CASE NOTES

SPONTANEOUS RUPTURE OF THE LENS CAPSULE*

BY

J. GRAHAM SCOTT

Johannesburg

SINCE the first reports of spontaneous rupture of the lens capsule by Ulrich (1882) and Szily (1884), further cases have been reported by Rollet and Genet (1913), Gonzalez (1919), Kaufman (1933), Knapp (1937), Box (1941), Sugar (1949), and Bonavolonta (1950).

Rupture of the lens capsule also occurs in anterior lenticonus (Ehrlich, 1946), and after trauma (Bellows, 1944).

The purpose of this paper is to describe one new case of spontaneous lens rupture, and two others which occurred many years after trauma; and also to discuss the glaucoma which followed the lens rupture in all reported cases but one (that of Box, 1941).

Case Reports

Case 1, male, aged 70, had bilateral senile cataract and the left lens was removed successfully 10 years ago. I first saw him in May, 1946, when he came to discuss operation on the right eye. The right cataract was mature, and the eye otherwise normal. The anterior chamber was of normal depth and there was good light projection. Operation was postponed owing to bronchitis, and in February, 1947, after the excitement of running for and missing a bus, the patient felt a sudden pain in the right eye. Despite rest and heat to the eye, the pain persisted and made him sick.

When examined 2 days later the right eye was red, tension was raised, and iris details were obscured by a milky fluid which filled the anterior chamber. There were no keratic precipitates and the eye did not respond to eserine. A broad iridectomy was done under general anaesthesia the following day. When the counter puncture was made, milky fluid was seen to escape and the iris pattern immediately became apparent. The patient made a good recovery and a month later reported improvement in vision. Tension was normal. The outline of the upper third of the nucleus could be clearly seen as the upper part of the cortex had been absorbed. The eye remained quiet and the nucleus sank down in the capsule, with improvement of vision.

Fine keratic precipitates were noted in May, 1947, and the lens was removed without complication soon afterwards.

By the end of the year corrected vision had improved to 6/18 in the right eye, tension remained normal, and the eye was free from inflammation.

Case 2, male, aged 53, had had an accident at work 4 years ago when he was hit on the forehead by a bar. He noticed failure of vision of the left eye 2 months later. The left cataract was held to be unconnected with the accident by the specialist who saw him at the time, as he had early senile changes in the right eye.

FIGURE.

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I first saw him on September 20, 1948, when he complained of failing vision in the right eye and blindness of the left eye. The right eye had early lens changes. The left had a mature cataract, no keratic precipitates, and good projection of light. I saw him again 4 weeks later, having made enquiries about the old accident and re-examined him under a mydriatic.* He experienced a sudden pain in the left eye on the way home from work 3 days later. Pain persisted and he saw me the next day, October 20, with a hard, red, painful left eye, in which the iris was obscured by a milky fluid. There were no keratic precipitates.

Operation was not possible for a few days as he elected to go home, but a broad iridectomy was performed on October 26. After escape of the milky fluid, the iris became visible at once and he made an uneventful recovery. On November 8, 1948, the outline of the upper third of the nucleus could be faintly seen and some radial folds were noted in the capsule. Tension was normal and no keratic precipitates were visible.

I did not see him again but learned that he had no more pain in the eye before his death on March 9, 1949.

Case 3, male, aged 40, was hit in the right eye by a stone when at work in 1944. He was treated by Dr. Rosset-Berdez who was so kind as to send me a report that the vision was 6/6 4 months after the accident, and that there was no lens opacity, but a slight vitreous haze. Vision gradually failed and in 1946 traumatic cataract was diagnosed by Dr. Marais, who kindly read me his notes.

When I saw the patient in 1950, he complained that he had had annual attacks of redness of the right eye since 1946, each lasting about a week. He noted vision returning to the right eye 7 months ago, but it had clouded over again. My examination revealed a red, hard, painful right eye. There was a "hypopyon" of lens matter and the aqueous was full of white flakes.

The lens matter was washed out through a keratome incision and the eye gradually quietened. Considerable vitreous haze was found in the eye and vision has not been restored.

Tension has remained soft, and the eye is now aphakic, but the patient has had two attacks of iritis and wishes to have the eye removed.

Discussion

It is uncommon for glaucoma to follow needling of a congenital cataract but it is well known as a sequel to some cases of traumatic cataract, to many cases of exfoliation of the lens capsule (Vogt, 1925; Shapira, 1935; Hörven, 1937; Garrow, 1938), and to some cases of spontaneous resorption of senile cataract (Natanson, 1891; Mitvalsky, 1892; von Reuss, 1900; Gifford, 1900-1927; Verrey, 1916; Knapp, 1927; Daily, 1933; Bonavolonta, 1950). The reason given for the high incidence of glaucoma in exfoliation was that fine particles from the lens capsule gradually silted up the trabecular spaces but this is not now generally accepted. The explanation of glaucoma in cases of spontaneous resorption of a senile cataract has also changed since 1900.

Gifford (1900) used to believe that traction of the loose nucleus caused irritation of the ciliary process and rise of tension, but in 1918 he concluded that the cause was transudation of toxins liberated by the disintegrating lens and by blocking of angle with lens substance. Verhoeff and Lemoine (1922) agreed that a hypermature cataract was toxic but proved that there could

* I used eserine to counteract this.

also be an anaphylactic reaction to lens protein. This work was confirmed by Lemoine and Macdonald (1924).

Sugar (1949) suggested that spontaneous absorption of senile cataract was due to a minute posterior rupture of the capsule, but this attractive theory would not explain the case reported by Ballantyne (1926), where an anterior lens opacity was absorbed spontaneously leaving the clear posterior lens matter.

It would appear that a hypermature cataract is toxic and that glaucoma can be produced by the irritation of the toxin on the ciliary body. This rise of tension must be accelerated if, in addition to the toxic reaction, the angle of the anterior chamber is blocked by lens debris.

The combination of toxic reaction and angle blocking is the probable explanation of the glaucoma in spontaneous rupture of the lens capsule. There must also be cases where a sensitivity to lens protein is an additional cause.

Summary

(1) Three cases of spontaneous rupture of the lens capsule in cataract (one senile, two traumatic) are described.

(2) Each attack caused acute glaucoma with milky aqueous.

(3) In two cases, the eye remained quiet for many months with the nucleus retained; in the third case, there were recurring attacks of iritis.

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