regali L, et al. In vivo confocal microscopy shows alterations in nerve density and dendritiform cell density in Fuchs' endothelial corneal dystrophy. Am J Ophthalmol 2018;196:136–44.
- [46] Amin SR, Baratz KH, McLaren JW, Patel SV. Corneal abnormalities early in the course of Fuchs' endothelial dystrophy. Ophthalmology 2014;121:2325–33.
- [47] Patel SV, McLaren JW. In vivo confocal microscopy of Fuchs endothelial dystrophy before and after endothelial keratoplasty. JAMA Ophthalmol 2013;131:611–8.
- [48] Chehaibou I, Georgeon C, Laroche L, et al. Imaging of posterior corneal dystrophies. J Fr Ophtalmol 2018;41:669–71.

- [49] Cheng LL, Young AL, Wong AKK, et al. Confocal microscopy of posterior polymorphous endothelial dystrophy. *Cornea* 2005;24:599–602.
- [50] Chiou AG, Kaufman SC, Beuerman RW, et al. Confocal microscopy in posterior polymorphous corneal dystrophy. *Ophthalmologica* 1999;213:211–3.
- [51] Martone G, Casprini F, Traversi C, et al. Pseudoexfoliation syndrome: in vivo confocal microscopy analysis. *Clin Experiment Ophthalmol* 2007;35:582–5.
- [52] Zheng X, Shiraishi A, Okuma S, et al. In vivo confocal microscopic evidence of keratopathy in patients with pseudoexfoliation syndrome. *Invest Ophthalmol Vis Sci* 2011;52:1755–61.
- [53] Terracciano L, Cennamo M, Favuzza E, et al. An in vivo confocal microscopy study of corneal changes in pseudoexfoliation syndrome. *Eur J Ophthalmol* 2018. 1120672118803850.
- [54] Muraine M. Les greffes endothéliales. *J Fr Ophtalmol* 2008;31:907–20.
- [55] Chirapapaisan C, Abbouda A, Jamali A, et al. In vivo confocal microscopy demonstrates increased immune cell densities in corneal graft rejection correlating with signs and symptoms. *Am J Ophthalmol* 2019;203:23–36.
- [56] Niederer R, Sherwin T, McGhee C. In vivo confocal microscopy of subepithelial infiltrates in human corneal transplant rejection. *Cornea* 2007;26:501–4.
- [57] Hau S, Clarke B, Thaug C, Larkin DFP. Longitudinal changes in corneal leucocyte density in vivo following transplantation. *Br J Ophthalmol* 2019;103(8):1035–41.
- [58] Cohen RA, Chew SJ, Gebhardt BM, et al. Confocal microscopy of corneal graft rejection. *Cornea* 1995;14:467–72.
- [59] Mencucci R, Favuzza E, Tartaro R, et al. Descemet stripping automated endothelial keratoplasty in Fuchs' corneal endothelial dystrophy : anterior segment optical coherence tomography and in vivo confocal microscopy analysis. *BMC Ophthalmol* 2015;15:99.
- [60] Ferrari G, Reichegger V, Luderghani L, et al. In vivo evaluation of DSAEK interface with scanning-laser confocal microscopy. *BMC Ophthalmol* 2012;12:32.
- Tomographie en cohérence optique plein champ**
- [61] Dubois A, Vabre L, Boccara AC, Beaurepaire E. High-resolution full-field optical coherence tomography with a Linnik microscope. *Appl Opt* 2002;41:805–12.
- [62] Ghouali W, Grieve K, Bellefq S, et al. Full-field optical coherence tomography of human donor and pathological corneas. *Curr Eye Res* 2015;40:526–34.
- [63] Grieve K, Ghoubay D, Georgeon C, et al. Three-dimensional structure of the mammalian limbal stem cell niche. *Exp Eye Res* 2015;140:75–84.
- [64] Grieve K, Thouvenin O, Sengupta A, et al. Appearance of the retina with full-field optical coherence tomography. *Invest Ophthalmol Vis Sci* 2016;57:96–104.
- [65] Grieve K, Ghoubay D, Georgeon C, et al. Stromal striae: a new insight into corneal physiology and mechanics. *Sci Rep* 2017;7:13194–6.
- [66] Borderie M, Grieve K, Irsch K, et al. New parameters in assessment of human donor corneal stroma. *Acta Ophthalmol* 2017;95:297–306.
- [67] Bocheux R, Pernot P, Borderie V, et al. Quantitative measures of corneal transparency, derived from objective analysis of depth-resolved corneal images, demonstrated with full-field optical coherence tomographic microscopy. *PLoS One* 2019;14(8). e0221707.
- Imagerie de la cornée par microscopie par cohérence optique Gabor-domain (GD-OCM)**
- [68] Rolland JP, Meemon P, Murali S, et al. Gabor-based fusion technique for optical coherence microscopy. *Opt Express* 2010;18(4):3632–42.
- [69] Canavesi C, Rolland JP. Ten years of Gabor-domain optical coherence microscopy. *Appl Sci* 2019;9(12):2565.
- [70] Cogliati A, Canavesi C, Hayes A, et al. MEMS-based hand-held scanning probe with pre-shaped input signals for distortion-free images in Gabor-domain optical coherence microscopy. *Opt Express* 2016;24(12):13365–74.
- [71] Tankam P, He Z, Hindman HB, et al. Capabilities of Gabor-domain optical coherence microscopy for the assessment of corneal disease. *J Biomed Opt* 2019;24(2). 046002.
- [72] Tankam P, He Z, Chu YJ, et al. Assessing microstructures of the cornea with Gabor-domain optical coherence microscopy: pathway for corneal physiology and diseases. *Opt Lett* 2015;40(6):1113–6.
- [73] Yoon C, Mietus A, Qi Y, et al. Quantitative assessment of human donor corneal endothelium with Gabor domain optical coherence microscopy. *J Biomed Opt* 2019;24(8). 085001.
- [74] Canavesi C, Cogliati A, Mietus A, et al. In vivo imaging of corneal nerves and cellular structures in mice with Gabor-domain optical coherence microscopy. *Biomed Opt Express* 2020;11(2):711–24.
- [75] Fercher AF, Hitzinger CK, Kamp G, El-Zaiat SY. Measurement of intraocular distances by backscattering spectral interferometry. *Opt Commun* 1995;117:43–8.
- [76] Aguirre AD, Hsiung P, Ko TH, et al. High-resolution optical coherence microscopy for high-speed, in vivo cellular imaging. *Opt Lett* 2003;28(21):2064–6.
- [77] Murali S, Thompson KP, Rolland JP. Three-dimensional adaptive microscopy using embedded liquid lens. *Opt Lett* 2009;34(2):145–7.
- [78] Lee KS, Thompson KP, Meemon P, Rolland JP. Cellular resolution optical coherence microscopy with high acquisition speed for in-vivo human skin volumetric imaging. *Opt Lett* 2011;36(12):2221–3.
- [79] Tankam P, Santhanam AP, Lee KS, et al. Parallelized multi-graphics processing unit framework for high-speed Gabor-domain optical coherence microscopy. *J Biomed Opt* 2014;19(7). 71410.
- [80] Canavesi C, Cogliati A, Yoon C, et al. 3D cellular imaging of the cornea with Gabor-domain optical coherence microscopy. In: *Proc. SPIE 10867. Optical coherence tomography and coherence domain optical methods in biomedicine XXIII*; 2019. 108670F.