The technological and technical universe surrounding modern cataract surgery with intraocular lenses has reached such an impressive development that we cannot be surprised to learn that, in a naïve and possibly premature manner, said lenses are attributed properties such as near complete innocuity and invulnerability. However, there is no doubt that in spite of the obvious progress, pseudophakic prosthetic materials can still give rise to problems. I am not referring to intra-operative complications which are the inevitable corollary of any surgery and after which any negative event is foreseeable and justified; instead, I refer to the complications which arise in patients who underwent an apparently impeccable operation for implanting an intraocular lens which was considered adequate at the time or, (optimistically) «perfect» but which the relentless passage of time has proved otherwise.

Frequently, patients ask us if the prosthesis to be implanted will remain without changes for the rest of their lives and, perhaps lacking wisdom, we usually reply with routine reassurances such as «it's a perfectly well tolerated lens», «its materials have demonstrated biocompatibility» and of course «it will survive the years you have left to live». However, is this absolutely so? Honestly, I think not in every case although I must also admit that I’m not entirely convinced that exposing our patients to doubts would be the best approach. Even so, the ophthalmologist’s perception should be more critical and although outstanding results have been achieved and we push on towards greater surgical perfection, we are obliged to consider the problem in its full severity and refrain from enthusiastic claims which eventually conceal exaggerated professional ambition, spurious personal interests, unquestionably legitimate marketing pressures or individual/collective initiatives of other nature. In fact, the history of the eye and the intraocular lens is like that of a couple who, after a wonderful period of romance, get married with the genuine hope of a long-lasting marriage but the fate of their love becomes a supernatural affair full of mystery, subject to unforeseeable difficulties in the course of time and space and which even seems to be a catastrophe which starts off with initial quarrels and ends up with physical separation, a stormy divorce and the quest for a new partner, facing one more time the risk of failure. But let us see the strong and weak points of intraocular lenses.

Even though many other weak points could be mentioned, there are two which seem particularly questionable as regards the alleged innocuous nature of existing intraocular lenses, i.e., the inalterable condition of its biomaterials and the permanent stability of the initial position. In what concerns the first point, the invariable nature of lens components began to be questioned over a decade ago after detecting transparency problems which affected some new lens models. In contrast with rigid conventional PMMA materials where only occasionally long-term degradation events were described, in some flexible acrylic lenses a number of alterations were observed which basically are of three types: 1 – opacification of the material, more frequently found in some types of hydrophilic lenses such as SC60 B-OUV (Medical Developmental Research), Hydroview (Bausch & Lomb), Memory Lens CV232 (Ciba Vision) and U940A (Mentor Ophthalmics Inc); 2 - colored stain, present in some silicone lens models, and 3 - microvacuolization (glistening) that appears in hydrophobic lenses, mainly the Acrysof range (Alcon).

The most frequent and severe occurrence, i.e., the opacification of the material, generally affected patients who had been successfully intervened for cataracts via phakoemulsification, with a variable period of time from the operation (over 2-3 years), who referred progressive vision reduction, a regularly well positioned IOL in the capsular sac with central well-defined grayish turbidity, with the periphery and transparent haptics occasionally associated to posterior capsular opacification and fibrosis. The lab analyses revealed calcium salt deposits in the material of undetermined origin and a possible multifactorial causative mechanism, alternately attributed to intraocular substances or solutions containing Na and K (Haelon GV, VisCoat, BSS Plus, etc.), to the mechanical interaction of the folding tweezers, to temperature variations, to inadequate manufacturing processes, to polymer degradation, to the presence of additives – UV photophores, to packaging systems (Surefold), to the sterilization process and the folding procedures, among many others. In some cases, these occurrences matched general diseases such as diabetes and hypertension. The problem was significant and delicate because an adequate solution required the removal of an implant which was perfectly housed in the capsular sac with the handles firmly affixed to the central area by a strong fibrosis after many years in its place. The removal required the use of a complex and risky exchange technique. The stained silicone lens...
removal presented a similar surgical challenge if the implant had been in place sufficiently long. The
glistenings of the lenses has recently gained relevance because it involves the most widely used type of
lens, i.e., Acrysof. Initially it is a biomicroscopic finding with low functional importance and the lens
removal was necessary only exceptionally. However, the question of whether this is an exceptional
occurrence or a general and for now hidden event which could gain transcendence in the future and
affect more severely the optical properties of the lens remains as yet unanswered.

The second point is whether the implantation of the lens in the capsular sac for extended periods of
time and the as yet unquestionable objective of the technique will guarantee lifetime stability for the
patients, considering that these are increasingly younger and therefore the post-op period is longer. Recently
an occurrence has been observed which, although for the time being is only exceptional, seems to reoccur
with alarming frequency, leading to the suspicion that it could be «the tip of the iceberg» concealing a
somer future. This is a more or less extensive and brusque detachment of the lens–capsular sac complex.
This would not be derived from surgical complications such as an extensive posterior capsular dialysis
(intra-op or after YAG laser) which leaves the IOL incorrectly placed with asymmetric handles in the sul-
cus or with non-secured grip, an occurrence which has been well known for a long time and therefore not
surprising. On the contrary, the new occurrence could affect patients who, after an impeccable interven-
tion, a good preliminary functional result and after many years of having a lens perfectly positioned within
the capsular sac, suddenly experience a partial or total detachment of the pseudophakic «complex», pre-
sumably due to broad loss of zonular support. The causes of this detachment could be diverse, with spec-
culation centering around an anatomic predisposition derived from a previous capsular pseudoexfoliation or
a genetic, degenerative or senile weakness of the «suspending ligament». There is no doubt that the present
folding lenses, with highly flexible optics and handles to allow their introduction through a minimum inci-
sion, facilitate an excessive contraction of the capsular sac and capsulorrhesis with the ensuing overload on
zonular fibers and a highly probable threat of tear. In this regards, a number of questions arise: when these
lenses are to be utilized, would it be always necessary to fit in a capsular expansion ring? Does the occur-
rence arise with any of the current folding lenses or is there greater prevalence with some models? What is
the prognosis for the new micro-incision lenses whose main quality is precisely being even more flexible?
Are the alleged benefits of a smaller incision justified vis-à-vis the higher risk of detachment in the future?
It is clear that these questions should be addressed before continuing with a technological race which, even
though providing immediate advantages, could cause serious mid-term problems taking into account that
the surgical solution for these cases is certainly complex and could involve severe or irreversible complica-
tions. For a complete or partial detachment of the IOL and sac complex, two basic alternatives should be
considered: 1 – reattach it with all the technical difficulties this operation involves, utilizing trans-scleral
sulcus sutures either directly to the capsule, to the capsular ring or the handles, or with new support devices
such as Assia Anchor or, 2 – eventually remove the implant and sac, leaving the eye aphakic and without
capsular support, planning a secondary IOL posterior chamber implant, with handles sutured to the sul-
cus or the iris, or an anterior chamber implant with angular support or attached to the iris.

These relatively novel developments evidence that we are facing some occurrences which, in our igno-
rance and possibly excess of confidence, never thought would happen after a successful surgery. However,
is not clear whether these occurrences are a specific problem which obviously needs to be resolved (albeit
without the alarm of a pandemic), or a regular event involving a considerable potential severity which calls
for a reassessment of the techniques, designs and materials for building lenses in order to ensure increas-
ingly longer survival rates. Obviously, if this has happened with lenses which hardly departed from con-
ventional models albeit with slight changes in shape, we should ask ourselves what could happen within
a few years with the latest novelties which we are preparing to implant in the near future.

In my view, the new intraocular lens models are being approved without due consideration, with their «benefits» sanctioned not only on the basis of their alleged performance but simply because they
are easy to fit, because in the short term «they perform really well» and above all we allow ourselves to
be persuaded by publicity with the same candor with which we accept the presumed goodness of less
important products featuring allegedly miraculous effects, ignoring the lessons of history which sooner
or later will determine the perversity or goodness of a procedure, regardless of its trappings. At a time
when civilization hardly ever questions the validity of the marriage vows ending with « … Till death
do us part … » it would also be advisable to reconsider the questionable lifelong link between a success-
fully implanted intraocular lens and a human eye.

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