RETINAL VEIN OCCLUSION- CLINICAL ASPECTS

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Abstract: *In the ophthalmologic literature, there are clinical studies based on numerous cases of vein occlusions, which makes us think that this affection is relatively frequent. As far as we are concerned, we examined 93 patients affected by retinal vein occlusion who were hospitalized in the Ophthalmologic Section of the Clinical County Emergency Hospital of Sibiu between 2003-2008: 41 patients presented a branch retinal vein occlusion; in one case, this was bilateral; 52 patients presented a central retinal vein occlusion.*

Keywords: *occlusion topography, ophthalmoscopic examination, fluorescein angiogram*

Rezumat: *În literatura oftalmologică există studii clinice sprijinite pe serii destul de numeroase de cazuri de ocluzii venoase, ceea ce face să ne gândim că această afecţiune este relativ frecventă. În ce ne priveşte, am examinat 93 bolnavi afectaţi de ocluzie venoasă retiniană internaţi în Secţia Oftalmologie a Spitalului Clinic Judeţean de Urgenţă Sibiu în perioada 2003-2008: 41 pacienţi prezentau o ocluzie de ramură venoasă; într-un caz, aceasta era bilaterală; 52 pacienţi prezentau o ocluzie a venei centrale a retinei.*

Cuvinte cheie: *topografia ocluziei, examenul fundului de ochi, angiofluorografia*

PURPOSE OF THE STUDY

The purpose of the study is to analyse the examinations and the investigations of the patients with VCR occlusion, which allow the classification of the clinical and angiographic forms of the vein occlusion, as well as the selection of the therapeutic indications.

MATERIAL AND METHOD

I. LENGTH OF THE EXAMINATION

The vein occlusions which have been examined for the first time in our setting were not all recent. Therefore, we have separated 2 groups of cases: recent occlusions and old occlusions.

1. *Recent occlusions*

a) Branch vein occlusions – Within the group of patients affected by branch vein occlusions, 35 patients have been examined during the first 6 months following the start of the occlusion, from which:

- 11 patients were examined during the first week;
- 23 patients, between the first week and the 3rd month;
- one patient was examined between the 3rd month and the 6th month.

b) Central retinal vein occlusions. Within the group of patients affected by central retinal vein occlusion, 43 cases have been examined within the first 6 months following the start of the disease, from which:

- 13 patients during the first week;
- 22 patients between the first week and the first month;
- 8 patients between one and 6 months.

2. *Old occlusions*

a) Branch vein occlusions – 6 branch vein occlusions have been examined late, in an evolutive stage, or before the sequel complications. Among them:

- 2 patients between 6 months and one year;
- 4 patients after one year.

b) Central retinal vein occlusion – Similarly, 9 cases of central retinal vein occlusion have been examined in an advanced evolutive stage or before the sequel complications, out of which:

- 4 patients between 6 months and one year; one year after.

Table no. 1. Repartition of the patients per gender and age.

	below 40 years old	**41-60 years old**	**61-70 years old**	**over 707 years old**
Women	2	11	17	21
Men	1	9	20	12

Table no. 2. Occlusion topography

	The inferior nasal branch	**The inferior tempora branch**	**The superior tempora branch**	**VCR Obstruction**
No. of	1	13	27	53
Percentag	1%	14%	29%	56%

3. *Evolution*

The evolution of the cases of branch vein occlusion has been monitored regularly.

- Within these cases, 35 have been examined early and

the length of the examination has been from 6 months to 5 years.

- 6 cases have been examined late. In this group, the average age of the vein occlusion was of more than one year upon the first examination. The supervision of these sequel cases ran from 6 months to 5 years.

The evolution of the cases of retinal central vein occlusions has been monitored regularly.

- Within these cases, 47 have been examined early and the duration of their supervision has been from 6 months to 5 years.
- 5 cases have been examined late. For these cases, the average age of the vein occlusion was of more than one year upon the first examination. The supervision of these sequel cases has been from 6 months to 5 years.

All patients have been examined following a type-examination protocol which included the ophthalmologic examination (clinical, angiographic, functional examinations), a general medical examination and biological examinations.

II. THE OPHTHALMOLOGIC EXAMINATION

The clinical examination – The clinical examination is the usual examination which primarily includes the measurement of the visual acuity by using the best optical correction, the test of the Amsler grid, the examination of the anterior segment under a biomicroscope, the measurement of the ocular pressure using the aplanotonometre, the examination of the iridocorneal angle, ophthalmoscopic examination through indirect ophthalmoscopy and through the Goldmann contact glass, the measurement of the ophthalmic artery pressure.

Picture no. 1. The reduction of the visual acuity established upon the first examination

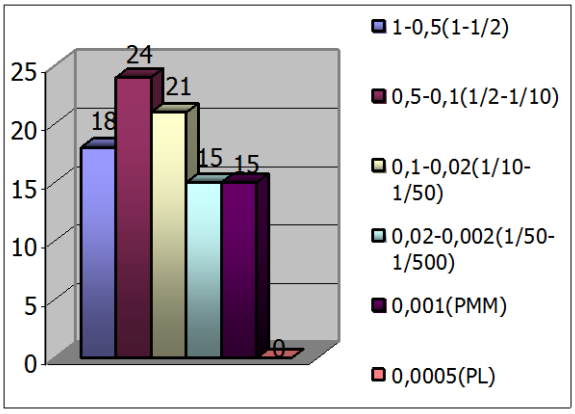

Table no. 3. The visual acuity at the moment of hospitalization

AV	1-0,5 (1-1/2)	0,5-0,1(1/2-1/10)	0,1-0,02 (1/10-1/50)	0,02-0,002 (1/50-1/500)	0,001 PMM	0,0005 PL
No. cases	18	24	21	15	15	0
Percentages	19%	26%	23%	16%	16%	0%

Table no. 4. The evolution of the visual acuity under treatment

AV	Improved	Decrease	Not modified
No. of cases	29	4	60
Percentages	31%	4%	65%

The monitored ophtalmoscopic examinations were the following:

- Tortuous and dilated retinal veins. The veins presented calibre irregularities, with segmental narrowings, their path being covered partially with haemorrhages and retinal edema.
- Retinal haemorrhages. These are various: superficial, flame-shaped, along the optical fibres, predominantly at the level of the pole up to periphery.
- Cotton-wool spots. They occur under the form of puffy white patches, with colourless superficial contour, placed between the optical fibres and parallel with these ones. They are predominant at the level of the posterior pole, especially around the papilla and along the vessels.
- Retinal papilla edema. It is constant. Papilla is congestive, with faded margins; the peripapillary capillaries are dilated. In some cases, edema macular cistoide may occur.

The ophthalmoscopy examination reveals modifications in the calibre of the arteries in relation to arterial hypertension, bearing the sign of arterial-venous crossing.

Picture no. 2. Ischemic VCR Occlusion

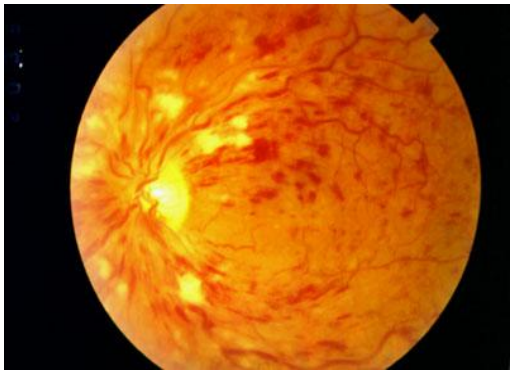

Table no. 5. The value of the pathological changes of the optic fundus registered upon the initial examination of the patients.

	No. of cases	Percentage
Tortuous and dilated veins	57	27%
Haemorrhages	79	38%
Cotton-wool spots	24	11%
Retinal papilla	50	24%

This category of exudates has been found in 24

subjects, representing 26% of the total number of cases.

The soft exudates represent areas of focal ischemia due to the arterial occlusion and are located within the layers of the optical fibres. Localized ischemia leads to the significant perturbations of the axoplasmic transport in both ways and to the accumulation of axonal material under the shape of a cotton-wool spot.

The retinal papilla edema has been found present on the entire surface of the optical papilla extending to the juxtapapillary retina in 35% of the cases (38 % of the total number of cases), either localized sectorially. The sectorial localization has been found in 15 cases, representing 16% of the entire group.

The papillary excavation has been observed upon the initial ophthalmoscopic examination in 8 cases, representing 9% of the total number of cases.

These cases with excavation are interpreted as glaucoma with normal pressure; the C/D percentage being of 0,6- 0,8.

Papillary discoloration of the entire surface of the optical disc, or sectorial discoloration has been observed in 15 cases, representing 16% from the total number of cases.

The functional examinations:

Within the studied cases, the visual field presents a scotoma for the red colour between 10gr.- 20gr.; a non-systematized scotoma in the 30gr. area; central scotoma. The peripheral visual field is temporally and nasally narrowed, supero-temporally amputated, or it presents a supero-temporally sectorial deficit.

III. THE FLUORESCEIN ANGIOGRAM

It is an essential element of diagnose regarding the central retinal vein occlusions. It emphasizes two fundamental signs: circulatory delay and damage of the capillary bed. One of the studied cases was submitted to the fluorescein angiogram, having as result: mixed VCR occlusion on a vascular base (ischemic, edema).Based on the fluorescein angiogram, we can distinguish four clinical pictures of the central retinal vein occlusion:

- edematous capillaropathy;
- ischemic capillaropahty;
- mixed capillary;
- regressive form.

IV. MEDICAL EXAMINATION

The pathological precedents were followed.

Cardiovascular abnormalities:

1. clinical examination;
2. electrocardiogram

Risk factors of the atherosclerosis:

1. Arterial hypertension;
2. Tobacco intoxication and obesity;
3. Changes in the lipid metabolism and hyperuricemia;
4. Family antecedents.

Regarding our study, out of 93 patients with VCR obstruction or ram VCR, 61 (53%) presented high blood pressure; 10 (8%) patients had diabetes mellitus; in 23 (19%) patients, the level of cholesterol was above 220; and in 10 (8%) patients, the level of triglycerides was above 160. The level of glycaemia was above 105 in 14 patients (12%).

Carotid doppler ultrasound can be used for the evaluation of the atherosclerotic disease:

1. At the level of ACI - hyperechogen - heterogeneous formations of 6/2,5mm.
2. Hyperecogen formations of 2,5 and 5 mm at the level of ACC and ACI.
3. Right ACI - hyperechogen heterogeneous formation of 2/6mm.
4. At the level of the ACI left bulb - hyperechogen formation of 1,4-3,7mm.
5. Important impregnation at the level of the ACI formation of 2,5-6,5mm.
6. Echogenous arterial walls, without signs of stenosis or occlusion.
7. Arterial walls with moderate ASC impregnation; on the posterior wall of the carotidal bulb - right hyperechogen heterogeneous formation of 2,2/6,5 mm.
8. Arterial walls with moderate ASC impregnation. At the level of the posterior wall of the left carotidal bulb – nonobstructive formation of 1,7/3,7mm.
9. At the level of the right carotidal bulb - hyperechogen, homogenous and heterogeneous formations of 3 to 4, 8 mm, which lead to stenosis>60%.

V. BIOLOGICAL EXAMINATIONS

The standard biological examination. Firstly, it includes a metabolic examination with the dosage in the percentage of the total lipids in blood, of the total cholesterol, of triglycerides and of the glycaemia, urea, creatinemia and of uricemia.

The haematological examination – blood formula, hematocryte, the number of thrombocytes and protein electrophoresis. The study of haemostasis contains: a percentage of prothrombin, fibrinogen dosage, a study of the blood viscosity (AP, APPT, INR). Upon the occurrence of abnormalities, which indicate a haematological disease, complementary examinations are required within specialized setting.

CONCLUSIONS

Ophthalmologic, fluorescein angiogram, clinical, biological examinations are reunited for the classification of the clinical and fluorescein angiogram forms of the vein occlusions and for the selection of the therapeutic indications.

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