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THE OPERATIVE TREATMENT OF GLAUCOMA WITH TRABECULOTOMIE AND WITH TRABECULECTOMIE AFTER ČAVKA

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INTRODUCTION

In 1972 Čavka pointed out the important experimental work that Grant had performed in 1954, 1955 and 1958 thus establishing the importance of the trabecular net system and the channel of Schlemm in the flow of chamber water towards the venous capilar plexus in the ciliar body. In could be said that this was the main inspiration for the surgery of the chamber angle, particularly in the outer scleral approach to the trabecular system and the channel of Schlemm, after the transcorneal internal goniotomy after Barkan (1936).

Smith was the first surgeon in the field of trabeculotomy in 1960. He applied his kind of operation in cases of primary glaucoma, when there was a trabecular block or when the normal flow of chamber water towards the channel of Schlemm was prevented in any way. Smith endeavoured to treat the trabecular block by external scleral openings near the limbus of cornea by means of a nylon thread and he was rather successful in cases of glaucoma. In 1962 Allen and Burian accomplished a proper trabeculotomy. However, during this operation, after having prepared the scleral lamella they made an incision in the sclera and with a spatulla, entered the anterior chamber of the eye trough the channel of Schlemm and the trabeculum. A

binocular magnifying glass, and later also an eye binocular microscope were used during these operations.

The above mentioned authors opened a new era in the field of microsurgery in glaucoma cases. In 1966 Harms and Dannheim announced their method of operation which consisted in the radial incision of sclera and the drainage of the channel of Schlemm with a narrow canilla. In this way, they thought that they avoided a more intensive traumatization of the eye, post-operative complications, the colobom of the iris and the hypotony of the eye. Out of 143 patients operated of various kinds of primary and secondary glaucoma, the best post-operative results were noticed in congenital glaucoma and in cases of glaucoma simplex — 75% of cases.

Krasnov (1966, 1968, 1970) published statistical data of 1500 glaucoma cases, first operated according to Smith's method, and on which he then performed his own external and internal trabeculotomy. Krasnov's post-operative results showed success in glaucoma with angular retention in 30—35% of cases, with intrascleral retention in 50% of cases, with trabecular retention in 10—20% of cases and with hypersecrecial glaucoma in 2—5% of cases.

Nestorov and Batman observed the drainage system in 100 normal eyes and in 16 cases with glaucoma simplex and published invaluable data on their work on the flowing of chamber water. They established the fact that the chamber water gathered in the back part of the channel of Schlemm communicates with ciliar veins. If the eye pressure goes up to 40—60 mmHg, the channel of Schlemm is compressed and the flowing of chamber water is reduced by 40—50%. In cases of glaucoma simplex the channel of Schlemm is either partially or completely blocked.

However, we can already read about post-operative complications after trabeculotomy. Thus, out of 92 operated cases, Brachet, Singer and Dubois-Paulsen (1972) noticed hypotony in 5,4%, the traumatisation of the membrane of Descemeti in 17%, iridodialysis in 6,6%, the edem of the cornea in 8,7%, frequent haemorrhage into the anterior chamber and intracorneal haemorrhage in three cases. In these cases trabecutolomy after Harms was performed. As far as the normalisation of eye pressure is concerned these authors have found it to occur in 60,5% in glaucoma simplex, 73% in congenital glaucoma, 44,4% in congestive glaucoma and 85,7% in pigmentous glaucoma. The greatest number of patients operated i.e. 38 cases suffered of glaucoma simplex, 15 cases of congestive glaucoma and only 7 cases of glaucoma pigmentosum.

Sourdille and Franck (1972) are rather uncertain about their success after trabeculotomy performed. Thus, after 107 operations, they found the normalisation of eye pressure in 67% in cases of congenital glaucoma, and only 50% in cases of glaucoma simplex. Urrets-Zavalia in 1972 established the normalisation of i.o. pressure only in 54,6% out of 38 cases of glaucoma simplex in addition to other post-operative complications which he observed and established after trabeculotomy. Wollensack and Mildner (1971) out of 71 cases of glaucoma operated according to Harms's method could establish the normalisation of i.o. pressure only in 23 cases

without myotics and in 24 cases they achieved this result with myotics whereas in 4 cases i.o. hypertinia persisted even after the operation. As post-operative complications these authors noticed hyphema in the anterior chamber, gonioskopically the channel of Schlemm was full of blood and in the area of trabeculotomy performed the atrophy of iris occurred.

In further surgical operations on the channel of Schlemm and on the trabeculum, efforts have been made to ectomise one part of this filtrational area and this was the origin of trabeculectomy. Amog the surgeons performing trabeculectomy, we must mention W a t s o n who in 1969 performed a partial excision of the trabeculum and the channel of Schlemm. In 1970 C a i r n s described his operative method of trabeculectomy which he applied in glaucoma. In 1972 N e s t e r o v and F e d e r o v a performed trabeculectomy after having prepared the proximally scleral lamella from the limbus of cornea and excided one part of the channel of Schlemm and trabeculum. Their trabeculectomy resembles the operative method of Cairns, and in this way 100 eyes were operated in 97 patients. Post-operative observations were carried on from 3 to 6 months. In this early period of observation the normalisation of pressure was noticed in 96% operated cases. In all the cases, in addition to trabeculectomy peripheral iridectomy was accomplished. As post-operative complications hyphaema in the anterior chamber and gentle iridocyclitis were mentioned.

According to the present position, trabeculotomy, and since recently also trabeculectomy, dominate in the operative treatment of glaucoma, as we have already mentioned. Further research work in the field of this operative problem will give us a reply whether or not it was correct to leave out all the other fistular and electrodiametrical operations on the ciliar body, as some authors did.

As far as trabeculotomy at our Clinic is concerned, Č a v k a created his own method in internal trabeculotomy in 1971, the description and results of which appeared in the Yugoslav Ophthalmological Archive, No. 1/2 of 1972. Among the operated cases there were two cases with congestive glaucoma and eight cases with secondary glaucoma. Out of these 17 operated cases, i.e. 18 eyes, complete normalisation of i.o. pressure occurred in 11 operated eyes, in 5 cases hypotony was noticed and in 2 cases i.o. pressure was about 25 mmHg, so that 1,5% solutio pilocarpini had to be applied. Post-operative hyphaema in the anterior chamber, if it occurred in individual cases after this operation, was of no particular importance and almost regularly disappeared within two or three days after the operation. Peripheral iridectomy was, as a rule, performed only in the case when the post-operative prolapse of the iris after trabeculotomy could not be reposed. There were no inflammatory signs at all on the iris after any of these operations.

THE TECHNIQUE OF TRABECULOTOMY

Ten to fourteen minutes on the cornea and after subconjuctival anasthesia has been given a paralimbal incision is made on the conjuctive of the bulbus. The hower conjuntival leaf is stretched downwards with three stiches on

the pean and then the sclera is being prepared so that an incision on it can be made 4 mm away from the limbus of the cornea and parallel alongside 10^h to 14^h. After that incision, which goes parallel to the edge of the cornea, on the position of 10^h and 14^h, an incision on the sclera vertically towards the edge of the cornea is being made to reach the wery edge. When these incisions have been drawn, the sclera is being peeled off slowly up to the limbus of the cornea. The scleral lamella which has been prepared proximally and sideways is then transferred onto the cornea.

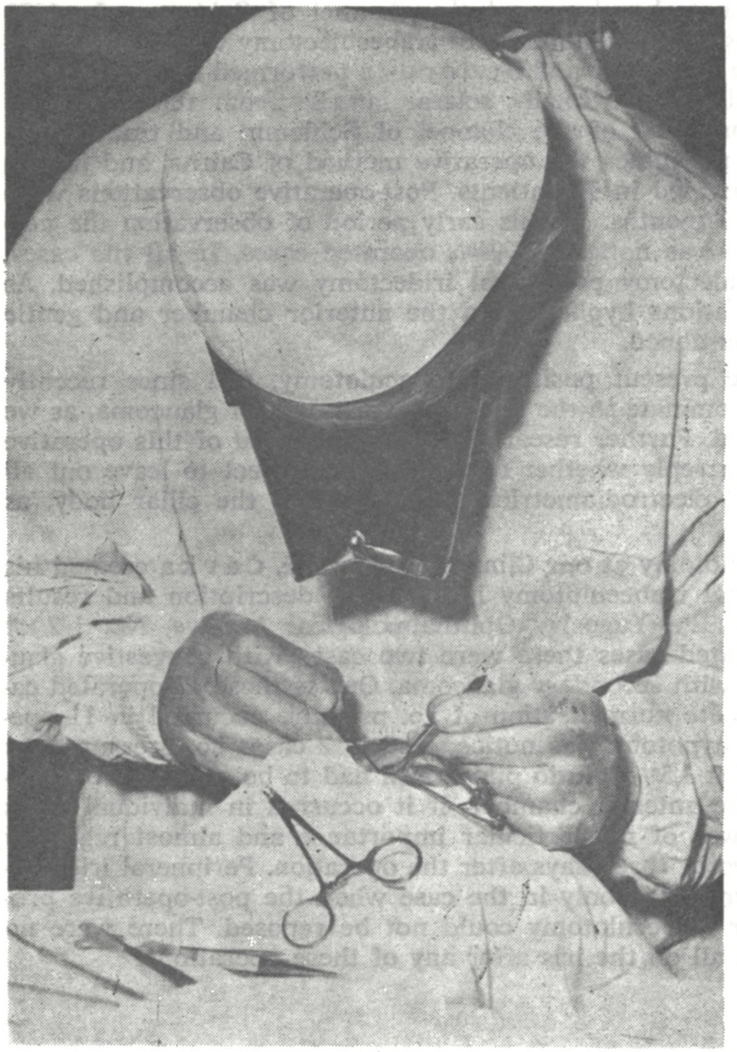
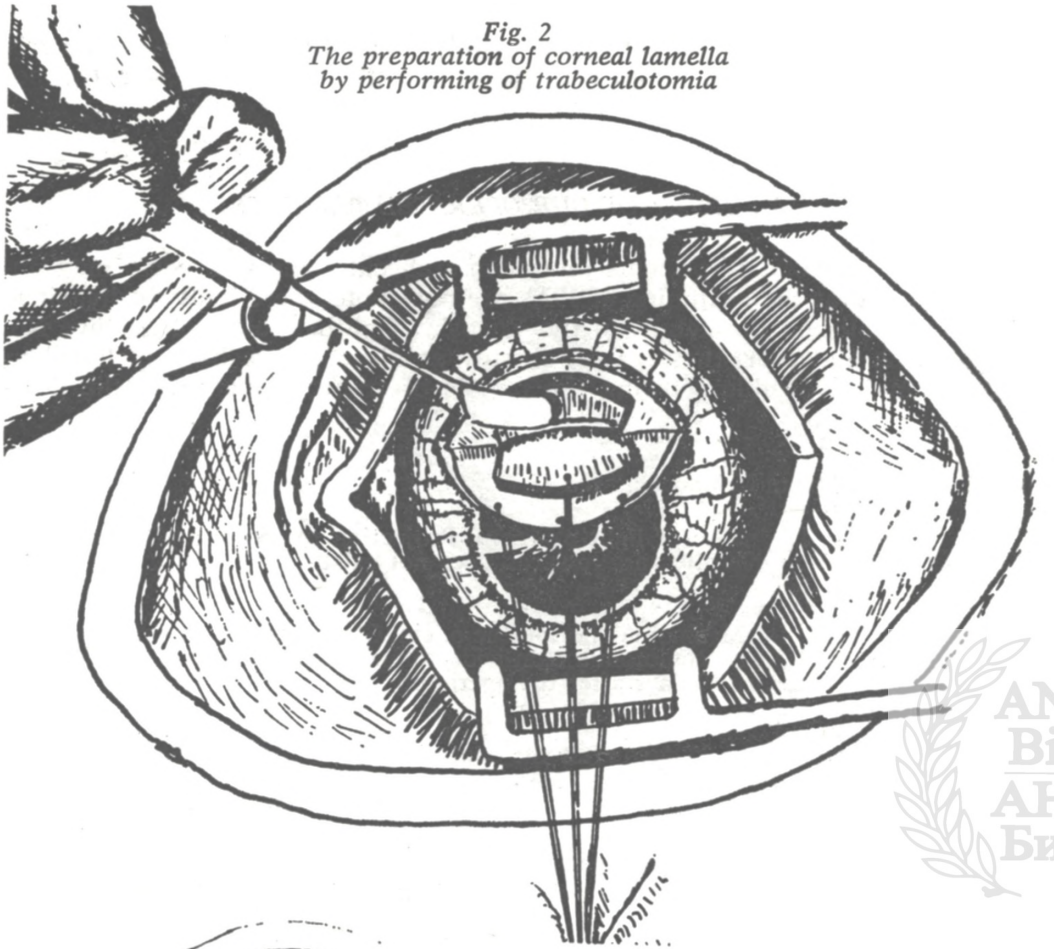


Fig. 1
The use of binocular loupe by performing of operation

Then, under a magnifying glass which magnifies ten times, an incision of the trabeculum is being made near the limbus of the cornea. After that, we return to the scleral lamella, sutures are made on its proximal part and, finally, the stitches on the conjunctive. The binocular magnifying glass enables

Fig. 2
The preparation of corneal lamella by performing of trabeculotomia



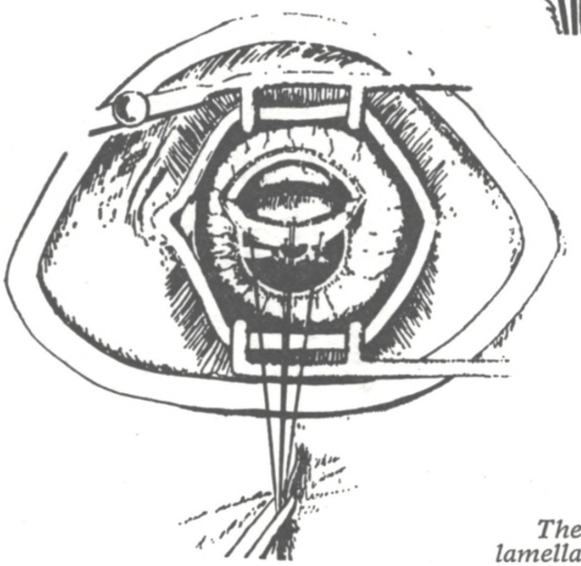


Fig. 3
The excided corneal lamella by trabeculectomia

us to examine the channel of Schlemm and the region of the corno-scleral trabeculum.

In a certain number of cases, mainly when the prolapse of the iris occurred in the course of the incision, and could not be reposed, the peripheral iridectomy was made.

A SURVEY OF OUR OPERATED PATIENTS

In this survey, 17 patients on whom trabeculotomy was performed during 1971 and at the beginning of 1972, are not quoted here individually, since Čavka published the details in the Yugoslav Ophthalmological Archive No. 1/2 of 1972. However, these cases, already published, have been included in the cummulative table showing the results of trabeculotomy and the post-operative results.

CASE 1. V.D. from Milanovac, aged 43
Vod: 5/5
Vos: The sense of light at 4,5 m. Projection temporal and downwards at 0,5 m. Nasally and upwards does not exist.
Tod: 18,5
Tos: 42,1
Diagnosia: Melanoma chorioideae o. sin. Glaucoma sec. o. sin.
7. 3. 1972 Trabeculotomia cum iridectomia basalis o. sin.
I.o. pressure 10 days after the operation
Tod: 18,5
Tos: 30,4
I. o. pressure 30 days after the operation
Tod: 18,5
Tos: 35,8

CASE 2. E. G. from Kruševac, aged 17
Vod. The sense of light at 6 m. Light projection at 1 m, temporally and downwards, nasally andy and upwards uncertain.
Vos: 5/5
Tod: 42,1
Tos: 18,5
Dg. Leucoma corneae vascularisatum o. dex Glaucoma sec. o. dex.
20. 3. 1972 Trabeculotomia o. dex.
Tonus 10 days after the operation
Tod: 10,9
Tos: 18,5
Tonus 30 day after the operation
Tod: 4,1
Tos: 35,8

CASE 3. V. Đ. from Konjic, aged 58
Vod: 5/12 + 1,25 Dsph. = 5/8,5
Vos: 5/20 + 1,0 Dsph. = 5/12?
Tod: 25,8
Tos: 49,8
20. 3. 1972 Glaucoma simplex o. utr. Trabeculotomia cum iridectomia o. sin.
Vod: 5/12 + 1,0 Dsph. = 5/6?
Vos: 5/20 + 1,0 Dsph. = +2 cyl 180° = 5/15?

I. o. pressure 16 days after the operation: 30 days later. 40 days later.
Tod: 21,9 Tod: 15,6 Tod: 18,5
Tos: 15,6 Tos: 10,9 Tos: 15,6
The visual field wider by 5—10°, contral scotoma up to 12 mm.

CASE 4. G. K. from Bosanski Šamac, aged 53
Vod: 5/12 — 0,75 Dcyl 15° = 5/12 clearer
Vos: 5/6
Tod: 42,1
Tos: 35,8
Dg. Glaucoma simplex o. utr.
24. 8. 1972. Trabeculotomia cum iridectomia basalis o. dex.
Vod. 5/12
Vos: 5/5
I. O. pressure 10 days after the operation. 30 days later.
Tod Digit. (—2) Tod: 4,1
Tos: 25,8

I. o. pressure on return. home.
Tod: 6,2
Tos: 23,8

CASE 5. K. J. from Novska, aged 77
Vod. the sense of light at 6 m. Projection exists temporally, uphards and nasally at 0.5 m, downwards uncertain.
Vos: 5/5
Tod: 59,1
Tos: 21,9
Dg. Glaucoma chronicum congestivum o. dec. et simplex o. sin.
22. 9. 1972. Trabeculotomia o. dex.
After the operation the patient received conjunctivitis follicularis lat. utr.
Vod: 5/12 + 2 Dsph. = 5/5
Vos: 3,50
30 days after the operation On return home
Tod: 4,1 Tod: digit. normal.
Tos: 15,6 Tos: 15,6
The visual field left: slightly narrowed without central scotoma
Hypertensio arterialis 200/100
Arteriosclerosis generalisata.
The patient stayed at the Clinic again from 26. 2. 1973. to 13. 3. 73.
Intraocular pressure was constantly within the limit of normal.

CASE 6. T. S. from Trebinje, aged 73.
Vod: 5/30
Vos: Amaurosis.
Tod: 30,4
Tos: 59,1
Dg. Glaucoma simplex o. dex. Glaucoma absolutu
29. 9. 1972. Cyclodiathermia transconjuctivalis (Čavka) o. dex.
Trabeculotomia o. sin.
Vod: 5/30
Vos: Amaurosis

15 days after the operation	30 days later	I. o. pressure R when leaving the Clinic 40 days after the operation
Tod: 30,4	Tod: 25,8	Tod: 25,8
Tos: 15,6	Tos: 30,4	Tos: 21,9

The visual field wider by 10°. Central scotoma up to 4 mm. before the operation as well as after the operation.

CASE 7. K. M. from Vareš, aged 43.

Vod: 5/5
Vos: The sense of light at 6 m. Projection exists temporally, upwards and downwards, but does not exist nasally.
Tod: 18,5
Fos: 49,8
Dg. Glaucoma sivmplex o. sin.
Tos: 49,8
Dg. Glaucoma sinmplex o. sin.
11. 10. 1972. Trabeculotomia o. sin.
Vision the same as when received.

10 days after the operation	30 days later	60 days later
Tod: 18,5	Tod: 18,5	Tod: 18,5
Tos: 15,6	Tos: 21,9	Tos: 18,5

CASE 8. Lj. R. from Plevlja, aged 64.

Vod: Amaurosis
Vos: 4/50 s.c.
Tod: 10,9
Tos: 30,4
Dg Atrophia bulbi o. dex. Glaucoma simplex o. sin.
19. 10. 1972. Trabeculotomia o. sin.
After the operation the patient received conjunctivitis follicularis lat. utr.
Vod: Amaurosis
Vos: 1/50 — 1,0 Dsph = 1,5/50

10 days after the operation	30 days later
Tod: dig. norm.	Tod: 10,9
Tos: dig. norm.	Tos: 18,5

The lens spacified more than before trabeculotomy.

CASE 9. Č. M. from Sarajevo, aged 77.

Vod: The sense of light at lm without projection.
Vos: 5/8,5
Tod: 81,7
Tos: 21,9
Dg. Glaucoma fere absolutum o. dex. Glaucoma simplex o. sin.
24. 10. 1972. Trabeculotomia o. dex.
Vision the same as when received.

10 days after the operation	30 days later
Tod: 7,5	Tod: 28,5
Tos: 15,6	Tos: 18,5

I. o. pressure when leaving the Clinic (60 days after the operation)
Tod: 30,4
Tos: 15,6

CASE 10. S. M. from Olovo, aged 68

Vod: The sense of light at 6 m. Projection regular at 1 m.
Vos: 5/5
Tod: 35,8
Tos: 18,5
Dg. Iridocyclitis hypertensiva o. dex.
5. 12. 1972 Trabeculotomia o. dex.
Vision the same as when received

I. o. pressure 10 days later	30 days later
Tod: 10.9	Tod: 15,6
Tos: 18,5	Tos: 18,5

Forty days later the patient was again received at the Clinic with intraocular pressure:
Tod: 59,1
Tos: 18,5

CASE 11. V. H. from Titograd, aged 69.
Vod: 5/30 + 0,75 Dsph. = 5/15?
Vos: 5/40 + 1,0 Dsph. = 5/30
Tod: 18,5
Tos: 59,1
Dg. Glaucoma subacutum congestivum o. sin. Opacitates corporis vitrei o. utr. Cataracta senilis incipiens o. utr.
21. 12. 1972. Trabeculotomia cum iridectomia totalis o. sin.
Vod: 5/10
Vos: 5/8,5 — 1,0 Dcyl. 120° = 5/6,6

I. o. pressure after 15 days.	After 30 days	After 60 days (when leaving the Clinic)
Tod: 18,5	Tod: 18,5	Tod: 18,5
Tos: 10,9	Tos: 18,5	Tos: 13,1

CASE 12. F. Ž. from Sarajevo, aged 22.
Vod: 5/5
Vos: The sence of light at 3 m. Projection exists temporally at 0.75 m, upwards uncertain, nasally and downwards does not exist.
Tod: 18,5
Tos: 59,1
Dg. Leucoma corneae adhaerens o. dex. Glaucoma sec. o. sin.
10. 1. 1973. Trabeculotomia o. sin.
Vod: 5/5
Vos: The sense of light at 1 m.
I. o. pressure after the operation

15 days	30 days	60 days
Tod: 18,5	Tod: 18,5	Tod: 18,5
Tos: 15,6	Tos: 18,5	Tos: 18,5

CASE 13. V. M. from Čitluk, aged 72.
Vod: Amaurosis
Vos: 2/50
Tod: 59,1
Tos: 30,4
Dg. Glaucoma absolutum o. dex. Glaucoma simplex. o. sin.
23. 1. 1973 Trabeculotomia cum iridectomia basalis o. dex.
Cyclodiathermia transconjuctivalis (Čavka) o. sin.
Vod: Amaurosis
Vos: 2/50
I. o. pressure after the operation

After 15 days	After 30 days	When leaving the Clinic
Tod: 21,9	Tod: 25,8	Tod: 21,9
Tos: 30,4	Tos: 18,5	Tos: 18,5

CASE 14. S. Z. from Han Pijesak, aged 45.
Vod: 5/5
Vos: 5/20

Tod: 18,5
Tos: 59,1
Dg. Glaucoma simplex o. utr.
7. 2. 1973. Trabeculotomia cum iridectomia basalis o. sin.
Vod: 5/5
Vos: 5/12
When leaving the Clinic (15 days after the operation)
Tod: 18,5
Tos: 7,5

CASE 15. H. H. from Gradačac, aged 51.
Vod: 5/40
Vos: Amaurosis
Tod: 59,1
Tos: 15,6
Dg. Cataracta complicata o. det. Glaucoma sec. o. dex. Cataracta sec. o. sin.
6. 2. 1973. Trabeculotomia o. dex.
Vod: 5/50 + 3,0 Dycl. 62° = 5/40
Vos: Amaurosis
I. o. pressure after the operation

After 15 days	After 30 days	3 months after the operation
Tod: 10,9	Tod: 15,6	Tod: 15,6
Tos: 18,5	Tos: 13,1	Tos: 13,1

CASE 16. G. S. from Bitolj, aged 34.
Vod: 0,1/50 s. c.
Vos: 2,5/50 — 5,50 Dsph. 2 — 1 Dcyl 80° = 5/10?
Tod: 42,1
Tos: 30,4
Dg. Iridocyolitis peracta o. utr. Glaucoma sec. o. utr.
10. 1. 1973. Cyclodiathermia transconjunctivalis circumscripta o. sin.
13. 3. 1973. Trabeculotomia cum iridectomia totalis o. dex.
Vod: 0,25/50 — 6,0 Dsph — 2 Cyl 110° = 1,5/50
Vos: 2,5/50 — 6,0 Dsph. = —1 Dycl 80° = 5/12
I. o. pressure after the operation

After 10 days	20 days after the operation	30 days after the operation
Tod: 18,5	Tod: 18,5	Tod: 18,5
Tos: 15,6	Tos: 17,0	Tos: 21,9

40 days after the operation
Tod: 21,9
Tos: 18,5

CASE 17. Lj. H. from Bijelo Polje, aged 62.
Vod: Amaurosis
Vos: 3,5/50 s. c.
Tod: 42,1
Tos: 30,4
Dg. Glaucoma absolutum o. dex. Glaucoma simplex. o. sin.
13. 3. 1973. Trabeculotomia cum iridectomia totalis o. sin.
Vision the same as when received.
I. o. pressure after the operation.

After 10 days	After 30 days	When leaving the Clinic 45 days after the operation)
Tod: 42,1	Tod: 42,1	Tod: 42,1
Tos: 18,5	Tos: 18,5	Tos: 18,5

CASE 18. H. S. from Mostar, aged 65.

Vod: 5/10 + 0,5 Dcyl 30° = 5/8,5
Vos: The sense of light of 4 m. Projection exists upwards and temporally at 0,75 m, downwards uncertain, nasally does not exist.
Tod: 23,8
Tos: 59,1
Dg. Glaucoma simplex o. dex. Glaucoma acutum congestivum o. sin. Cataracta in oculo glaucomatoso o. utr.
14. 3. 1973. Trabeculotomia cum iridectomia totalis o. sin.
Vision the same as when received.
I. o. pressure after the operation.

After 12 days	30 days later	When leaving the Clinic (after 50 days)
Tod: 18,5	Tod: 18,5	Tod: 18,5
Tos: 21,9	Tos: 30,4	Tos: 23,8

Light heamorrhage in the anterior chamber, which was resorbed on the third day after the operation

CASE 19. D. D. from Konjic, aged 45

Vod: 5/20
Vos: 5/5
Tod: 30,4
Tos: 21,8
Dg. Glaucoma simplex o. utr.
20. 3. 1973 Trabeculotomia cum iridectomia basalis o. dex.
Vod: 5/40
Vos: 5/5
I. o. pressure after the operation

After 10 days	20 days	30 days (when leaving the Clinic)
Tod: 15,6	Tod: 18,5	Tod: 20,1
Tos: 20,1	Tos: 18,5	Tos: 25,8

CASE 20. V. J. from Srednje, aged 84.

Vod: The sense of light at 2 m, no projection.
Vos: The sense of light at 6 m, projection regular
Tod: 59,1
Tos: 59,1
Dg. Glaucoma simplex o. utr.
30. 3. 1973. Trabeculotomia cum iridectomia totalis o. sin.
Sclerotomia sec. Lagrange o. dex.
Vision the same as when received.
Tonus after the operation (15 days)
Tod: 10,9
Tos: 10,9
Inflammation of the iris of the right eye present, with strong hypotony digitally.

After 30 days	40 days after the operation
Tod: 4,1	Tod: 4,1
Tos: 7,5	Tos: 10,9

CASE 21. M. B. from Kopar, aged 75.

Vod: Amaurosis
Vos: 1,75/50 + 1,0 Dsph. 2 + 1 Dcyl 180° = 2,5/50
Tod: 59,1
Tos: 10,9
Dg. Glaucoma absolutum o. dex. Glaucoma simplex o. sin.

3. 4. 1973. Trabeculotomia o. dex.
Vision the same as when received.

I. o. pressure 15 days after the operation	30 days after the operation
Tod: 13,1	Tod: 25,8
Tos: 18,5	Tos: 18,5

CASE 22. B. M. from Sarajevo, aged 66.
Vod: 5/7,5 + 0,75 Dsph = 5/5
Vos: 4,5/50 s. c.
Tod: 21,9
Tos: 30,4
Dg. Glaucoma simplex o. sin.
3. 4. 1973. Trabeculotomia cum iridectomia totalis o. sin.
Vod: 5/7,5 + 0,75 Dsph = 5/5
Vos: 5/30 + 1,5 Dcyl 50° = 5/20
I. o. pressure after the operation

After 16 days	30 days after the operation	When leaving the Clinic
Tod: 21,9	Tod: 18,5	Tod: 4,1
Tos: 10,9	Tos: 15,6	Tos: 7,5

CASE 23. C. F. from Dubrovnik, aged 65.
Vod: 5/7,5? + 1,0 Dcyl = 0,5 Dcyl 180° = 5/5
Vos: 5/12 + 1,0 Dsph. = +0,50 Dcyl 180° = 5/10
Tod: 25,8
Tos: 30,4
Dg. Glaucoma simplex o. utr.
3. 4. 1973. Trabeculotomia cum iridectomia totalis sin.
In the course of the operation haemorrhage occured in the anterior chamber.

I. o. pressure 30 days after the operation	When leaving the Clinic
To:d 18,5	Tod: 18,5
Tos: 10,9	Tos: 13,9

CASE 24. MM. from Glina, aged 49.
Vod: Amaurosis
Vos: The sense of light 6 m. Projection uncertain.
Tod: 69,3
Tos: 69,3
Dg. Glaucoma absolutum o. dex. et fere absolutum o. sin.
12. 4. 1973. Trabeculotomia cum iridectomia totalis o. sin.
Vision unchanged.

I. o. pressure 10 days after ahe operation	After 30 days (leaving diagnosis)
Tod: 49,1	Tod: 49,1
Tos: 15,6	Tos: 15,6

Traces of blood on the iris.

CASE 25. T. S. from Plevlja, aged 40.
Vod: The sense of light at 6 m. Projection regular at lm temporally and nasally. In other directions uncertain.
Vos: 5/5
Tod: 59,1
Tos: 69,3

Dg. Glaucoma fere absolutum o. dex. Glaucoma simplex o. sin.
17. 4. 1973. Trabeculotomia cum iridectomia totalis o. dex.
Cyclodiathermia transconjunctivalis sec Čavka o. sin.
Ten days later, when the fundus could be exemined ophthalmologically, the presence of big greyish strips of the detached chorioidea were noticed on the periphery temporally and nasally.
Vision unchanged.

I. o. pressure 15 days after the operation	30 days after the operation
Tod: 15,6	Tod: 15,6
Tos: 30,4	Tos: 25,8

CASE 26. J. H. from Maglaj, aged 66.
Vod: The sense of light at 6 m. Projection regular at 1 m only temporally
Vos: 5/15 + 2,0 Dsph 2 + 1,5 Dcyl 180° = 5/6?
Tod: 59,1
Tos: 21,9
Dg. Glaucoma fere absolutum congestivum o. dex.
21. 4. 1973. Trabeculotomia o. dex.
Vision the same as when received

12 days after the operation	When leaving (20 days later)
Tod: 10,9	Tod: 15,6
Tos: 18,5	Tos: 18,5

CASE 27. Ć. M. from Busovača, aged 66.
Vod: 5/20 — 1,5 Dsph = 5/5
Vos: Amaurosis
Tod: 25,8
Tos: 42,1
Dg. Cataracta incipiens o. utr. Glaucoma absolutum o. sin.
26. 4. 1973. Trabeculotomia o. sin.
Vision unchanged

I. o. pressure, after 12 days	30 days after the operation
Tod: 15,6	Tod: 18,5
Tos: 10,9	Tos: 18,5

CASE 28. K. M. from Rogatica. aged 49.
Vod: The sense of light at 6 m, Projection regular at 1 m.
Vos: 5/5
Tod: 59,1
Tos: 18,5
Dg. Glaucoma acutum congestivum o. dex.
8. 5. 1973. Trabeculotomia o. dex.
Vos: 5/5
Vod: 5/20?
I. o. pressure after the operation

After 10 days	After 20 days	30 days after the operation
Tod: 4,1	Tod: 10,9	Tod: 13,1
Tos: 13,1	Tos: 15,6	Tos: 15,6

In all these cases the values of i. o. pressure are shown before trabeculomy about ten days after it has taken place, then regularly on the twentieth day after the operation, on the thirtieth day after the operation as well as at

the moment when the patient was dismissed from the Clinic. In a certain number of casses i. o. pressure was checked six months later, or even more than a year later.

Out of 45 glaucomatous patients on whom trabeculotomy modified after Čavka was performed, there were:

1. With hydrophthalmus, there patients in two of chom intraccular pressure was normalized and in one the pressure was considerably reduced in comparison with the state before the operation.

2. With glaucoma simplex, twelve cases. The normalisation of intraocular pressure was noticed in nine cases, lower in two and reduced in one case. Postoperative complications were noted in two cases i. e. hyphema in the anterior chamber in one case and slight iritis in the other.

3. Trabeculotomy was applied in two patients with acute congestive glaucoma. In one case hypotony occured and in the other the reduction of i. o. pressure in comparison with the state before the operation.

4. With subacute congestive glaucoma there were two patients. The normalisation of eye pressure was found in both cases.

5. Trabeculotomy was successfully performed in one patient with chronic congestive glaucoma.

6. Twelve patients with absolute glaucoma were operated and the applied trabeculotomy gave the following results: the normalisation of the intraocular pressure was achieved in seven cases, in two i. o. pressure was lower than normal and only in three cases it was reduced.

Out of these twelve operated patients, only in one case haemorrhage in the anterior chamber occured, and in one case the detachment of chorioidea was noticed.

7. There were also twelve patients with secondary glaucoma who were operated. After the operation i.o. pressure was found normal in cases. lower in one, reduced in two and remained the same in one case.

8. There was one case with hypertensive iridocyclitis in whom the visual sharpness was reduced at the sense of light, and in whom trabeculotomy however, did not give positive results.

Finally we want to point out that in some special kinds of glaucoma, trabeculectomy, again after a personal technique of Profesor Čavka, is carried out. The operative technique of trabeculectomy is as follows: the preparation of the outer scleral lamella is similar to the preparation for trabeculotomy, and then with a lancet or with a keratotom an incision is made in the inner scleral lamella in the projection of 10h to 14h.

The incisions are perforating, the distal being in the corneo-scleral limit, and the proximal 2,5 mm above it, finishing in a semi-circl. Towards the edges nasally and temporally. In this way, the inner scleral lamella, which carries in itself a part of the trabeculum and of the channel of Schlemm, is being removed. The anterior chamber can be opened and if the iris prolapse should occur, peripheral iridectomy could fe performed provi-

ded the prolapse could not be reposed. The postoperative results after the trabeculectomy performed will be published later.

When doing trabeculectomy, the surgeon should pay special attention to the resection of the corneal lamella because in the immediate vicinity there is the edge of the lens which could easily be injured, and traumatic caracta thus provoked.

SUMMARY

Trabeculotomy sould be considered as a kind of anti-glaucomatous operation through which better drainage through the corneo-scleral trabeculum and the channel of Schlemm could be achieved, and which we aplied in almost all kinds of glaucoma with success in 64,44%. We had the best results with the patients suffering from glaucoma simplex, expressed in percentage — 95%.

Although the total number of operated patients is not high, we could still say, on the basis of our experience, that trabeculotomay as an anti-glaucomatous operation has given good post-operative results, especially in cases of glaucoma simplex.

Further research work will show to what extent trabeculotomy is better than other anti-glaucomatous operations and in which cases it should be applied.

ČAVKA, V.

OPERATIVNO LIJEČENJE GLAUKOMA TRABEKULOTOMIJOM I TRABEKULEKTOMIJOM SEKUNDUM ČAVKA

REZIME

Trabekulotomija kao jedna od najmodernijih operativnih metoda dala je kod svih operiranih naših slučajeva potpun uspjeh, odnosno totalnu normalizaciju očnog pritiska, u 64,44% slučajeva. Najbolji uspjeh pokazao se je u slučajevima sa glaucoma simplex, gdje je asanacija očnog pritiska uslijedila u 95% operiranih slučajeva. Kao druga antiglaukomatozna operacija navedena je trabekulektomija, koja se može smatrati nešto radikalnijom operacijom, i to zbog toga što se operativno daje veći prilaz prema Schlemmovom kanalu, a time je efikasniji i oticaj komome vodice prema ovom kanalu.

Daljnja postoperativna opažanja omogućiće nam više uvida u vrijednosti ovog operativnog metoda, a naročito u vezi sa ostalim antiglaukomatoznim operacijama.

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