

They contain a semi-fluid substance of an albuminous nature, and transparent. The capsule enclosing the lens is a structureless membrane, with difficulty destructible by chemical reagents, and very slow to lose transparency. Between the anterior capsule and the crystalline lens is a layer of six-sided nucleated epithelial cells. These do not exist upon the posterior capsule, nor upon the front surface of the anterior capsule.

In former days there was no hesitation in classifying cataracts into capsular, lenticular, and capsulo-lenticular. On the contrary, Malgaigne affirmed that capsular cataract never occurs, the membrane always preserving transparency, and in proof he offered many dissections. We now know that the capsule does become opaque. It is not true, however, in cataract, that, as Tyrrell says, "no practical good would result from the most accurate diagnosis as regards the seat of the opacity."

The practical good which results from diagnosticating in a case of cataract the existence of capsular opacities is, that their presence is evidence of complicated cataract. In other words, they show either that the cataract has undergone secondary degeneration, or that the cataract is produced by disease of other tissues of the eye.

By capsular opacities are meant, densely white spots upon the surface of a cataract which contrast more or less strongly with the duller tinted mass. They do not consist so much in change of texture in the capsular membrane itself: this is almost always found to be transparent, and thus far Malgaigne's assertion may be admitted. But the membrane is wrinkled and thrown into folds; it becomes thickened and also thinned. The intra-capsular epithelium undergoes alteration. Opaque lens matter is precipitated upon and attaches itself to the capsule. Such in general is the nature of capsular cataract.

Opaque spots on the capsule give evidence: 1st. Of an "over-ripe" or so-called Morgagnian cataract; 2nd. Of chronic irido-choroiditis as the cause of cataract.

One of the signs consulted to determine the "ripeness" of a cataract, is the breadth of the shadow cast upon it by the iris. Mackenzie says, "if the shadow is distinct, the lens is probably small and hard." There is an error here implied, namely, that the whole lens has shrunk and has withdrawn from contact with the iris. We know that the front surface of the lens is always in contact with the pupillary margin—and in cataract a very trifling diminution in bulk takes place. The explanation of the broad shadow is that while the nucleus has become opaque the cortical layers are yet transparent. If no shadow is cast, the whole lens has become opaque.

The cortex of the lens is softer than the nucleus, and where its fibres have degenerated so far as to lose transparency, they after a certain time lose their form. They become disintegrated and liquefied. The nuclear fibres, being harder, are not thus dissolved, and the nucleus as a yellow lentil-shaped body, contrasts strongly both in colour and texture with the different cortex. This cortical emulsion, consisting of decomposed lens matter, contains cholesterine, fat globules, myeline, and granular matter. Between it and the aqueous humour, interchange takes place by osmosis through the lens capsule. The process is most free where the communication is easiest, namely at the pupil. At this situation the capsule acquires a dense opacity. It is produced: 1st. By wrinkling of the membrane, because by liquefaction of its cortex the lens has lost a little in bulk; 2nd. By exosmosis, the cortical emulsion becomes thicker, and particles are deposited in a more concrete mass upon the pupillary part of the capsule; 3rd. The intra-capsular cells beneath this deposit become atrophied, and adjacent to it become altered: instead of being flat and hexagonal, they are globular, elongated, filled with transparent fluid, sometimes enlarged and of irregular forms.