

RETINAL CHANGES IN ECLAMPSIA

A Study of 100 Cases

by

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Introduction

Eclampsia is one of the major obstetrical problems encountered in the developing countries like India. Pre-eclampsia associated with convulsions and coma is termed as eclampsia. The retinopathy of toxemia of pregnancy in its early stages is associated with angiospasm and narrowing of arterioles, and in later stages is characterised by the presence of haemorrhages and exudates, frequently accompanied by edema, occasionally so massive as to result in extensive exudative retinal detachment. In eclampsia, the toxemia may produce apart from the above findings a sudden attack of blindness, ptosis, pupillary nystagmus or mydriasis leading to absolute pupillary paralysis (Duke Elder, 1976).

Only two reports are available on this subject in Indian literature (Francis, 1959 and Shukla and Prasad, 1976). Both of them have reported retinal changes in

few cases of eclampsia (10 and 11 cases respectively) along with pre-eclampsia. Hence, it was considered worthwhile to document the results of on retinal changes in 100 cases of eclampsia.

Material and Methods

One hundred cases of eclampsia admitted in the Maternity Ward (Eclampsia room) of Govt. General Hospital, Kakinada, during the period of 2 years, from January 1980 to December 1981, were examined for retinal changes. Age and gravida of patient, period of gestation, blood pressure, edema and albuminuria were noted in all the cases. Fundus examination was done with direct ophthalmoscope after dilating pupils with 10% drosyn (Phenylephrine) drops. Any visual symptoms or headache, either before or after delivery, were also noted.

Observations

The patients in the present study were aged between 16 and 35 years with maximum number (69%) in the age group of 16-20 years. Seventy-five patients were primis, 20 were mults and 5 were grandmults (Table I). Some of the later group of patients gave history of pre-eclampsia

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TABLE I
Age and Gravida Distribution

Age in years	Gravida					Total
	Primi	Second	Third	Fourth	Fifth	
16 - 20	65	4	-	-	-	69
21 - 25	9	6	5	-	-	20
26 - 30	1	1	3	2	-	7
31 - 35	-	-	1	1	2	4
Total:	75	11	9	3	2	100

in the previous pregnancies. All the patients were in the last trimester of pregnancy and they were followed up to puerperium.

Out of 100 patients examined, 72 showed one or more fundus changes in one or both eyes, and in the rest 28 patients the fundus were normal. Various retinal changes observed are shown in Table II.

Retinal changes were found more frequently in elderly patients, in multis and in patients with blood pressure more than 160/100 mm Hg. (Table III). The highest reading of systolic blood pressure was 210 mm Hg. and diastolic 150 mm Hg.

TABLE II
Various Retinal Changes in Eclampsia*

Type of retinal change	No. of cases
Narrowing of arterioles	58
Spasm of arterioles	9
Spasm of central retinal artery	3
Sclerosis of arterioles	5
Retinal edema	34
Haemorrhages	10
Exudates	6
Macular edema	8
Brownish red spot in macula	3
Blurring of disc margins	4
Pallor of optic disc	12

* Some of the patients showed more than one change in the fundus of one or both eyes.

TABLE III
Relationship of Retinal Changes With Age and Gravida of Patients, and Severity of Hypertension in Eclampsia

Clinical parameter	Total No. of cases	No. of cases showing fundus changes	Percentage
<i>Age</i>			
16-25 years	89	62	69.6%
26-35 years	11	10	90.9%
<i>Gravida</i>			
Primi	75	48	64.0%
Multi	25	24	96.0%
<i>Blood Pressure</i>			
Below 160/100 mm Hg.	46	20	43.5%
Aove 160/100 mm Hg.	54	52	96.3%

Discussion

The retinal vascular changes depend on the level of the blood pressure and are liable to occur when the systolic blood pressure is above 160 mm Hg. and diastolic is above 100 mm Hg. Retinal changes are marked when the blood pressure is 200/130 mm Hg. or over, and the degree of severity runs parallel to the severity of blood pressure (Sorsby, 1972).

As early in 1933, Wägener stated that spasm and narrowing of retinal arterioles is the most common and early finding in the fundus of patients with toxemia of pregnancy. In our study also, the commonest finding of narrowing of retinal arterioles (58%). In some of the patients, this was associated with other changes viz., spasm of arterioles in 3 cases, edema of retina in 22 cases, haemorrhages in 10 cases and exudates in 6 cases. Focal narrowing in one of the branches of arterioles was seen in 17 cases and it was found mostly around the optic disc and in the nasal branches.

Three patients were admitted with convulsions and marked diminution of vision after delivery outside the hospital. There was spasm of central retinal artery in both eyes giving the appearance of diffuse pallor of the disc and retina with a brownish red spot in the macular area in all the cases. All of them had blood pressure more than 170/110 mm. Hg. With the institution of 1 cc. of retrobulbar injection of duodelan (Isoxsuprin) in both eyes followed by Inj. duodelan 1 cc. I.M. b.d. along with antihypertensive drugs and sedatives, the spasm of central retinal artery disappeared within 48 hours and there was no visual impairment at the time of discharge. As the patients were in full sedation, vision could not be assessed ac-

curately before starting the above treatment.

Retinal edema was observed in 34 cases in the current study. In 4 patients, retinal edema alone was seen without any other change in the fundus. Carwin (1927) opined that the earliest change in the fundus was retinal edema in these patients, and it often precedes spasticity, retinal haemorrhages and exudates. In early stages of edema of retina the portion involved appears milky and on close examination with best focus of ophthalmoscope its surfaces shows faint striations running in the direction of nerve fibre layers (Hellman and Pritchard, 1971).

In 4 patients, the retinal edema was so severe that the disc margins were not clearly visible. There was associated edema of the macula also in these cases. The blood pressure in all of them was more than 180/120 mm Hg. All of them had headache also. Four more patients had macular edema; in 2 of them exudates were present and in the other 2 haemorrhages were seen. None of them showed any evidence of retinal detachment. Vision was grossly diminished to counting fingers in all the above 8 cases. As the patients were in sedation, vision could not be recorded accurately.

Basing on the ophthalmological findings, immediate termination of pregnancy was done in all of them under the cover of antihypertensive drugs. After the delivery, the blood pressure readings were much less than the initial readings, and oral corticosteroid therapy was started for the absorption of macular edema. All the patients regained normal vision in a period of 10-14 days and fundus examination at the time of discharge showed complete resolution of macular edema in both eyes. The steroids were tapered off

depending on the improvement of the vision and they were stopped after one week of the discharge of the patient.

In 1 to 2% of cases of eclampsia, amaurosis makes itself manifest as soon as the patients begin to arouse from coma. Most frequently, the disturbed vision is caused by edema of retina which usually disappears spontaneously. The blindness is usually transient and returns to normal within a week (Hellman and Pritchard, 1971).

Mathew *et al* (1975) have reported amaurosis in 2 cases of eclampsia; 1 of them regained normal vision within 24 hours after delivery and the other patient did not improve to normal vision, as she developed optic atrophy in both eyes.

Occurrence of retinal detachment in cases of eclampsia with hypertensive retinal changes has been described in the literature, but Oliver and Uchenik (1980) have reported a case of bilateral exudative retinal detachment in eclampsia without any signs of hypertensive retinopathy. Fluorescein angiograms during the acute stage of the disease showed normal retinal vasculature and widespread choroidopathy, probably of vascular origin causing massive exudation to the subretinal space. Prompt recovery with good visual acuity occurred after the pregnancy ended. The only residual findings were diffuse mottling of the fundus secondary to pigmentary migration in the choroid and in the pigment epithelium of the retina disclosed by fluorescein angiography.

The presence of changes in the arterioles of retina and haemorrhages in retina may probably indicate similar changes occurring in the placenta. The

well being of the foetus depends on the placental circulation which can be indirectly assessed by seeing the circulation in the retinal arterioles with the help of ophthalmoscope. It was observed in the present study that majority of patients with severe narrowing of arterioles, haemorrhages and exudates in retina delivered still borns, probably due to anoxia as a result of impaired placental circulation.

Summary

Out of 100 cases of eclampsia, examined for retinal changes, 72 showed one or more changes in the fundus in one or both eyes. The most common change observed was narrowing of retinal arterioles (58%). Spasm of central retinal artery was seen in 3 patients which was relieved completely, without any visual impairment, by intensive medical treatment. Macular edema associated with other changes was seen in 8 patients who required immediate termination of pregnancy to save vision. The degree of retinal changes were found to be in parallel to the severity of blood pressure in eclampsia.

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