"A treatise on the extraction of the cataract" The work of August Gottlieb Richter

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INTRODUCTION

August Gottlieb Richter (1742-1812) was one of the most famous German surgeons and ophthalmologists in the late 18th and early 19th centuries. He practiced in Gottingen where he tried to promote and simplify the surgical methods of his time and rightly won the recognition as the «Reformer of German Surgery»

It was him who took the cataract extraction surgery (by Daviel, 1748) from the hands of the itinerant oculists and made it as an important part of the practice of the qualified trained surgeons.

His major work is the treatise titled 'Abhandlung von der Ausziehung des Grauen Stars (Gottingen, 1773) translated into English in 1791 under the title' A Treatise on the Extraction of the Cataract '.

In this presentation we are dealing with the English edition (1791) of the Augustus Gottlieb Richter's famous work, a landmark in Surgery and Ophthalmology, and the transition of these topics from the itinerant empirical practice to the documented scientifically place in the medical science.

Richter is referred in almost any work concerned with the history of medicine and surgery. Hirschberg in his 'History' gave the most complete review of his life and the main source of his information was the H. Rohlf's textbook 'Classical Surgeons of Germany' (Leipzig 1883).

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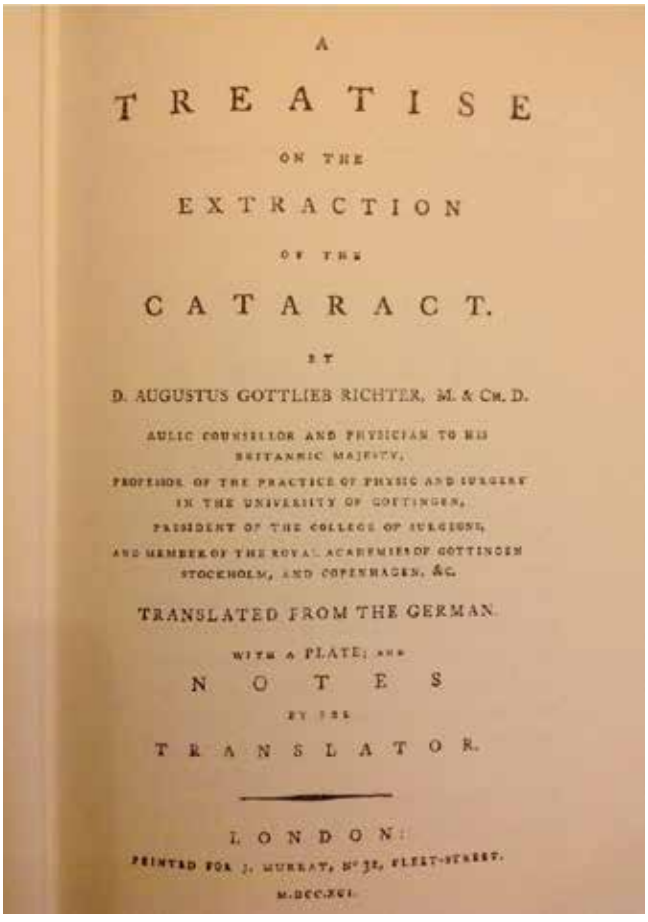
A
TREATISE
ON THE
EXTRACTION
OF THE
CATARACT.
BY
D. AUGUSTUS GOTTLIEB RICHTER, M. & CH. D.
AULIC COUNSELLOR AND PHYSICIAN TO HIS
BRITANNIC MAJESTY,
PROFESSOR OF THE PRACTICE OF PHYSIC AND SURGERY
IN THE UNIVERSITY OF GOTTINGEN,
PRESIDENT OF THE COLLEGE OF SURGEONS,
AND MEMBER OF THE ROYAL ACADEMIES OF GOTTINGEN
STOCKHOLM, AND COPENHAGEN, &C.
TRANSLATED FROM THE GERMAN.
WITH A PLATE; AND
NOTES
BY THE
TRANSLATOR.
LONDON:
PRINTED FOR J. MURRAY, N° 32, FLEET-STREET.
M.DCC.XCI.

Fig. 1: Title's page of the work

BIOGRAPHICAL DATA

Richter was born in Saxony, in Zoerbig on April 13, 1742. He was the son of a minister and a nephew of the well-known professor of medicine in Gottingen, Georg Gottlob Richter. At the age of 18 he began his studies in medicine and showed an interest in surgery. Richter graduated in 1764 and his dissertion was 'De Prisca Roma in Medicos suos haud Iniqua', which he publicly supported. Hirschberg notes that he loved working with his hands and his motto was' Cui bono? (... Who serves?) 'And' Nisi utile, quod agimus, vanum est (Life is vanity unless we do not do something useful). Throughout his life he served these principles. After his graduation he was appointed Associate Professor at Gottingen in 1766. He departed in an 18-month 'scientific voyage' and he traveled in Strasbourg, Paris where he worked with J.L. Petit, and London where he met Percivall Pott and then to Oxford, Leiden, Amsterdam and Groningen, he returned to Gottingen in 1766.

Richter gave his inaugural lecture on October 8, 1766, entitled 'De Dignatati Chirurgiae cum Medicina Conjungendae', which was published the same year, where he described various methods of cataract extraction. From the start Richter was active as a teacher, writer and physician. He taught on every topic of medicine and surgery and in the summer semester of 1767 he started a 'practicum' in ophthalmology. In 1771 at age of 29 he was appointed full professor.

Since then his development has been rapid and in 1780 he was named the personal physician of the court and two years later Hofrath or court counselor. In 1781 a small academic 15-bed hospital was raised for the care of Richter's patients. According to Hirschberg this was the first university in Germany in which Ophthalmology was recognized as a legitimate surgical subspecialty and was taught and administered by the professor of surgery. Regarding his character, it is noteworthy that something that Goethe emphasized in his calendars when he took his bath in Pyrmont in 1801 was noted. «... Hofrath Richter from Gottingen was accompanied by Prince Sangusko who suffers from an ophthalmic disease. Richter has always been charming, cheerful, full of frolic, sometimes ironic and sometimes contradictory, usually thorough and open. In his works we find a yearning for truth, openness, constructive criticism and simplicity. His style has been compared with that of Lessing....

Hirschberg notes that Heister and Platner '... raised German Surgery into science, although its practice has remained on a level of a craft...' Praises Richter for the transformation of German surgery into an art by establishing a close link between surgery and medicine. Hirschberg goes further by pointing out that Conrad J.M. Langenbeck, professor of Anatomy and Surgery in Gottingen In 1811 he portrays Richter as «father of German Ophthalmology...» Hirschberg

Fig. 2,3: Dr. August Gottlieb Richter (1742-1812) Gravures of his time enriching his works


AVGVSTI GOTTLIEB RICHTERI D.
OBSERVATIONVM
CHIRVRGICARVM
Fasciculus Primus,
Cataractae Extractione Observationes
GOTTINGAE

Fig. 4: Dr. August Gottlieb Richter's work about the methods of the cataract extraction "Observationum chirurgicarum Fasciculus Primus Continens de Cataractae Extractionae Observationes (1776)

Fig. 5: Depiction of cataract surgical instruments (Richter 1776)

goes on to say that the French author Pariset names Richter as one of the founders of modern Ophthalmology.

'... Richter recognizes that Ophthalmology is not only closely related to surgery but also to internal medicine. He always remained critical of the treatment, his therapy simple, the indications strictly defined and all circumstances are considered. He focused especially to the etiology of the disease', says Rolhlfs in his work 'Classical Surgeons of Germany' and continues'... Richter has been an international reformer of ophthalmology; he has brought German Ophthalmology to a scientific and artistic excellence. German Ophthalmology, which had been scientifically in infancy, developed with its help at the level of ophthalmology of other civilized nations and overcame them until the present time (1883).

Richter's contributions to Ophthalmology

Richter with his observations, innovations, comments on his contemporaries, and historical studies enriched his articles and books. Shastid has compiled a list of those relevant to ophthalmology and are contained in Appendices I and II. As can be seen from the titles, most of the writings concern the cataract. As Richter mentions in the 'Treatise' prologue, his purpose was to "encourage the German surgeons to undertake an operation which today seems to be banished from the regular practitioner and confined to itinerant oculists." Richter's concepts for cataract surgery continued to evolve over the next 20 years he developed his final techniques differ from those presented in the 'Treatise'

The definitive statement version of Richter's technique on the treatment of cataracts is depicted in 200 pages of Volume 3 of his 'Principles of surgery' project.

In the wealth of information one can distinguish the forms of cataracts such as the milky, the small nucleus and little fluid, the round membranous cataract, cataract with phakodenesis, the thin brownish and the cheesy cataracts; also the capsular cataract, and the after- cataract which is adherent to the iris.

Richter also assumes that there is a cataract caused by the obscuration of the Morgagnian fluid in which the lens itself remains clear. The consistency of the cataract does not depend on the age of the cataract but more on its etiology. It associates forms of cataracts with systemic diseases such as arthritis and others. In the latter case, he notes the difficult

outcome of the surgery. He believes that, its conservative treatment is wrong (mercury, electricity, etc.) and the only appropriate therapeutic approach is the surgical treatment, but never if someone has an acceptable vision.

For the operation, he claims to be one of the finest in surgery and describes two techniques the couching and the extraction. The first is the oldest and the second the new one. He believes that each one has advantages and disadvantages.

He subsequently describes the technique and the needle with two cutting edges. He perforates the eye from the limbus and then he presses the cataract downward and backward.

The couching is a palliative operation and the lens will not always dissolve, especially if it is hard and it has the capsule. Richter rejects another operation because it will disappear sometimes spontaneously.

If it does not, it has to be couched or perforated (like the Yag-Laser capsulotomy).

In cases of milky or jelly-like cataracts the capsule has to be opened widely and the opaque parts will dissolve. If large remnants remain, these must be removed through a corneal incision. Amaurosis sometimes will follow couching and this is due to pressure on the retina.

He praises Daviel for the extracapsular extraction of the cataract but points out the major difficulties when the anatomical elements of the orbit impede the perfect operation, and he believes that this technique is more appropriate for the hard cataracts, while the soft cataracts dissolve and are extracted piece by piece. When a small pupil prevents the extraction, he suggests a wide excision of the iris. To immobilize the bulb, he uses the Beranger hook and he believes that the Le Cat tweezers are inappropriate. For illumination he believes should be oblique over the nose of the patient or from the side over the external canthus.

The incision should follow the lower limbus and should be 1/4 or 1/12th of an inch from the sclera. If the incision is small then during the pressure vitreous instead of lens will be present and the cataract may remain in the eye. He rejects the lower 2/3 of circumference Daviel's corneal incision and de Wenzel's temporal one in which vitreous or iris prolapse cannot be avoided and therefore he recommends in some cases the superior. A loss of the aqueous should be avoided before the incision has been completed.

The specific technique for cutting the cornea with the triangular knife cornea is better for the anterior chamber tightness. After the corneal incision the capsule is opened and the opening should be quite large. The best instrument for that is La Faye's cystotome. Others use the cataract needle or the cataract knife. Best of all is Siegerist's needle-knife.

After the incision of the capsule with a gentle pressure by the fingers onto the lower part of the globe the cataract will move into the pupil. The cataract passes through the pupil out of the eye. After the procedure the pupil is oval and closes in the area of the incision. This is corrects itself. The remnants of the cataract are carefully removed with Daviel's tweezers and do not recommended irrigation of the eye for this purpose. Some remnants will be dissolved but not always as Pott believes.

For the intraoperative and post-operative complications he points out the surgeon's and his assistant's attention so that the second does not press the globe excessively during the lens extraction. The minor prolapse of the vitreous does not worry Richter in contrast with Daviel who proposes cutting it with scissors.

After surgery, a bandage is placed and the operated eye remains closed for 8 days. Richter has been a pioneer in the implementation of Daviel's extracapsular cataract operation. Others who Hirschberg praises are Sigwart, Hellmann, Mursinna, Jung and Beer

In 1776 Richter presented a new intracapsular technique, removing the whole system of the lens, releasing it from the Zinn's zone. This technique happened accidentally in four cases where Richter trying to clean the lens remains he removed everything and the result was very positive.

The controversy that broke out with Baron Michael de Wenzel and his son Jacob with Richter about the paternity

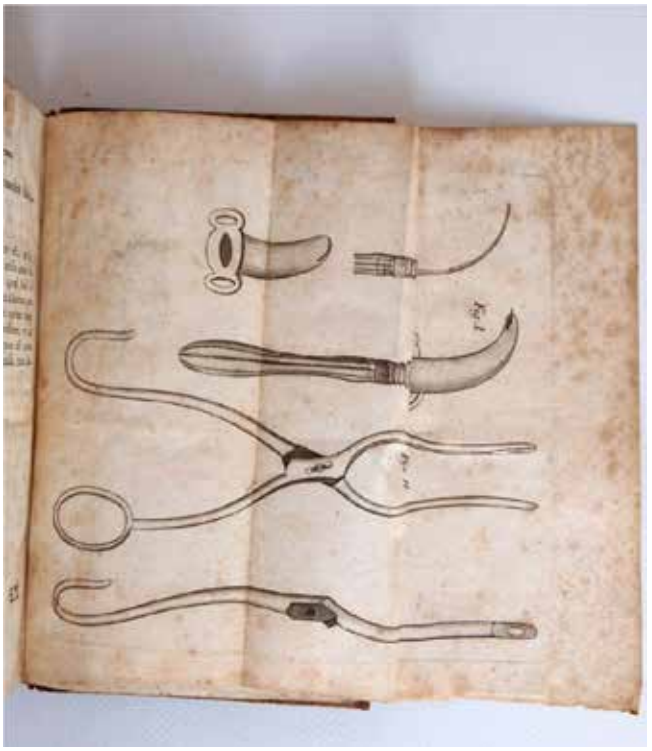

Fig. 6: Depiction of cataract surgical instruments - extracapsular extraction (Richter 1776)

of the cataract knife twenty years after his visit to London (1786) was very acute.

In addition to cataract, his greatest contribution to the other aspects of Ophthalmology is contained in the 'Principles of Surgery' book, an eight-volume work published between 1782 and 1804. Richter's work had such a success that before the first volumes will be completed these were re-published. The discussion on ophthalmology is found in second volume, pages 386-514, and in the entire volume three (528 pages). Hirschberg notes that this is the most extensive discussion of ocular diseases since the Arabian authors and this 'Treatise' contains more information than most of the previous works.

Richter describes various eye diseases, opaque corneal staphylomas after 'ophthalmia neonatorum', other inflammations of the eye and the appropriate treatment and medication. Richter refers to the inflammation of the inner part of the eye as 'phlegmone oculi' and describes it as iritis and choroiditis. He refers to floaters as 'myodeopsia' (term used also by Plenck, Rowley and Beer) and Hirschberg emphasizes the discovery by Richter of the white pupil seen in retinoblastoma. Beer gave it the curious name of an «amaurotic cat eye». Richter described this condition in 1790.

In the tenth chapter of his treatise he describes the complications from the frontal sinus conditions. For the first time Richter argues that frontal sinus conditions can cause unilateral blindness. In the eleventh chapter he describes dacryocystitis and the surgical drainage and restoration.

He describes the entropion as a «sarcomatous and edematous» lid and he recommends a removal of too little skin without handing any part of the muscle.

EPILOGUE

Richter was the publisher of the journal 'Chirurgische Bibliothek' (1771-1797).

In addition to his works, Richter's influence came through his teaching. Perhaps his most famous student was Thomas Young (1773-1829) who in 1795, at the age of 22, left London and traveled through Hamburg to Gottingen. During the winter semester he attended several courses in Gottingen, including Richter's lectures on acute diseases.

Richter had a strong interest in physiological optics and was called by Rohlfs 'the creator of physiological optics'. Other students were Karl Himly, Martin Langenbeck and Krukenberg.

Finally, Richter was an outstanding medical historian not only for the writings of sixteenth and seventeenth century surgeons and physicians but of the ancients. This is remarked by Jonathan Hutchinson and is clearly seen in his writings.


August Gottlieb Richter,
Anfangsgründe
der
Wundarzneykunst.
Erster Band.
Mit acht Kupfern.
1792.

Fig. 7: Dr August Gottlieb Richter's "Principles of Surgery", The monumental eight-volume work (1782-1804)


D. August Gottlieb Richter's,
Chirurgische
Bibliothek.
Des fünfzehnten Bandes
erstes Stück.

Fig.8: The surgical journal "Chirurgische Bibliothek" published by Dr. Richter (1771-1798)

ΒΙΒΛΙΟΓΡΑΦΙΑ

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