Commentary: Revisiting meibomian gland dysfunction – Could noninvasive ocular surface analyzer be a comprehensive solution to the universal dilemma?

Meibomian gland dysfunction (MGD) is a common disorder detected in subjects attending the ophthalmology outpatient clinic and the major cause of evaporative dry eye disease which contributes a major proportion of patients presenting with dry eye disease.

The term MGD has been in vogue as early as the 1980s and is used to denote the functional abnormalities of the meibomian glands.

The prevalence of MGD varies widely and has been described to be much higher in the Asian populations, with the reported rates being as high as 46%–70% in population-based studies from the region.[1]

Numerous classification systems have been suggested for meibomitis and MGD dating back from as early as the 1920s to the recent one proposed by the International Workshop on Meibomian Gland Dysfunction[1] which was launched to create a global consensus on the definition, classification, diagnosis, and therapy for MGD.

Clinical assessment and grading of MGD still remain subjective and lack uniformity due to the unavoidable element of interobserver variation involved, making the data derived unsuitable for large and multicenter trials.

The use of a comprehensive, multiparametric, and noninvasive ocular surface analyzer has the advantage of overcoming this hurdle when interpreted in the proper way, and hence can evolve derivation of sensational ideas in future research related to MGD, which in turn can go a long way in optimizing the diagnosis and therapy of MGD.

Evidence on the natural history of MGD and its exact pathogenesis is still lacking. It is still unclear when symptoms actually develop during this disease process. When the severity of MGD reaches a sufficient degree, it is likely that it becomes symptomatic and gives rise to the major subtype of dry eye disease, that is, evaporative dry eye. However, paucity of clarity still remains as to the actual process that initiates the onset of symptoms. Suggested inciting mechanisms can be the onset of meibomian gland damage, established damage to the meibomian glands, altered meibum delivery, and consequent damage to the ocular surface.[2] Use of a noninvasive ocular surface analyzer as described in this study and in population-based studies can open a plethora of questions that can lead to the answers to these, providing clarity and supported by evidence.

Although MGD is a symptomatic disorder, like other disorders, it is very likely that it goes through an asymptomatic preclinical stage, when its presence may not be detected clinically. At this stage, objective tests using the noninvasive ocular surface analyzer or similar instruments may be able to detect the eyes potentially at risk of progression. With progression, MGD is likely to become symptomatic and additional lid margin signs may then be detected with the slit lamp.

This study reports the hospital-based prevalence of total and symptomatic MGD as 57.5% and 42.5%, respectively, which translates to a significant proportion of patients with asymptomatic MGD that carries the potential risk of progression of risk to symptomatic MGD in due course. A well-designed prospective case–control study in this group of patients may be able to elucidate this risk and its significance validly.

Furthermore, the authors also state that symptomatic MGD is associated with computer vision syndrome. It would be of interest to critically analyze the role of blinking as well as its exact significance in the pathogenesis of MGD in computer users. Meibum secreted by the meibomian glands forms shallow reservoirs on the upper and lower lid margins from which the tear film lipid layer (TFLL) is formed and replenished.[3] The TFLL is hypothesized to become relatively unstable from blink to blink and is then reconstituted abruptly by a mixing of lipid from both lid reservoirs, and the cycle begins again.[3] Hence, the role of an incomplete blink and if it is a consequence or triggering factor of this cycle is yet to be defined clearly. Screening of asymptomatic and symptomatic computer users and analyzing their findings can pave the way to better interpretation of the role of blink in evaporative dry eyes.

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